CITY OF PORTLAND, MAINE
PLANNING BOARD



Brandon Mazer, Chair
Maggie Stanley, Vice Chair
Sean Dundon
Bob Dunfey
David Eaton
David Silk
Austin Smith

AGENDA
PORTLAND PLANNING BOARD MEETING

The Portland Planning Board will hold a meeting on Tuesday, February 25, 2020, ROOM 209, 2nd Floor, City Hall, 389 Congress Street. **Public comments will be taken for each item on the agenda during the estimated allotted time and written comments should be submitted to planningboard@portlandmaine.gov**.

WORKSHOP - 4:30 PM

i. Level III Site Plan & Master Development Plan; 1 Portland Square; North River IV, LLC., Applicant. (estimated time 4:30 - 5:30 p.m.) The Planning Board will hold a workshop to consider a revised Level III Site Plan and Master Development Plan for the Portland Square development, a phased mixed-use project located at 1 Portland Square. The 6.45 acre site is zoned B-3 and is bound by Spring, Commercial, Center, Cotton and Cross Streets.

ii. Level III Site Plan; 113 W. Commercial Street; FDS JBB Portland, LLC., Applicant. (estimated time 5:30 - 6:30 p.m.) The Planning Board will hold a workshop to review a proposal for a development of a two story, 62,300 square foot medical clinic and associated site improvements. The subject property is 366,067 square feet in size and is zoned B-5b.

iii. Level III Site Plan; 100 Andover Road; MaineHealth dba Maine Behavioral Healthcare, Applicant. (estimated time 6:30 p.m.) The Planning Board will hold a workshop to review a proposal for the development of a 28,200 square foot medical office building. The subject property is 9.3 acres in size and is zoned I-M.

PUBLIC HEARING - 7:30 PM

1. ROLL CALL AND DECLARATION OF QUORUM

2. COMMUNICATION AND REPORTS

3. REPORT OF ATTENDANCE AT THE MEETING HELD ON FEBRUARY 18, 2020

Afternoon Workshop
Recode: Dundon, Dunfey, Eaton, Mazer, Silk and Stanley present; Smith absent.

4. REPORTS OF DECISIONS AT THE MEETINGS HELD ON FEBRUARY 18, 2020

i. There were no public hearing projects on the agenda to report on.

5. NEW BUSINESS

i. Level III Site Plan; 175 Fore River Parkway; Northern Light Mercy Hospital, Applicant. (estimated time 7:30 p.m.) The Planning Board will hold a public hearing on a proposal for a 20,140 square foot hospital building expansion, a new 34,987 square foot ambulatory surgical center, and additional campus parking, along with modifications to campus driveways and associated site improvements. The subject property is a 33.5 acre medical campus zoned I-L, C26 and I-H.

Memorandum
Planning and Urban Development Department
Planning Division

To:	Sean Dundon, Chair and Members of the Portland Planning Board
From:	Matthew Grooms, AICP, Senior Planner
Date:	February 21, 2020
Re:	Level III Site Plan and Master Development Plan, Portland Square, North River IV, LLC
Project #:	PL-000599-2019 and
Meeting Date:	February 25, 2020

I. INTRODUCTION

North River IV, LLC has submitted a Level III site plan and Master Development Plan (MDP) application for a phased mixed-use redevelopment of a two-block area (existing surface parking tied to Portland Square One and Two) in Portland's Downtown and Old Port district.

As proposed, the Master Development Plan includes four separate phases, five new buildings and a development scheme consisting of 135-room hotels, 502,067 square feet of office space, 68,899 square feet of retail space, 58 apartments (one- and two- bedroom) and 1,087 structured parking spaces.



Figure 1: Development Site in context

Simultaneously, a site plan application for Phase 2 of the development, encompassing a seven-level, 851 space parking garage with commercial and office wrap along with a separate eight-story mixed-use development consisting of ground level commercial and upper-level office use has also been submitted.

Given the overlap between the MDP and Level III site plan application, these two applications will be reviewed simultaneously. This memorandum will provide an overview of review criteria compliance for both the MDP and Level III site plan and is anticipated as the last workshop prior to the public hearing for both applications. A total of 213 notices were sent to property owners within 500 feet of the site and a legal ad ran in the *Portland Press Herald* on February 15th and 16th. A Neighborhood Meeting was held on May 22, 2019 for the MDP, and on January 30, 2020 for the site plan. The meeting notes are provided (Applicants Submittal (Combined Documents).

Applicant: North River IV, LLC, Christopher Flagg

Consultants: Stephen Weatherhead, Winton Scott Architects; Patrick Carroll, Carroll Associates; Barry Sheff, Woodard and Curran; John Swan, Owen Haskell, Jacques Dan, North River Company/Waterfront Maine

II. PROJECT DATA (MDP)

Existing Zoning	B-3 Downtown Business, DE Overlay, PAD, Old Port Historic District		
Existing Use	Surface Parking Lot (542 spaces)		
Proposed Use	Office Space	525,542 SF	
	Retail Space	53,269 SF	
	Apartments	82 (1- and 2- bedroom units)	
	Hotel	135 Rooms	
	Structured Parking	1,236 spaces	
Property Size	6.45 acres		
	Existing	*Proposed*	*Net Change*
Building Footprint	42,643 SF	187,833 SF	145,190 SF
Building Floor Area	273,191 SF	1,047,859 SF	774,668 SF
Impervious Surface Area	225,000 SF	300,000 SF	50,000 SF
Parking Spaces	584 spaces	1,236	652
Bicycle Parking Spaces	10	98	88

Level III Site Plan

Existing Zoning	B-3 Downtown Business, DE Overlay, PAD	
Existing Use	Surface Parking Lot (542 spaces)	
Proposed Use	Office Space	159,026 SF
	Retail Space	21,545 SF
	Structured Parking	851 spaces
Property Size	2.26 acres	

III. SCOPE OF MASTER DEVELOPMENT PLAN REVIEW

A Master Development Plan is a regulatory option for sites with one acre or more in cumulative lot area that is designed as a cohesive and integral development program consisting of multiple buildings and associated site improvements, built in phases over an extended timeframe (Sec. 14-522).

Master Development Plan submission requirements are purposefully not as detailed as Site Plan and (when applicable) Subdivision requirements, which will be required before any development on the site can proceed. When reviewing and making the eventual decision of this application under the review standards of Section 14-524.a.3.ciii, Section 14-524.f.iv (*Planning Board Master Development Plan Decisions*) states:

> *The Planning Board shall approve, approve with conditions, or deny a Master Development Plan application based upon the applicable review standards. An approval, including an approval of waivers, establishes the general parameters to be adhered to for the development, including the supporting documentation for floor area ratio and/or residential density, general types of uses, building coverage, generalized open space plans and infrastructure systems.*
>
> *A Master Development Plan approval shall not be construed as final authorization of the development. Approval shall confer pending proceeding status upon the development with the effect of maintaining the applicability of regulations in effect at the time of approval for as long as the master Development Plan approval remains valid, including permissible extensions if granted.*

With this framework thus established, the master development plan, once approved, may be considered as a set of guidelines that govern and inform future phases of the development. The Planning Board, in its review, is approving a programmatic concept that establishes the major brush strokes or elements of the project, such as collective infrastructure needs, overall site configuration and disposition, connectivity both within the project site and to the surrounding area, typical materials and their contextual appropriateness, scale and massing, and interface of proposed uses within the built environment.

The parameters established by the MDP provide a developer with a certain level of flexibility that allows a planned development to react and respond to contemporaneous trends while also providing the city with significant predictability in terms of future built form and function. For example, under a future buildout scenario, the breakdown of general uses/total square footage/building footprint/design elements etc, may be slightly altered and still found to be generally consistent and compatible with the approved MDP. However, elimination of major project components, say for example a predominant pedestrian zone or proposed activation at ground level would be considered inconsistent and require amendment of the MDP.

IV. PLANNING BOARD WORKSHOPS

The Planning Board has held three workshops on the Portland Square MDP. The first two workshops, held on May 28, 2019 and August 13, 2019 respectively, focused on site and building design with additional discussion on program of uses, infrastructure improvements and phasing. The third workshop, held on October 8, 2019 focused on compliance of the project with Traffic Movement Permit (TMP) requirements and a discussion of Transportation Demand Management (TDM) measures to be implemented. For a complete overview of those meeting materials, please refer back to the archived agendas for those dates. https://www.portlandmaine.gov/129/Agendas-Minutes.

The Board, in its review of the master development plan, has generally been supportive of the project, in particular redevelopment of two large surface parking lots with mixed-use program, strong emphasis on ground-level activation and pedestrian oriented spaces and networks, and the cohesion and massing of the lower block (between Fore Street and Commercial Street).

A consistent sentiment raised in the first three workshops was a concern that the proposed phase two parking garage was too large, occupying the entirety of the upper block (between Spring Street and Fore Street) with limited ground-level activation along Spring Street and no mid-block permeability. At originally more than 1,000 parking spaces, the Board noted that in the event other phases don't proceed, the parking garage would provide substantially more parking than is required for the existing Portland Square tenants. Aside from feedback related to the scale and use of the upper block site, the Board also directed the applicant to carefully consider ground-level treatment along B-street facades (Cotton, Cross and Center Streets), the interface of building/tenant space entrances with adjoining streets, the use of specialized architectural treatments at the various building corners and plans for interim off-site parking while the garage is under construction.

Regarding traffic and TDM measures, the Board concurred with staff in asking that the applicant's traffic simulation model be updated and calibrated so that traffic from other sources be factored in, that the Gorham's Corner intersection (Pleasant, Danforth, Center, Fore, York Streets) be further evaluated for improvement, that the high crash location (HCL) at York Street and Park Street be reassessed for mitigation.

V. REVISED MASTER DEVELOPMENT PLAN

When submitted in April of 2019, the Portland Square MDP consisted of five separate phases, intended to be built out over a ten-year timeline, with much of the infrastructure improvements taking place in the first two phases.

Prior Phasing Plan:

Phase 1: 135-room hotel with ground level commercial space and roof bar.
Phase 2: 1,000 car parking garage with office, commercial and residential wrap.
Phase 3: Office building with ground level commercial space, structured parking and construction of pedestrian way.
Phase 4: Residential building with ground-level commercial space.
Phase 5: Two office buildings atop upper block parking structure.

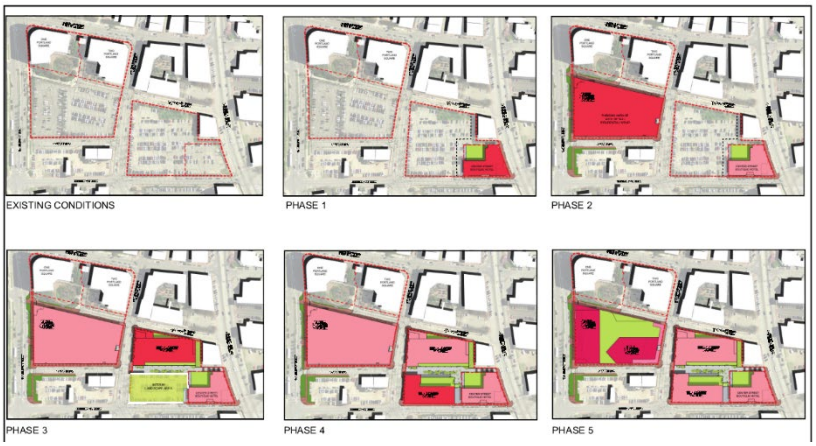


Figure 2: Prior Phasing Plan

Following the last workshop in October, the applicant communicated to staff that the development team was in the process of redesigning the upper block to construct a stand-alone office building and smaller parking garage. The proposed redesign, which is discussed in more detail below, addresses many of the concerns that had been previously raised, namely the lack of activation along Spring Street, which would now be fully activated, and the lack of mid-block permeability. Staff met with the applicant on November 12, 2019 to preview the changes and provide initial feedback, and as stated above, a formal resubmit of both the MDP and Level III site plan associated with the upper block development were received in late December. As a result of this programmatic change, the phasing plan has been revised as follows:

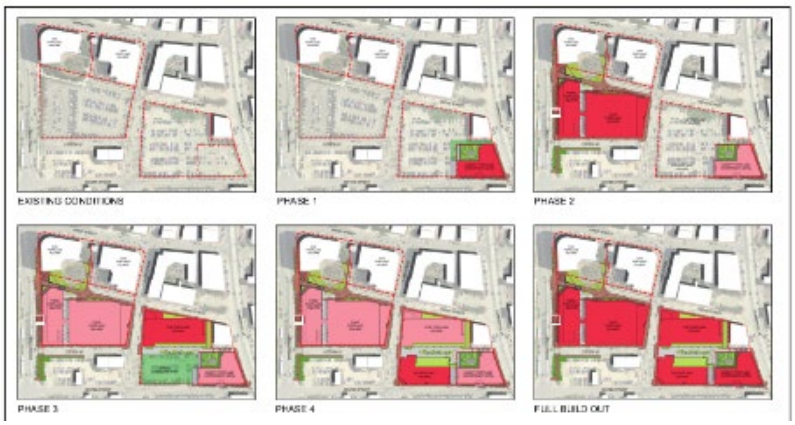


Figure 3: Updated Phasing Plan. Note changes to upper block.

Revised Phasing Plan:

Phase 1: Hotel with ground level commercial space and roof bar.
Phase 2: Stand-alone office building with ground level commercial, 851-car parking garage with commercial and office wrap. Building are separated by service corridor.
Phase 3: Office building with ground level commercial space, structured parking and construction of pedestrian way.
Phase 4: Residential building with ground-level commercial space.

VI. ASSESSMENT OF COMPLIANCE WITH MASTER DEVELOPMENT PLAN CRITERIA

In response to this feedback, and on account of the major programmatic shift in the project, the applicant resubmitted materials in late December which substantially address the concerns raised by the Board and staff in previous workshops and staff communications. In particular, site and building design are well integrated with the surrounding environment and both individual uses and buildings are thoughtfully articulated. The scale and massing concerns related to the upper block have been effectively mitigated with this redesign, and the materials and

architectural elements chosen present a clear and cohesive development scheme that honestly express the various uses being proposed.

Section 14-524 of the city's land use code establishes standards under which Master Development Plan applications must be reviewed. Per this section, Master Development Plans shall adhere to the following requirements:

a. *A designated tract of land consisting of a parcel or parcels of contiguous land or land on both sides of a street, totaling one (1) acre or more;*

   Staff Comment: The project area totals 6.45 acres spread across multiple contiguous parcels and separated by Fore Street. The property meets this requirement.

b. *Developed in a comprehensive, design-integrated manner, according to an overall master development plan;*

   Staff Comment: The project's site and building design elements have been extensively reviewed. Individual buildings are designed so as to not only relate to one another but to the surrounding built-environment as well. Uses are clearly articulated through architectural elements and one can easily move throughout the site and into adjacent areas by means of improved pedestrian and vehicular connections. The MDP complies with this requirement.

c. *Consistent with the City's Comprehensive Plan and consistent with City Council approved master plans and facility plans for off-premise infrastructure, including but not limited to, trails, pedestrian and bicycle network, view corridors, environmental management, sewer and stormwater, streets, or other facilities (see Section 15 of the Technical Manual);*

   Staff Comment: The proposal to redevelop an underutilized property in Portland's downtown with a mixture of uses that will support Portland's economy, future housing needs, demand for additional amenities and services, and use of structured parking over surface parking are all supported by Portland's Plan 2030. In addition, the applicant is continuing to work with staff on the final design of their Spring Street frontage, including final parking layout and bicycle facilities details. The MDP complies with this requirement.

d. *Developed so as to locate buildings and improvements in a manner that provides usable open space, preserves significant natural features, as defined by the site plan ordinance standards, and preserves existing trees to the maximum extent possible;*

   Staff Comment: The property is almost entirely developed, with minimal landscaping around the perimeter, and more substantially behind the Richardson Wharf building and where the discontinued portion of Cross Street meets Spring Street. The MDP eliminates much of the existing landscaping in order to meet the 5-foot build-to-line requirement of the B-3 zone, and instead, proposes street trees in accordance with City standards and enhanced landscape areas within the lower-block pedestrian corridor and within and adjacent to the existing pocket park where Cross Street terminates near Spring Street, adjacent to the existing Portland Square One and Two buildings. The site does not contain significant natural features and meets the intent of this requirement.



Figure 4: Updated Landscape Plan

e. *Ordinance standards for designated landmarks or for properties within designated historic districts or designated historic landscapes, if applicable. When proposed adjacent to or within one hundred (100) feet of designated landmarks, historic districts or historic landscapes, the Master Plan shall be developed so as to be generally compatible with the major character-defining elements of the landmark or portion of the district in the immediate vicinity of the proposed development;*

Staff Comment: On July 24th, the Historic Preservation Board conducted an advisory review of the Portland Square MDP. The advisory review was pursuant to the site plan ordinance's "100-foot rule" which requires that the Historic Preservation Board or Staff provide input to the Planning Board with respect to the proposed development's "general compatibility with the major character-defining elements" of adjacent landmarks or historic districts.

In this case, a portion of the lower development block is located within the boundary of the Portland Waterfront Historic District and other portions are located within 100 feet of the boundary.

The components of the applicant's overall development that fall squarely within the historic district boundary are the hotel (which has already been reviewed and approved by the Historic Preservation Board), the grand stairs that will immediately abut the hotel, and the rear elevation of the office building located at the corner of Fore and Cross Street. The proposed residential structure at the corner of Fore and Center Street abut the district boundary on Center Street. In sum, a substantial portion of the lower block redevelopment will be located within or within immediate proximity of the Portland Waterfront Historic District.

The upper block development will affect only one designated historic structure, the 2 ½ story Tracey-Causer Building at the corner of Fore and Cotton Streets. As such, the issue of compatibility is more limited for this block. The component of the proposed development with the most immediate visual relationship to the Tracey-Causer Block will be the parking garage's retail/residential wrap that fronts onto Fore Street.

In conducting its advisory review, the Board fully recognized that at this Master Development Plan stage of project planning, the design of individual structures is still at a conceptual level and that numerous design details remain to be confirmed. As such, the Board focused its review on "high level" design considerations. The Board was also mindful of the fact that the allowable building heights per zoning for much of the development site exceed the height of historic structures in the immediate vicinity. They recognized, for example, that it would be unlikely that the proposed development could be found compatible with the diminutive Tracey-Causer Block in regards to building height and overall scale. As such, other visual characteristics of the context (material palette, proportions, fenestration, rhythm of solids and voids, etc.) become more important considerations in achieving reasonable compatibility.

The Historic Preservation Board response to the proposal was generally very favorable. One member noted that the conceptual design proposal was remarkably successful given the size and complexity of the overall development program, the number of uses proposed, the number of individual street frontages that needed to be addressed, the need to architecturally differentiate the buildings and the need to include structured parking for 1300+ cars within the two block site. Board members agreed that the "big moves", as illustrated in the MDP drawings, were successful. These included appropriate siting for the individual uses, with the residential building located at the west end of the lower block, the retail/residential wrap of the upper block facing Fore Street, and the elevations of the 7-story parking garage facing Spring and Cotton.

Board members also found the visual relationship of the project to Commercial Street's historic streetscape successful, in that the proposed structures immediately north of Commercial Street did not loom over the historic warehouses lining Commercial or visually distract from them and were likewise enthusiastic about the pedestrian courtyard that will provide mid-block permeability and pedestrian activity within the interior of the lower block.

Given the conceptual nature of the individual building designs at this time, Board comments were necessarily general. The Board understood that there will be an opportunity for a more detailed advisory review when individual projects are brought forward for site plan review. And for components of the development located *within* the historic district boundary, such as the monumental stairs descending to Commercial Street, the Board will be conducting a full review.

f. An efficient use of land which properly considers topography and protects significant natural features including, but not limited to, waterways, wetlands, floodplains and wildlife;

Staff Comment: As mentioned above, the site does not contain significant natural features, and the proposed design thoughtfully incorporates the grade change into its development program. For example, at the corner of Cross and Spring Street, a view easement is proposed to be enhanced. Within the lower block, a monumental external stairway is proposed, to bridge the grade change between Fore and Commercial Street, and bridge that gap, providing valuable outdoor space available to the general public.

g. An efficient use of land demonstrating full coordination of its own site development and surrounding context including, but not limited to, the land uses and functions contemplated, architecture, open space and pedestrian networks, vehicular access and circulation, and all other infrastructure.

Staff Comment: From a design and land-use perspective, the MDP successfully packages a number of different uses important to the vitality of Portland's downtown, including substantial new office space for local employers, a convenient location for additional off-street parking for not only development tenants but as well for occasional public use, opportunities for new downtown housing, and different sized commercial spaces, ranging from small stands within the pedestrian corridor to a much larger spaces suitable to a small urban grocery store. Utility infrastructure will be comprehensively updated to accommodate future phases of the development. The development incorporates a number of open spaces for people to congregate and features strong pedestrian connections both within the development and to adjacent areas of the City.

From a vehicle circulation perspective, the development introduces new connectivity with Cotton Street being continued through to Spring Street, and vehicular entrances to the various garages are planned so as to minimize conflict with pedestrians and limit vehicle queuing throughout the development area.

Based upon these factors, staff finds that the MDP as proposed complies with this requirement.

h. Linked and coordinated with surrounding land uses, infrastructure and off-site public facilities, including but not limited to the public-school system, where appropriate, in a manner that is safe, efficient, non-injurious to the public, and an improvement or benefit to the public where possible; and

Staff Comment: Based upon the program of uses, the development is well integrated with surrounding land-uses and is not anticipated to have a significant impact on public facilities such as schools, though it is well situated for residents to access such facilities.

i. Designed with sizing of street and other infrastructure systems to accommodate the overall service demand of the Master Plan;

Staff Comment: Regarding utility infrastructure, the applicant has provided a plan to comprehensively update infrastructure in the area of the project to serve the development. For a discussion of traffic mitigation and demand management, please see the discussion below.

j. Designed to create a street grid pattern that reflects average city block sizes of the neighborhood for street connectivity;

Staff Comment: The MDP illustrates a strengthening of the city's street grid, with Cotton Street being reconnected to Spring Street, as likely a new two-way street. As proposed, on-street parking along Spring Street would be converted from front-in angled parking to parallel, which would make available additional space for sidewalks. The lower block under this proposal is bifurcated by a shared-access pedestrian corridor providing mid-block permeability, and sidewalks generally are being widened.

k. Designed as to create a cohesive identity through building scale, massing, and articulation; use of quality exterior materials, architectural detailing at pedestrian scale; consistency of design and materials for

streetscape and pedestrian amenities; framing of outdoor open space and linkages; a clear conveyance of the function and significance of various buildings, entrances, and features; and to generally comply with design and development standards of the zone in which it is located;

Staff Comment: A design review was completed on February 12, 2020, conducted by Caitlin Cameron, Urban Designer, Deb Andrews, Historic Preservation Program Manager and Matthew Grooms, Planner. The City's Urban Designer produced a memo to articulate the findings of that review (Attachment 1).



Figure 5: Rendering of the Upper Block office building

- Relationship with Context:
  - **Transition**: The residential building was revised to be simpler and more consistent throughout – staff continue to support the location of this building on the block to best relate to and transition from this large-scale contemporary building to the small-scale, historic fabric.



Figure 6: Rendering of the park and alley between the upper block office building and garage

  - **Not all corners need special emphasis**. From an urban design perspective, emphasis at Center Street is the most appropriate location (though a chamfered corner is not the only method to achieve this emphasis). The ground floor in this location is also shown as recessed which staff question in terms of relationship of the building to the street and overall massing relationship to the corner. **The mid-block corner on Fore was revised to remove the curved corner as preferred by staff/Board.** The building face at Spring Street includes an angled massing to the mid-block connection – due to the massing and programmatic changes to the Upper Block, this no longer is a primary entrance to the office building. This gesture helps alleviate the length and scale of the building on Spring Street. By setting back this corner of the block, a street-facing pedestrian



Figure 7: View from the corner of Spring and Cotton Streets

space is created. This will be an appropriate pedestrian-scale amenity appropriately placed for circulation and passive use while also creating a "forecourt" to the large-scale building and indicate a "turning of the corner" to the mid-block passage area.

- **Streets:** The "B streets" are not expected to maintain the level of activity and pedestrian amenity found on Spring, Fore, and Commercial streets, and challenged by the grade change. Refer also to the Historic Preservation review on this topic. For these streets to be less active is appropriate. The interface on Fore Street is active and generally meets the PAD criteria in both blocks. Spring Street is considered an "A" street – **the program change now allows this ground floor to be occupied with retail or other active uses. The sidewalk and building interface also reflect this with human-scaled canopies, landscape and seating elements to provide enclosure between the large-scale building and the wide street. The on-street parking also provides a transition and buffer between the sidewalk and street. The project will increase the level of activation and pedestrian amenity appropriately for a PAD encouragement street which is interpreted to be the aspirational vision for building relationship with the pedestrian level on Spring.**

- Circulation:
  - The Lower Block: Staff support the block layout with the mid-block circulation. The grade change is significant and during Site Plan review, further review and iteration should make this connection as hospitable, active, legible, and secure as possible. For example, differentiating the office entries from the retail entries, indicating from the street that this is public space, designing the retail spaces to be feasible, providing sight lines that create security and comfort.
  - **The Upper Block was revised and now breaks the block into two buildings – the office building facing Spring Street, and the garage with an active liner facing Fore Street. This is a positive change in terms of scale, pedestrian scale activation, and creates a mid-block alley. This alley should continue to be designed keeping in mind CPTED and safety criteria.**
  - **Clarify the entrance locations. The locations and design of these entrances should be differentiated according to use and include strategic emphasis to contribute to the urban scale circulation and legibility of the uses and buildings. A circulation plan or site plan that indicates pedestrian entrances is requested.**

- Architectural Design: Generally, the MDP design review evaluates how the buildings relate to the streetscape/human scale from the long-views.
  - Lower Block: The residential building has a consistent material palette and character – staff support this direction. The uses of these buildings should be differentiated – the building does not feel very residential in character. **Clarification is requested regarding the entrance locations and design.** *During Site Plan review, staff would like to further evaluate the roofline, the entrance design and differentiating the residential from the commercial uses.*
  - Lower Block: The office building massing and composition transition well between the buildings in context. The fenestration, material selection and transition, and proportions on the side streets require further iteration and review.
  - Upper Block: **Staff support the recent changes to the project that have resulted in more active uses and ground floor design facing Spring Street. There is a distinguished base, middle, top**

to the building which is in keeping with the B-3 design standards. In addition, the building includes articulation and detail that provides scale and visual interest (material texture and relief, canopies, storefront). The main entrance was moved to the middle of the Spring Street façade (previously a garage driveway) which breaks up the pedestrian experience on the block and provides some symmetricality and hierarchy to the building; this is emphasized with a canopy. The brick material is now carried throughout the "middle" portion and wraps around the building whereas previously the brick was an applied veneer to the Spring Street façade. The building scale is mitigated by varying the massing of the upper floors and angling the corner of the building towards the mid-block alley. The result, however, are forms and rooflines that are complex and anachronistic with the character of buildings in Portland and the immediate context. Staff discussed with the applicant solutions for simplifying and unifying the building tops/stepback portions as much as feasible. One suggestion is to keep the material palette, including color, consistent throughout to unify these forms.

- In order to bring visual interest and scale to the less active "B" street elevations - predominantly in-active garage facades – the design uses screen devices, green screen with plantings. These are encourages, especially as they relate to the pedestrian experience recognizing that these facades will be less visible with surrounding block development. Staff suggest that the screens be revised to relate to datum lines found in the Spring Street office building.

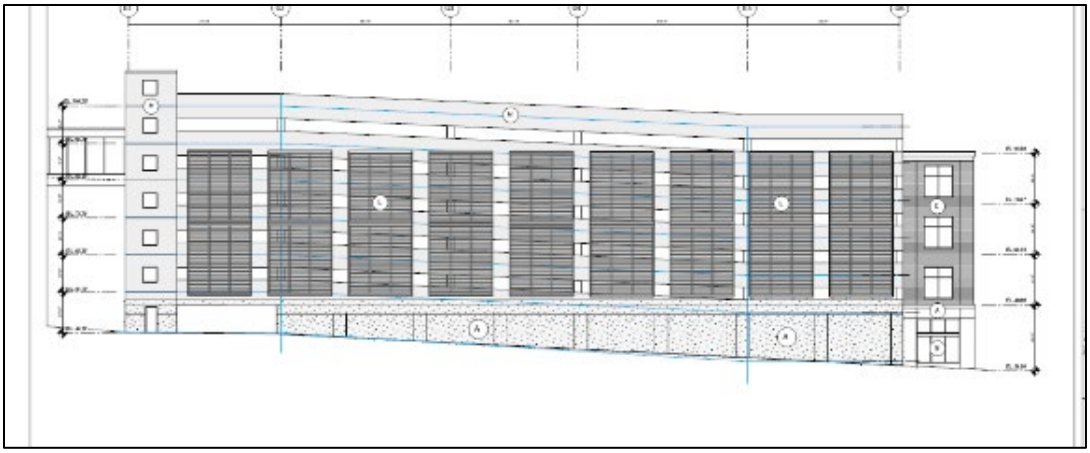


Figure 8: Image of screening along Cotton Street

- Overall, there are elements that create cohesive identity – material palette being one. Staff support the direction of the material palette and encourage further iteration that considers the simplicity of architectural expression found in the context.

- Additional Considerations
  - Refer to the memorandum from Deb Andrews for a summary of the Historic Preservation Board review regarding compatibility.
  - PAD streets: Fore, Center, Commercial; PAD Encouragement streets: Spring, Center
  - The B-3 Design Standards also look for parking structures to have the ability to convert to other uses.
  - *Staff recommend that the MDP approval define which aspects of the design are being approved in MDP versus what must be revised, reviewed, and approved at a Site Plan level.*

l. Inclusive of provisions for the ownership and maintenance of usable open space as appropriate;

Staff Comment: The lower block pedestrian corridor shall be made accessible by public access easement and the pocket park at adjacent to the upper block office building and Portland Square One and Two has been, and will continue to be maintained as a space available to the public. The MDP as proposed meets this requirement.

m. For areas proposed as future development phase(s), the proposed interim conditions shall be managed and maintained to ensure stable, safe and attractive site conditions.

Staff Comment: The proposed phasing plan addresses the interim conditions of the site, replacing existing surface parking with either building or landscaped area at the earliest practicable point in the process.

VII. TRAFFIC MOVEMENT PERMIT OVERVIEW (TMP)

As defined under Maine state statute 704—A, a traffic movement permit is required of any project that generates 100 or more passenger car equivalents at peak hour. Any project surpassing this threshold is required to make adequate provision for traffic movement of all types into and out of the project area such that any traffic increase that is attributable to the project will not result in unreasonable congestion or unsafe conditions within the vicinity of the development. For a complete discussion of the TMP process as it relates to this project, please see the staff memo for the October 8, 2019 workshop. https://portlandme.civicclerk.com/Web/Player.aspx?id=558&key=-1&mod=-1&mk=-1&nov=0.

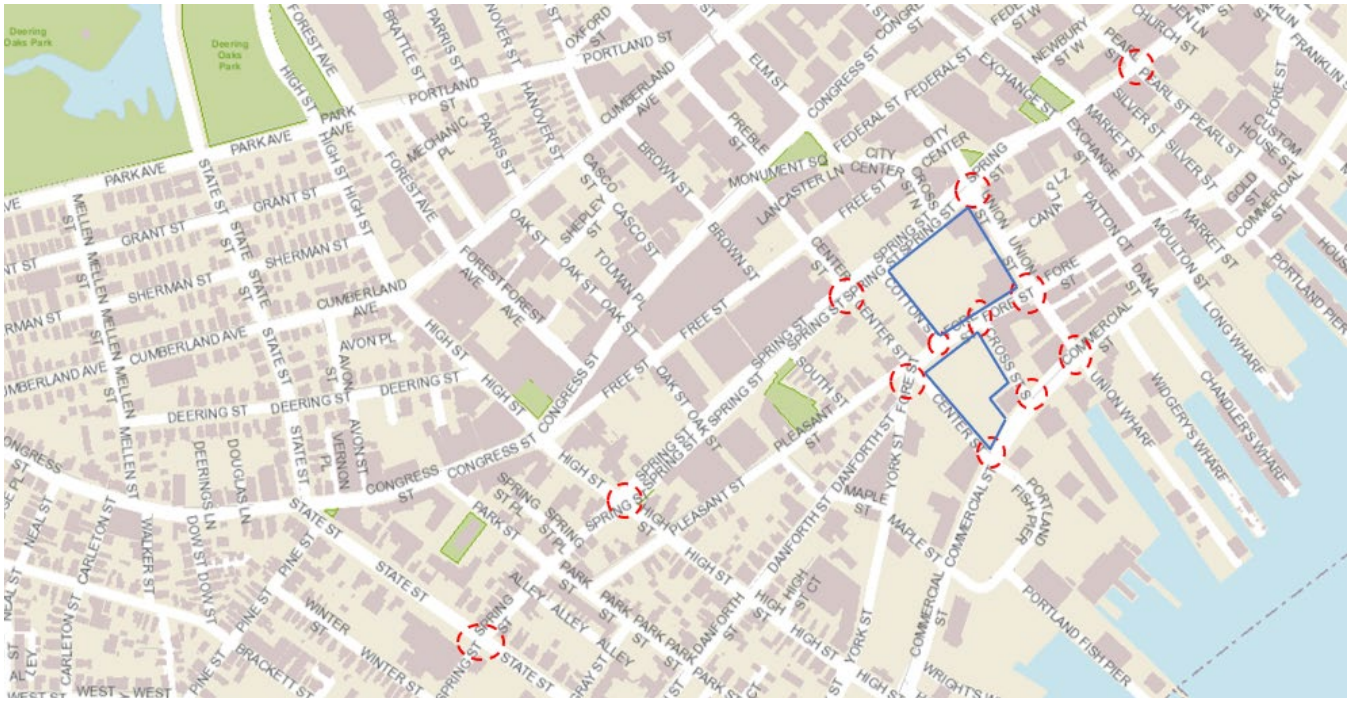


Figure 9: TMP Study Area for Portland Square with site shown outlined in blue. Note, Franklin Arterial is not shown here though is considered part of the study area.

Following the workshop in October, the applicant was advised to update their Traffic Impact Statement (TIS) to correctly assign vehicle, pedestrian and bicycle counts, calibrate their traffic simulation model to include trips from

other users as opposed to isolated Portland Square trips, provide a more robust alternatives analysis for improvements to Gorham's Corner, provide capacity analysis modeling for Franklin Arterial, and assess how other recommendations related to streetscape improvements, such changes to pedestrian phasing at the Commercial Street/Center Street intersection both with and without the westbound right-turn lane onto Center Street.

The applicant has submitted several supplemental documents intended to address these comments, and have since had to adjust their model to account for the upper block program changes and relocation of vehicle entrances into the garage. Based upon this revised information, Tom Errico, P.E. with T.Y. Lin has provided the following comments (Attachment 3):

- I continue to review existing traffic volumes and will be comparing the data provided in the Study with historical counts to confirm reasonableness. I was surprised that the data indicates the morning peak hour occurred from 8:00-9:00AM, which is later than expected. The Applicant shall provide the traffic count sheets for review.

  Status: The applicant has provided the requested counts sheets and I find the count data to be acceptable

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We request that the Study/model account for these outside influences so that system operations before and after project completion can be fully understood.
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- The Franklin Street analysis portion of the Section #7 is pending, and comments will be provided upon receipt of that information.

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  - Traffic volumes used in each of the scenarios evaluated
  - For all intersection movements on Franklin Street:
    - Vehicle Delay (in seconds)
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    - 95% Queue (in feet)
    - Spillback from one intersection to the next (if any)
  - Video of the simulation runs
  - Travel time by scenario from Commercial Street to Marginal Way

Current Status: This information was provided on February 17, 2020 and appears to comply with the additional data request. Review of the information is on-going.

VIII. TRANSPORTATION DEMAND MANAGEMENT (TDM) PLAN

In accordance with Portland's site plan ordinance, new commercial development exceeding 50,000 square feet of floor area is required to provide a transportation demand management plan, a document that outlines goals, strategies and monitoring provisions for reducing the number of peak hour vehicle trips and encouraging alternative modes of transportation. Typically, a TDM is required of new site plan applications, though both City staff and members of the Planning Board have encouraged the applicant to develop a TDM framework for the master development plan (MDP) that would govern future phases of the development. The TDM for Portland Square is included in Applicants Submittal (Combined Documents).

At the workshop in October, staff noted that the TDM Plan contained all required sections per Technical Manual requirements, and asked that multi-modal trips, accounted for within both the TMP and TDM plans, be identified clearly within each document, and that such trip reductions not count towards reduction targets for the TDM plan. Staff also requested a more robust monitoring plan which would include monitoring of demand during the construction of the Phase 2 garage. Staff also provided a number of other suggestions, such as developing tenant profiles in the future, installing electronic transportation information displays around the site and providing transportation access guides in multiples media forms.



Figure 10 Graphic showing 1/4 and 1/2 mile radius from development site in the context of pedestrian and bicycle infrastructure.

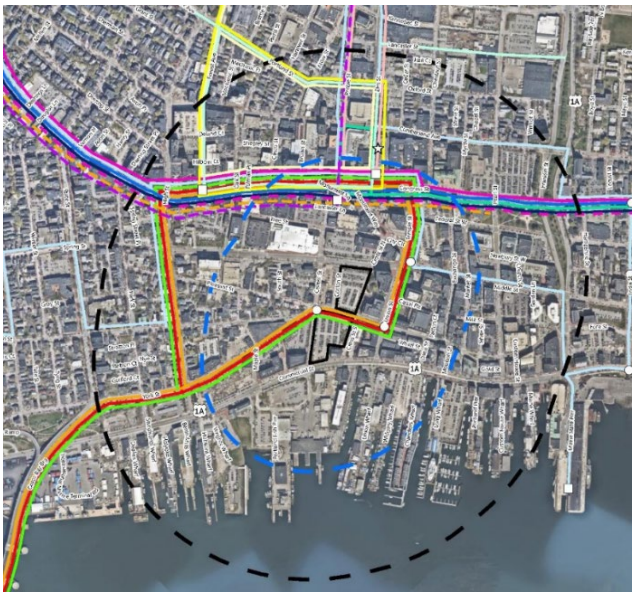


Figure 11: Graphic showing 1/4 and 1/2 mile radius from development site in the context of available bus routes.

IX. SITE PLAN REVIEW

Concurrent with the MDP application, the applicant has also submitted a Level III site plan application for Phase 2 of the development, consisting of a new eight-story mixed-use building with 144,976 square feet of office space and 17,795 square feet of ground level retail along with a separate parking structure with 851 parking spaces and 14,050 square feet of upper level office wrap and 3,750 square feet of ground-level retail space. This development occupies the upper block as referenced in the MDP application. As part of this development, Cotton Street will be extended to connect with Spring Street, enhancing the existing street grid, and sidewalks will be either improved or enhanced

along both sides of Cotton Street. Similarly, the sidewalk along Spring Street is shown as substantially enhanced, made possible by converting diagonal on-street parking to parallel parking and narrowing the street. The City continues to strive to retain on-street parking wherever possible when reviewing new development proposals, and to balance this need with other design goals. Other site improvements include new street and site lighting, enhancement of the pocket park at the terminus of the Cross Street extension, and planting of new street trees along project frontages.

A. SITE PLAN STANDARDS (Section 14-526)

The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's site plan ordinance and applicable regulations. Staff comments are listed below.

a) Transportation Standards

1. Impact on Surrounding Street Systems and Access and Circulation
   The MDP triggers a traffic movement permit (TMP) and is being reviewed in accordance with state developed guidelines. Review of TMP materials is ongoing, and staff plan to have final recommendations on traffic mitigation for the entire development scheme, available at the next meeting.

2. Access and Circulation

   a. Site Access and Circulation – The project site occupies a prominent location in Downtown Portland, with primary access to the site being from either Spring Street or Fore Street. The proposal also involves reconnection of Cotton Street with Spring Street, which should improve area-wide connectivity. Vehicular entrances to the garage are located off of either Cotton or Cross Street, and are positioned to minimize conflicts with pedestrians and reduce vehicle queueing impacts. Staff do recommend that stop bars be provided at stop-controlled approaches, and that the applicant should confirm sightlines at these locations (Attachment 3).

   b. Loading and Servicing – The redesign of the upper block improved facilities for vehicular loading and servicing, with a new service corridor and loading facilities located off of the Cross Street extension into the project site.

   c. Sidewalks – A prominent feature of this development is the area-wide improvement to sidewalks. Along all frontages, sidewalks are being widened and enhanced with planters and seating areas. A new sidewalk is being constructed along both sides of Cotton Street, and a service corridor separating the two buildings will serve as a mid-block permeability across the site. One comment from staff, is that the curb extensions shown on the site plan should be reduced in dimension. Curb extensions should extend no further than six feet into a parking lane, and associated curb radii should be designed so as to accommodate snow removal and maintenance equipment.

3. Public Transit Access
   The development is proximate to a number of public transit routes discussed in more detail within the TDM plan, which seeks to encourage public transit usage by tenants. This project is located within ¼ mile of a transit shelter and is not required to construct a new shelter.

4. Parking
   a. Vehicle – A total of 851 parking spaces are provided on-site and according to the TDM plan, should provide sufficient peak hour parking supply under a full-build out scenario of the MDP when coupled with other TDM measures.

   b. Bicycle – Upon full build-out of the MDP, there will be a total of 81 bicycle spaces, which shall include bicycle racks on Spring, Cotton and Fore Streets, as well as space within the

garage. Staff is asking that the applicant provide additional information on the total number of bicycle spaces associated with this phase.

c. Snow Storage – Given site constraints, the development will require snow removal to an off-site location.

5. Transportation Demand Management
Please see discussion of the TDM Plan above.

b) Environmental Quality Standards

1. Preservation of Significant Natural Features
The site is almost entirely occupied by surface parking, and contains no significant natural features.

2. Landscaping and Landscape Preservation
   a. Landscape Preservation – The existing pocket park located at the terminus of the Cross Street extension within the site is proposed to be enhanced under this development, and shall maintain existing landscape. Existing vegetation along the Spring Street frontage will be taken down during construction.

   b. Site Landscaping – As this is an urban infill development, opportunities for site landscaping are somewhat limited. The applicant proposes to provide street trees as required along all frontage with generously sized tree wells, and is proposing to enhance the existing pocket park on-site.

3. Water Quality, Storm Water Management and Erosion Control
Per Maine DEP Ch. 500 requirements, the project is not required to provide stormwater quality treatment, on the basis of surface parking area being replaced largely by roof area, which has significantly cleaner run-off. Michael Guethle, P.E. with Wright Pierce, has reviewed the stormwater management plan and found it to meet City standards. (Attachment 4)

c) Public Infrastructure and Community Safety Standards

1. Consistency with City Master Plans – Project is consistent with both the Comprehensive Plan and Spring Street Master Plan.

2. Public Safety and Fire Prevention (CPTED and Fire) – Staff have encouraged the applicant to consider CPTED principals in the design of the alley between the garage and office building. The Fire Department notes that E-911 addressing will need to be confirmed, and have noted that an existing fire hydrant will need to be relocated, which is shown on the applicant's plans.

3. Availability and Adequate Capacity of Public Utilities – Utility Capacity letters have been provided.

d) Site Design Standards

1. Massing, Ventiliation and Wind Impact
No adverse impacts related to massing, ventilation or wind are anticipated.

2. Shadows
No adverse impacts related to shadows are anticipated.

3. Snow and Ice Loading
No snow storage is proposed, and based upon the building's structure and roof design, no concerns related to snow and ice loading is anticipated.

4. View Corridors

There is an existing easement that protects the views from Spring Street, looking towards Casco Bay down Cross Street. This area is maintained as open, and new trees have intentionally been minimized to maintain the view.

5. Historic Resources
Deb Andrews, Historic Preservation Program Manager, has participated in all design reviews and provided advisory review comments for the development, satisfying this requirement.

6. Exterior Lighting
New street and site lighting is proposed around and within the development that conforms with Sections 10 and 12 of the City's Technical Manual.

7. Noise and Vibration
No adverse impacts related to noise and vibration are anticipated.

8. Signage and Wayfinding
No signage or wayfinding is proposed as part of this development.

9. Zoning Related Design Standards
Please see design review comments above.

X. NEXT STEPS

Staff is looking to have the Planning Board clearly define the major design elements of the project to be codified as part of the MDP approval process. These elements would carry forward as the structure of the MDP framework, which when determining overall consistency, would be considered most important. The applicant should also continue to provide information as requested for the TMP application, which should include a repackaged Traffic Impacts Statement. Staff will be looking to have the Planning Board make a recommendation on the Master Development Plan and Site Plan moving forward to a public hearing.

XI. ATTACHMENTS

Staff Attachments
1. Design Review Memo
2. Traffic Comments
3. DPW Comments
4. Civil and Stormwater Comments

Applicants Submittal (Combined Documents)
Cover Letter
Authorization Letter
Master Development Plan Checklist
Evidence of Technical Capacity
Evidence of Financial Capacity
Quitclaim with Covenant Deed
Existing and Proposed Easements & Covenants
Evidence of State or Local Approvals
Waiver Table
Consistency with City Standards
Project Design Narrative
Utilities Memo
Stormwater Management Preliminary Design Memo and Supporting Documents

Stormwater Management Plan and Supporting Documents
Pre-Development Stormwater Plan
Post-Development Stormwater Plan
Roadway & Site Design Memo
Proposed Site Lighting Memo & Supporting Documents, Cutsheets
Construction Management Plan
Site Location of Development Amendment
Preliminary Geotechnical Evaluation & Supporting Documents
Portland Water District Capacity to Serve Letter
Neighborhood Meeting Certification Materials
Response to Comments Letters

Level III Plans (Combined)
Existing Conditions
Site Plan
Grading, Drainage, and Erosion Control Plan
Utility Plan
Cotton Street Plan & Profile
Civil Details (1 – 5)
Grading, Drainage, & Utilities (C-1 – C-3)
Site Prep & Demolition Plan
Site Materials Plan
Plaza Enlargement Plan
Landscape Plan
Site Details (L4.0 – L4.1)
Planter with Integrated Bench
Monumental Stair Profiles
Site Lighting Calculation Plan
Roof Lighting Calculation Plan
Electrical Site Plan
Roof Parking Lighting Plan
Floor Plans (A1.0 – A1.10)
Building Elevations (A2.1 – A2.6)
Building Section A-A & Average Grade Calc Diagram
Renderings

Master Development Plans (Combined)
Site Plan
Conceptual Landscape Plan
Phasing
Pedestrian Circulation Diagram
Vehicular Circulation Diagram
Drainage Plan
Utility Plan
Light Canopy & Illuminated Benches
Overhead View (NE)
Street Sections

Planning and Urban Development Department
Planning Division

Subject: Design Review – 1 Portland Square Master Plan, Site Plan
Written by: Caitlin Cameron, Urban Designer
Date of Review: Wednesday, February 12, 2020

The proposed master plan for Portland Square was reviewed according to the Master Plan criteria but must also generally comply with the B3 design standards. A portion of the project area is also within the Commercial Street Historic District or within 100' of historic landmarks and will require Historic Preservation review. The review of this revised proposal was conducted by Caitlin Cameron, Matt Grooms, and Deb Andrews. The Historic Preservation Board also conducted a preliminary review on the previous version of this application – those comments remain relevant and unchanged for those portions of the project nearest Commercial Street. The greatest area of change is for the Upper Block.

Design Considerations: In Master Development Plan review, the design considerations include:

- Developed in a comprehensive, design-integrated manner
- Designed to be in conformance with Portland's Historic Preservation Ordinance standards . . . the Master Plan shall be developed so as to be generally compatible with the major character-defining elements of the portion of the district in the immediate vicinity
- Coordination with surround context including open space and pedestrian networks
- Designed to create a street grid pattern that reflects average city block sizes of the neighborhood for street connectivity
- Designed so as
    - to create a cohesive identity through building scale, massing, and articulation
    - use of quality exterior materials, architectural detailing at pedestrian scale
    - consistency of design and materials for streetscape and pedestrian amenities
    - framing of outdoor open space and linkages
    - a clear conveyance of the function and significance of various buildings, entrances, and features
    - to generally comply with the design and development standards of the zone (B3)

Context: The immediate context includes taller, more contemporary buildings to the west, surface parking lots, and smaller scale, historic buildings both commercial and residential. Though the design and placement of buildings should be sensitive to neighboring residential and park contexts, the zoning, block size, and street widths allow for considerable scale of building on these two blocks. There is considerable grade change throughout these two blocks contributing to some of the design decisions.

Staff Comment – Final MDP comments (new comments highlighted with bold text)
Since the previous workshops, the program and block layout of the Upper Block changed. Staff focused on general, big-picture responses to the block layout, forms and massing, and character of architecture depicted. The circulation, entrances, and building interface with the street is also considered at this level. The following comments are meant to bring to the Board's attention the topics discussed and areas of concern.

Overall, staff support the Master Development Plan as presented with a few specific revisions that should be reviewed and addressed during the Site Plan process.

Relationship with Context:

- **Transition:** The residential building was revised to be simpler and more consistent throughout – staff continue to support the location of this building on the block to best relate to and transition from this large-scale contemporary buildings to the small-scale, historic fabric.

- **Not all corners need special emphasis**. From an urban design perspective, emphasis at Center Street is the most appropriate location (though a chamfered corner is not the only method to achieve this emphasis). The ground floor in this location is also shown as recessed which staff question in terms of relationship of the building to the street and overall massing relationship to the corner. **The mid-block corner on Fore was revised to remove the curved corner as preferred by staff/Board.** The building face at Spring Street includes an angled massing to the mid-block connection – due to the massing and programmatic changes to the Upper Block, this no longer is a primary entrance to the office building. This gesture helps alleviate the length and scale of the building on Spring Street. By setting back this corner of the block, a street-facing pedestrian space is created. This will be an appropriate pedestrian-scale amenity appropriately placed for circulation and passive use while also creating a "forecourt" to the large-scale building and indicate a "turning of the corner" to the mid-block passage area.

- **Streets:** The "B streets" are not expected to maintain the level of activity and pedestrian amenity found on Spring, Fore, and Commercial streets, and challenged by the grade change. Refer also to the Historic Preservation review on this topic. For these streets to be less active is appropriate. The interface on Fore Street is active and generally meets the PAD criteria in both blocks. Spring Street is considered an "A" street – **the program change now allows this ground floor to be occupied with retail or other active uses. The sidewalk and building interface also reflect this with human-scaled canopies, landscape and seating elements to provide enclosure between the large-scale building and the wide street. The on-street parking also provides a transition and buffer between the sidewalk and street. The project will increase the level of activation and pedestrian amenity appropriately for a PAD encouragement street which is interpreted to be the aspirational vision for building relationship with the pedestrian level on Spring.**

Circulation:

- The Lower Block: Staff support the block layout with the mid-block circulation. The grade change is significant and during Site Plan review, further review and iteration

should make this connection as hospitable, active, legible, and secure as possible. For example, differentiating the office entries from the retail entries, indicating from the street that this is public space, designing the retail spaces to be feasible, providing sight lines that create security and comfort.

- **The Upper Block was revised and now breaks the block into two buildings – the office building facing Spring Street, and the garage with an active liner facing Fore Street. This is a positive change in terms of scale, pedestrian scale activation, and creates a mid-block alley. This alley should continue to be designed keeping in mind CPTED and safety criteria.**

- **Clarify the entrance locations. The locations and design of these entrances should be differentiated according to use and include strategic emphasis to contribute to the urban scale circulation and legibility of the uses and buildings. A circulation plan or site plan that indicates pedestrian entrances is requested.**

Architectural Design:

Generally, the MDP design review evaluates how the buildings relate to the streetscape/human scale and also from the long-views.

- Lower Block: The residential building has a consistent material palette and character – staff support this direction. The uses of these buildings should be differentiated – the building does not feel very residential in character. **Clarification is requested regarding the entrance locations and design.** *During Site Plan review, staff would like to further evaluate the roofline, the entrance design and differentiating the residential from the commercial uses.*

- Lower Block: The office building massing and composition transition well between the buildings in context. The fenestration, material selection and transition, and proportions on the side streets require further iteration and review.

- Upper Block: **Staff support the recent changes to the project that have resulted in more active uses and ground floor design facing Spring Street. There is a distinguished base, middle, top to the building which is in keeping with the B-3 design standards. In addition, the building includes articulation and detail that provides scale and visual interest (material texture and relief, canopies, storefront). The main entrance was moved to the middle of the Spring Street façade (previously a garage driveway) which breaks up the pedestrian experience on the block and provides some symmetricality and hierarchy to the building; this is emphasized with a canopy. The brick material is now carried throughout the "middle" portion and wraps around the building whereas previously the brick was an applied veneer to the Spring Street façade. The building scale is mitigated by varying the massing of the upper floors and angling the corner of the building towards the mid-block alley. The result, however, are forms and rooflines that are complex and anachronistic with the character of buildings in Portland and the immediate context. Staff discussed with the applicant solutions for simplifying and unifying the building tops/stepback portions as much as feasible. One suggestion is to keep the material palette, including color, consistent throughout to unify these forms.**

- **In order to bring visual interest and scale to the less active "B" street elevations - predominantly in-active garage facades – the design uses screen devices, green screen with plantings. These are encourages, especially as they relate to the pedestrian experience recognizing that these facades will be less visible with surrounding block development. Staff suggest that the screens be revised to relate to datum lines found in the Spring Street office building.**

- Overall, there are elements that create cohesive identity – material palette being one. Staff support the direction of the material palette and encourage further iteration that considers the simplicity of architectural expression found in the context.

Additional Considerations

- Refer to the memorandum from Deb Andrews for a summary of the Historic Preservation Board review regarding compatibility.
- PAD streets: Fore, Center, Commercial; PAD Encouragement streets: Spring, Center
- The B-3 Design Standards also look for parking structures to have the ability to convert to other uses.
- *Staff recommend that the MDP approval define which aspects of the design are being approved in MDP versus what must be revised, reviewed, and approved at a Site Plan level.*

Portland Maine Yes. Google's good here.

Matthew Grooms <mgrooms@portlandmaine.gov>

Portland Square - Status Traffic Comments

Matthew Grooms <mgrooms@portlandmaine.gov> Fri, Feb 21, 2020 at 4:06 PM
To: Matthew Grooms <mgrooms@portlandmaine.gov>

Hi Matt – the following summarizes a status update of my October 7, 2019 comments in response to information provided by Gorrill Palmer dated December 20, 2019. I would note that the review of information is fragmented and difficult to compare to the September 2019 Section 7 Traffic Study, particularly given project program changes. Accordingly, the applicant is being asked to submit a revised Section 7 Study in its entirety. I anticipate the revised Section 7 to be transmitted soon, given recent communication with Gorrill Palmer.

- I continue to review existing traffic volumes and will be comparing the data provided in the Study with historical counts to confirm reasonableness. I was surprised that the data indicates the morning peak hour occurred from 8:00-9:00AM, which is later than expected. The Applicant shall provide the traffic count sheets for review.

Status: The applicant has provided the requested counts sheets and I find the count data to be acceptable.

- The purpose of collecting actual field-based intersection vehicle queue information was to incorporate some level of calibration to the Synchro/SimTraffic model. While it is not expected that the model will perfectly match existing conditions, the City would like to have a high level of confidence in the model output. It is unclear if the Applicant used the existing queue data to calibrate the model and if so, documentation should be provided. If not, the Applicant should use the queue data to enhance or confirm the accuracy of the model. A full review of the model will take place after calibration documentation/incorporation occurs.

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- The Study should identify a menu of suggested mitigation strategies at the Pleasant Street/York Street/Center Street/Fore Street intersection (Gorham's Corner). This will include an Alternatives Analysis and shall include concepts previously provided to the Applicant (Roundabout and Pedestrian Enhancements Improvements). This Analysis should include measures including levels of service, multi-modal accommodations, cost, right-of way impacts, etc. The Study documents failing conditions and when viewing the animation feature of SimTraffic vehicle queues will impact adjacent intersections including the Spring Street/Center Street intersection. I would note that this location abuts the site and would be expected to be impacted from a vehicle and pedestrian/bicycle perspective.

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Status: The applicant shall provide a memorandum summarizing traffic modeling results with Adaptive Traffic Signal Technology (this information shall be included on the Section 7 report). The applicant shall provide the following:

  - Traffic volumes used in each of the scenarios evaluated
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    - Vehicle Delay (in seconds)
    - 50% Queue (in feet)
    - 95% Queue (in feet)
    - Spillback from one intersection to the next (if any)
  - Video of the simulation runs
  - Travel time by scenario from Commercial Street to Marginal Way

Current Status: This information was provided on February 17, 2020 and appears to comply with the additional data request. Review of the information is on-going.

If you have any questions, please contact me.

Best regards,

Thomas A. Errico, PE
Senior Associate
Traffic Engineering Director
T.Y. Lin International
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2 attachments

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2K

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2K

Portland Maine Yes. Google's good here.

Matthew Grooms <mgrooms@portlandmaine.gov>

Portland Square comments

1 message

Mike Tremblay <mtremblay@portlandmaine.gov> Fri, Feb 21, 2020 at 10:57 AM
To: Matthew Grooms <mgrooms@portlandmaine.gov>

Matt,

I have the following comments on Portland Square heading into the workshop on Tuesday.

Waiver table

- The waiver table should be edited to reflect the newest design, as needed.

- Waiver 1 Cotton Street design: Edit or remove, to reflect new design, which includes a west-side sidewalk extending to Spring Street, two 11-foot travel lanes, and a parking lane. The Applicant has worked with DPW to arrive at an acceptable cross-section for Cotton Street.

- Waiver 2 Street grades: DPW supports this waiver given the design constraints on Cotton Street.

- Waiver 3 K-Values: DPW supports this waiver given the design constraints on Cotton Street.

Site plan

- Stop bars should be shown at stop-controlled approaches. Sightlights should be verified to ensure vehicles can see oncoming traffic from the stop bar.

- Curb extension design is too severe. Curb extensions should extend about 6 feet into the parking lane and no further. Curb radii within the curb extension should accommodate snow removal and maintenance equipment, typically a 10-20' radius. We recognize these changes may result in 1-2 fewer parking spaces along Cotton Street.

TDM

- The Applicant is providing 69 long-term bicycle parking spaces in the garage and 12 bicycle parking spaces outside of the building for short-term use. The Applicant's TDM plan should include a provision that additional bicycle parking (short-term and/or long-term) be provided if demand indicates a need. The project site is in a very bikeable location.

- The Applicant proposes unbundled parking for office and residential uses. This is extremely desirable and is a significant incentive to reduce car dependency among employees and residents of the site.

- As the site becomes more occupied, and parking occupancy counts indicate that the site is overparked, the Applicant should make more parking spaces publically available (monthly or hourly public parking) and available to adjacent land uses that may need parking. This will help reduce traffic related to circling for parking, and help to alleviate parking demand among current, underparked businesses.

- While implied in the TDM plan, commuter surveys should lead to action items to further improve the TDM plan based on the survey responses.

Mike Tremblay, P.E.
Senior Engineer
Engineering Division
Department of Public Works
City of Portland, ME
mtremblay@portlandmaine.gov
P. 207.874.8881 F. 207.874.8852


RESURGAM
CITY OF PORTLAND, MAINE

WRIGHT-PIERCE
Engineering a Better Environment

MEMORANDUM

TO:	Matthew Grooms, AICP; Planner	**DATE:**	2/20/2020
FROM:	Michael Guethle, PE; Jan Wiegman, PE	**PROJECT NO.:**	14273B
SUBJECT:	3 Portland Square – Level III Site Plan, 000873-2019		

Wright-Pierce has reviewed the updated Level III Site Plan Application information provided for the redevelopment at Portland Square. The proposed project is located on a 2.3+/- acre site bound by Cotton Street, Spring, Street, Upper Cross Street, and Fore Street. The proposed project includes redevelopment of the existing surface parking lot with a multi-story parking structure and mixed-use commercial and residential space, as well as additional utility and site infrastructure improvements.

Documents Reviewed by Wright-Pierce:

- Level III Site Plan application, uploaded (most recent) February 8, 2020
- Engineering Permitting Plans, uploaded (most recent) February 8, 2020
- Reviewer Comment Response Letter, dated (most recent) February 7, 2020

Comments:

1) Level III Site Plan applications with the City of Portland must submit a stormwater plan pursuant to the regulations of MaineDEP Chapter 500 Stormwater Management Rules. This includes conformance with the Basic, General, and Flooding Standards (Ref: Technical Manual, Section 5. II. Applicability in Portland. C. a.; and Ref: City of Portland Code of Ordinances Sec. 14-526. Site Plan Standards, (b). 3. b.)
    a. General Standard: The applicant has provided information regarding the size and scope of the project indicating the project is subject to the General Standard under the requirements of the Site Location of Development Act (SLODA). The project is being reviewed under the redevelopment guidelines and requirements.

i. The applicant has provided an impact analysis to compare pre-development and post-development land use pollutant rankings under MaineDEP redevelopment guidelines. This analysis indicated that the proposed development had a lower pollutant ranking than the existing site and is therefore required to treat 50% of the proposed site's disturbed surface area, with priority placed on the highest-ranked pollutant for the site.

    1. Applicant has updated the pollutant impact ranking for developed surfaces to be consistent between the narrative and calculations. No further action necessary.
    2. Applicant has provided the following calculations:
        a. Total square feet of site required to receive treatment;
        b. Total square feet of proposed site receiving treatment;
        c. Total % of high-pollutant ranking surfaces receiving treatment;
        d. Total percentage of non-roof impervious area receiving treatment.

    Based on the information provided in the calculations, the applicant has provided water quality treatment for surface runoff based on the redevelopment area, and has placed priority to treat high-pollutant impact ranking surfaces. No further action necessary.

ii. Proprietary R-Tank systems and Peak Diversion Stormfilters have been provided for runoff treatment. Inverts for pipe elevations are consistent between the plans and calculations for R-Tank systems and Stormfilter system. Applicant has indicated Filterra units have been removed from the proposed stormwater treatment plan. No further action necessary.

iii. Additional requirements apply for the Peak Diversion Stormfilter as a result of it's approval for use as a proprietary treatment device. Applicant has demonstrated most of these requirements. Applicant shall clarify the following requirements:

1. Review and approval by the manufacturer for the proposed use and sizing of the Stormfilter cartridge is required to ensure conformance with the manufacturer's design specifications. Applicant shall provide a letter from the manufacturer confirming this requirement is met.

iv. The applicant has indicated a maintenance agreement for stormwater treatment systems will be provided as the design progresses. Applicant has noted an executed maintenance contract for the BMP system is required and may be included as a Condition of Approval.

1. This approval shall meet the requirements of the StormFilter cartridge system's manufacturer.

b. Flooding Standard: The applicant has submitted updated calculations indicating the total surface flows to the separated storm drain at the intersection of Fore Street and Cross Street. The provided calculations indicate off-site surface runoff rates are not increased as a result of the development in the 24-hour, 2-year, 10-year, and 25-year rain events. No further action necessary.

2) Grading and Drainage

a. Catch basin details have been revised. Applicant has confirmed catch basins with City Right-Of-Way would have 3-foot sumps. No further action necessary.

b. A catch basin at the corner of Cross Street and Fore Street was originally proposed within the pedestrian tipdown ramp. Applicant has relocated this basin. No further action necessary.

c. Spot grades generally indicate brick driveway tipdowns and crosswalks will have 2% maximum cross-slope. However, we recommend final construction plans and details indicate maximum cross-slopes for these areas.

3) Utility Connections

a. Ability to serve letters have not been provided for all utilities impacted by the proposed project, but have been requested by the applicant for applicable utilities. The applicant has indicated that ability to serve letters will be submitted to Planning upon receipt. These can be included as a condition of approval.
b. Connection to Existing Stormwater Systems: E-mail, or otherwise written, confirmation from the Department of Public Works accepting this connection is requested to confirm that this connection is appropriate under Land Use section 14-526 (b) 3 a. (iv); and 14-526 (c) 3 a. This confirmation is typically provided similar to a capacity to serve letter, and can be a condition of approval. Applicant has indicated they are in the process of finalizing connections to the existing drainage systems.

CARROLL ASSOCIATES

December 20, 2019

Mr. James Rather
Development Review Manager
City of Portland Planning Division
389 Congress Street, 4th Floor
Portland, ME 04101

RE: Three Portland Square, Level III Site Plan Application

Dear James,

On behalf of North River IV, LLC, we are pleased to submit updates to a Level III Application for the development of Three Portland Square property currently owned by North River IV. The original Application was filed in September, 2019 and as the design progresses soon after that time the Owners realized that the project needed to make significant changes to be viable. This led to a delay in momentum, but we believe it results in a much better project and are hopeful of your support moving forward.

Project Description

The project site occupies an important City block of approximately 2.26 acres of land in the heart of downtown at the edge of the Old Port Neighborhood bounded by Spring, Fore, Cotton and upper Cross Streets. The property is directly adjacent to and will be well integrated with approximately 260,000 sf of mixed-use space in One Portland Square One and Two Portland Square. The property also provides a transition between the Downtown Business District to the north, less dense mix of residential and commercial buildings to the west, and the Commercial Street corridor to the south.

This project offers an opportunity to bridge these varied built environments, “fill in” a significant hole in the urban fabric, and enhance and extend the pedestrian environment present in the Old Port and the Commercial Street Corridor. The buildings are designed with continuous street level storefronts along Fore Street. The Master Development Plan currently under review proposes multiple pedestrian amenities across both development sites, intending to improve pedestrian linkages and circulation throughout the site. This First Phase of the project proposes to develop a new urban plaza at Spring Street between One Portland Square and the new building that reinforces view corridors toward the water from Spring Street, and integrate with the park/plaza space behind One-Two Portland Square as it continues on to connect to Fore Street and through to Commercial Street.

All sidewalks will be widened and street trees added. Along Spring Street, planned additional amenities including seating, planters, lighting, and green screen panels or artist designed decorative metal screen panels that obscure the structured parking and provide visual interest at the street level. The plaza mentioned above will include plantings, seating, dedicated space for food carts, and a sculpture element in an effort to activate this important pedestrian space.

A key element of the proposed Site Plan is reconfiguration of Spring Street. The Plan as submitted reconfigures the parking along Spring Street from angle parking to parallel spaces, allowing a significant increase in sidewalk width and ability to provide pedestrian amenities in front of the proposed building without a loss in on-street parking. We believe this provides the strong pedestrian activation requested by

Staff, allows softening of the building façade, and is in conformance with the Spring Street Master Plan as adopted by the City. We understand the City is still reviewing this design and look forward to further conversation about the layout as the project is reviewed by DPW and Planning Staff.

Major modifications since the initial submission in September include separation of the Office Tower from the Garage. This decision was made based on constructability of the upper site, but results in a stronger relationship with Spring Street and the adjacent 1 PS. The parking structure (freestanding with retail/ office wrap along Fore Street) has been re-designed to accommodate a total of 851 vehicles, meeting the demand for the total buildout of the upper site, while accommodating the demand of existing parking for One-Two Portland Square and the Fathom Hotel.

This project is subject to a Traffic Movement Permit and Transportation Demand Management Plan currently being reviewed as part of the Master Development Plan, as well as an Amendment to the Maine DEP SLOD permit which is currently in place on the property. Copies of these documents as well as a project specific Parking Demand and TDM Plan for this phase are included in this application.

Attached and made part of this Application are documents, reports, plans, and images that describe the Three Portland Square Application in full detail. We believe the Application is complete and welcome the opportunity to work closely with City Staff, Planning Board, and interested residents of Portland during its review and approval.

With Regards,
CARROLL ASSOCIATES



Patrick J. Carroll, Principal

CC: Peter Pachios, NR IV
Adam Meyers, NR IV
Dan Jacques, NR IV
Jim Brady, FC
Stephen Weatherhead, WSA
Barry Sheff, W&C

Att. B

NORTH RIVER COMPANY, LLC

224 12th Avenue
New York, NY 10001-1005
Telephone (212) 695-8090
Facsimile (212) 629-8768

December 10, 2018

Ms. Barbara Barhydt
Development Review Manager
City of Portland
389 Congress Street, 4th Floor
Portland, ME 04101

Re: Letter of authorization for Portland Square development project.

Dear Ms. Barhydt,

On behalf of North River Company, in its capacity as the Manager of North River IV LLC, which is the owner of record for the parcel of land bounded by 486-504 Fore Street, 8-30 Cross Street, 273-285 Commercial Street and 3-19 Center Street (legal description: Map 38, Block G, Lots 1-3-5), (a/k/a "Portland Square lower parking lot"), this letter shall authorize Patrick Carroll of Carroll Associates and Steve Weatherhead of Winton Scott Architects to act as agents in procedural actions related to obtaining City of Portland Planning Board approvals associated with the proposed development project located on the Portland Square lower parking lot.

Sincerely,

Peter L. Pachios

Cc: Patrick Carroll
Steve Weatherhead
Melissa Santiago

CITY OF PORTLAND
Planning & Urban Development Department
Three Portland Square

LEVEL II and LEVEL III SITE PLAN
GENERAL DOCUMENT AND DRAWINGS CHECKLIST
Please submit each document as a separate PDF file
Please confirm by electronically checking the boxes to the left

** PLEASE FILL OUT AND UPLOAD SEPARATELY THE ZONING TABLE AND WAIVER TABLE AS NOTED BELOW **

GENERAL APPLICATION DOCUMENTS	
Yes ☑ NA ☐	**Project Description** • Cover Letter with detailed project description
Yes ☑ NA ☐	**Completed Checklist – Level II and Level III Site Plan** (this document)
Yes ☑ NA ☐	**Right, Title and Interest** • Deeds, leases, or purchase and sales agreements
Yes ☑ NA ☐	**Evidence of State or Federal Approvals** • Permits or letters of non-jurisdiction, if applicable
Yes ☑ NA ☐	**Zoning Assessment** • Table listing required and proposed uses and dimensional standards Zoning Assessment Table
Yes ☑ NA ☐	**Existing and/or Proposed Easements or Covenants, applicable.** • Evidence of existing easements and any proposed easements
Yes ☑ NA ☐	**Waiver Requests** • Written request for waiver describing request and reason Waiver Table
Yes ☑ NA ☐	**Financial Capability** • Letter or evidence from a financial institution or third party verifying financial capacity to undertake project
Yes ☑ NA ☐	**Technical Capability** • Evidence of technical capability of applicant and consultants – resumes and/or examples of past projects

LEVEL II AND LEVEL III SITE PLAN
STANDARDS AND SUBMISSION CHECKLIST

Provide assessment of compliance with standards and include supplemental documentation, as applicable
Please Submit each document as a separate PDF file

TRANSPORTATION

Yes	NA	
☑	☐	**Transportation Analysis- Traffic Impact (14-526 (a) 1)** • Provisions for pedestrian, bicycle, vehicle, and loading circulation and incremental volume of traffic impacts • Traffic Impact Study (Technical Manual, Section 1) if applicable
☑	☐	**Access and Circulation (14-526 (a) 2 a)** • Access and internal circulation, addressing ADA access • Access and egress impacts on traffic flows • Description and use of drive-up features, if applicable
☑	☐	**Loading and Servicing (14-526 (a) 2 b)** • Loading and servicing needs, route and travel way geometrics for deliveries • Turning templates for delivery vehicles, if applicable
☑	☐	**Sidewalks (14-526 (a) 2 c)** • Sidewalks and condition along street frontages and internal walkways • Engineered details for ADA ramps and public sidewalk details meeting sidewalk materials policy and ADA ramp construction details as applicable (Technical Manual, Section 1)
☑	☐	**Public Transit (14-526 (a) 3), if applicable** • Existing available transit services • Proposed site plan design details, such as easement, pad base, and shelter
☑	☐	**Off-Street Parking: Vehicle & Motorcycle/Scooter) (14-526 (a) 4 a and c)** • Expected parking demand, proposed parking supply, ADA parking, and applicable Zoning Requirements • Address Technical Manual standards (Section 1) for curb cut separation and parking lot layout and locate on site plan
☑	☐	**Bicycle Parking (14-526 (a) 4 b)** • Address bicycle parking requirements and identify locations on-site • Construction details for bike racks (Technical Manual, Section 1)
☑	☐	**Snow Storage (14-526 (a) 4 d)** • Management plan for snow removal and locate snow storage areas on plan
☑	☐	**Traffic Demand Management (TDM) (14-526 (a) 5), if applicable** • Develop TDM with Trip Reduction Targets and Strategies

ENVIRONMENTAL AND LANDSCAPE FEATURES	
Yes NA ☑ ☐	**Preservation of Significant Natural Features (14-526 (b) 1), if applicable** • Trees, plants, habitats listed on State or Federal list of endangered or threatened • High and moderate value waterfowl and wading habitat • Aquifers on Casco Bay Islands • Waterbodies (including wetlands, watercourses, significant vernal pools and floodplains) • Proposed preservation areas and protection measures • Documentation from environmental consultants, determinations from applicable state agencies
Yes NA ☑ ☐	**Landscaping and Landscape Preservation (14-526 (b) 2 a)** • Preservation of trees and preservation within required zoning setbacks (Technical Manual, Section 4) • Protection measures of existing vegetation during construction • Protection measures within Shoreland Zone, if applicable
Yes NA ☑ ☐	**Site Landscaping (14-526 (b) 2 b)** • Screening and buffering of service areas and between non-residential and residential uses • Planting plans with plant schedule and sizes (Technical Manual, Section 4)
Yes NA ☐ ☑	**Parking Lot Landscaping (14-526 (b) 2 b ii), if applicable** • Landscaped islands within parking areas (Technical Manual, Section 4)
Yes NA ☑ ☐	**Street Trees (14-526 (b) 2 b iii)** • Existing Heritage or Feature Trees on site and measures to preserve • Identify street trees on the plan meeting the site plan and Technical Manual standards (Section 4) or identify alternative measures, if applicable
ENVIRONMENTAL AND STORMWATER	
Yes NA ☑ ☐	**Water Quality, Stormwater Management and Erosion Control (14-526 (b)3 a)** • Stormwater report in compliance with Section 5 of Technical Manual and DEP Chapter 500 stormwater for basic, general and flooding standards, as applicable • Erosion control plan and measures • Evidence of compliance with Urban Impaired Stream Standards pursuant to DEP Chapter 500 stormwater, as applicable • Subsurface sanitary sewage disposal and groundwater protection

PUBLIC INFRASTRUCTURE AND SAFETY	
Yes ☑ NA ☐	**Consistency with City Master Plans (14-526 (c) 1)** • Identify consistency with master plans • Proposed easements, rights and improvements to connect or continue off-premises public infrastructure, as applicable
Yes ☑ NA ☐	**Public Safety and Fire Prevention (14-526 (c))** • Address Crime Prevention through Environmental Design (CPTED) (Technical Manual, Section 3) • Emergency vehicle access • Address consistency with public safety standards (Technical Manual, Section 3) • Submit a code summary referring NFPA 1 and all Fire Department standards (Technical Manual, Section 3) – Fire Checklist
Yes ☑ NA ☐	**Availability and Adequacy of Public Utilities (14-526 (c) 3) (Technical Manual, Sections 2 & 9)** • Electrical services, including providing underground services • Identify existing and proposed connections for public utilities and required public utility upgrades • Sewer line connections are required, if there is a main within 200 feet • Proposed solid waste management facilities on-site and management for the site • Written evidence of the ability to serve from utility companies, as applicable
SITE DESIGN	
Yes ☑ NA ☐	**Massing, Ventilations and Wind Impact (14-526 (d) 1)** • Wind and ventilation impacts on adjoining structures and/or adjacent public spaces. Wind study, if applicable • Bulk, location or height impacts on adjoining structures • Identify and locate HVAC equipment and venting away from public spaces and residential properties • Identify screening and manufacturing specifications for noise, if applicable
Yes ☐ NA ☑	**Shadows (14-526 (d) 2), if applicable** • Shadow analysis of impacts on publicly accessible open space (Technical Manual, Section 11)
Yes ☑ NA ☐	**Snow and Ice Loading (14-526 (d) 3)** • Building design to prevent snow and ice from loading or falling onto adjacent properties or public ways
Yes ☑ NA ☐	**View Corridors (14-526 (d) 4), if applicable** • Protection of designated view corridors (Portland Design Manual, Appen. 1)

Yes ☑ NA ☐	**Historic Resources (14-526 (d) 5), if applicable** • Identify developments within Historic Districts or affecting Designated Landmarks • Certificate of Appropriateness or other evidence • Identify Developments within 100 feet of Historic Districts or affecting Designated Landmarks. Advisory HP review may be required • Address preservation and documentation of Archaeological Resources
Yes ☑ NA ☐	**Exterior Lighting (14-526 (d) 6)** • Cut sheets of on-site light fixtures and any architectural or specialty lights (Technical Manual, Section 12) • Engineered details for any lights proposed in street right-of-way (Technical Manual, Section 10)
Yes ☐ NA ☑	**Noise and Vibration (14-526 (d) 7)** • Evidence of noise levels for equipment, such as equipment specifications, to demonstrate consistency with zoning requirements
Yes ☐ NA ☑	**Signage and Wayfinding (14-526 (d) 8), if applicable** • Signage plan showing the location, dimensions, height and setback of all existing and proposed signs. Signs in Historic Districts are reviewed by Historic Preservation staff • Proposed commercial and directional signage on site
Yes ☑ NA ☐	**Zone Related Design Standards (14-526 (d) 5)** • Address Historic Preservation Design Review, if applicable • Address any applicable design review standards by zone • Address submission requirements from Design Manual, page 1, addressing neighborhood context • Description of exterior materials, color, finish, and samples
Construction Management Plan	
Yes ☑ NA ☐	**Construction Management Plan** • Construction Management Document and Plan

LEVEL II AND LEVEL III SITE PLAN
DRAWINGS CHECKLIST

Please upload the following DRAWINGS with the listed details into e-Plan as separate pdfs

RECENT BOUNDARY SURVEY (stamped by Maine Licensed Surveyor)

- [x] Must be in compliance with Technical Manual, Section 13

SITE PLAN(s) (stamped by Maine Licensed Engineer) including:

Existing Conditions

- [x] Approximate location of structures on abutting property
- [x] Topography
- [ ] Locate water courses
- [ ] Delineate wetlands
- [x] Zone lines

Proposed Site Plan

- [x] Ground floor area, and grade elevations for all buildings

Access, Circulation, and Parking

- [x] Streets and intersections adjacent to site, any proposed geometric modifications
- [x] Location, dimensions and materials of all existing and proposed driveways, vehicle, bicycle, & pedestrian access ways with corresponding curb lines
- [x] Engineered specifications/ cross-sections for proposed driveways, sidewalks & paved areas
- [x] Location and dimensions of proposed loading areas
- [ ] Existing and proposed transit infrastructure with dimensions/ engineering specifications
- [x] Location of vehicle and bicycle parking with dimensions and engineering specifications

Site Considerations

- [ ] Identify snow storage areas
- [x] Location of fire hydrants
- [ ] Location of solid waste management facilities

UTILITY PLAN including:

- [x] Existing utilities on site and within public streets
- [x] Location, sizing and directional flows of all existing and proposed utilities
- [x] Location and dimensions of off-premises public or publicly accessible infrastructure adjacent to site
- [x] Electric utility infrastructure

GRADING AND DRAINAGE PLAN including:

- [x] Existing grades and drainage
- [x] Proposed grades
- [x] Proposed stormwater management meeting Technical Manual (Section 5), standards
- [ ] Location and proposed alteration of a water course
- [ ] Preservation or alteration of wetlands

EROSION CONTROL

- [x] Must be in compliance with Technical Manual, Section 5

LANDSCAPE PLAN including:

- [x] Existing vegetation to be preserved and preservation measures
- [x] Proposed landscaping and buffers
- [x] Planting schedule

RECORDING PLAT, if applicable
☑ If Subdivision, must be in compliance with requirements of Section 14-496 (b)
ARCHITECTURAL PLANS AND RENDERINGS including:
☑ Exterior building elevations, color renderings, illustrations of all sides
☑ Location and dimensions of all existing and proposed HVAC and mechanical equipment, all proposed screening
☐ Provide context drawings, if applicable (Design Manual, page 1)
☑ Floor plans

Portland, Maine Yes. Life's good here.

Planning & Urban Development Department

ZONING ANALYSIS Relevant Zone(s) B-3 / DEOZ / PAD

All Projects:

	Required	Proposed
Lot Size	None	2.25 A
Area Per Dwelling Unit	None	- -
Minimum Street Frontage	15'	856'
Front Yard Minimum	0'	0'
Front Yard Maximum	5'	2'
Rear Yard	None	- -
Yard Right	None	- -
Yard Left	None	- -
Side Street Setback	None	- -
Step Back	Yes	Yes
Maximum Lot Coverage	100%	100%
Minimum Lot Coverage	None	- -
Maximum Height	125' / 85'	67'/65'
Open Space	None	- -
Maximum Impervious Area	100%	100%
Pavement Setback	None	- -
Floor Area Ratio	None	- -
Off Street Parking Spaces	Yes	1,000
Loading Bays	1	1
PAD Zone	@ Fore St.	@ Fore St.
Other 2		
Other 3		

Planned Residential Unit Developments (PRUD) Requirements

	Required	Proposed
Minimum Lot Size		
Minimum Lot Area per Dwelling		
Maximum # Units per Building		
Maximum Building Length		
Maximum Accessory Building Length		
Minimum Setbacks		
Minimum Building Separation		
Minimum Open Space		

Affordable Housing Density Bonuses (if applicable)

	Bonus Increase or Decrease	Maximum Allowable With Bonus	Proposed
Density			
Height			
Setback Reduction			
Recreation Space			
Maximum Accessory Building Length			
Minimum Setbacks			
Minimum Building Separation			
Minimum Open Space			
Explanatory Text 1 (optional):			
Explanatory Text 2 (optional):			
Explanatory Text 3 (optional):			

NORTH RIVER COMPANY



Bulgroup Properties was established in 1981 and managed by Tickly Bender Realty Corp., a predecessor to North River Company LLC ("NRC"). NRC is a privately held real estate investment and management firm based in New York City. NRC invests in and manages real property on behalf of high net worth and institutional investors.

NRC owns and operates a highly-diversified portfolio of office, mixed-use, fine art storage, industrial and retail property. Presently, NRC owns and operates over 3,500,000 square feet of mixed-use properties and over 275 acres of ground-up development in New York, Massachusetts, Maine, Vermont, New Hampshire, Pennsylvania, Colorado and California. NRC has closed on more than 30 acquisitions and dispositions over the past 20 years, representing over $1.6 billion in aggregate transaction volume.

NRC seeks to acquire, manage and develop strategically located real estate assets to provide long-term value to investors through cash flow and asset appreciation. NRC's management experience in a variety of transactions provides a broad background in many types of investments from stabilized assets to value-add properties to long-term redevelopment opportunities. NRC's long-term viewpoint endeavors to successfully take advantage of and protect against adverse market conditions.

NRC's traditional investment structure involves the creation of a special purpose entity to acquire an asset with NRC or an affiliate as the manager of the investment. Depending on the equity level required and the anticipated return and hold period of the investment, investment partners range from a single institutional investor to a syndication of individual private capital and family offices. NRC's management team typically invests between 10% and 20% of the required equity of each transaction.

NRC's management team has extensive commercial real estate investment management experience in an array of markets. NRC's efforts include complex joint-venture arrangements, redevelopment of existing occupied properties, ground-up development, repositioning assets, leasing, property management, assembly of new businesses to create new income streams (self-storage, antique mall, gallery, event space, etc.) and asset management and investment reporting. The management team maintains strong relationships with governmental, civic and business leaders in each location NRC operates. Members of NRC's team belong to local and national real estate boards/associations, as well as several notable non-profit organizations and academic institutions. NRC takes an active, "hand-on" approach, carefully selecting in-house management teams in each market. NRC's full-service business model has consistently delivered results for tenants and investors.

Maine Portfolio



One and Two Portland Square
Portland, Maine
260,000 SF / 5 Acres
Office / Land Development



Merrill's Wharf
254 Commercial Street
Portland, Maine
100,000 SF
Office Conversion



260 Commercial Street
Portland, Maine
17,500 SF
Retail / Office / Warehouse



14 Maine Street
Brunswick, Maine
450,000 SF
Office / Retail / Storage Conversion /
Land Development



Hathaway Creative Center
10 Water Street
Waterville, Maine
230,000 SF / 4 Acres
Office / Multifamily / Retail Conversion

Select Projects/Properties



200 Inner Belt Road
Somerville, Massachusetts
200,000 SF / 8 Acres
Art Storage / Office / Land Development



175 McClellan Highway
East Boston, Massachusetts
400,000 SF / 13 Acres
Residential / Office / Warehouse Conversion / Land Development



Acorda Pharmaceuticals Building
Chelsea, Massachusetts
142,000 SF / 3 Acres
Office / R&D / Manufacturing / Land Development



40 IDX Drive
South Burlington, Vermont
260,000 SF / 5 Acres
Office / Land Development



Terminal Stores
263 11th Avenue
New York, New York
1,200,000 SF
Office / Retail / Storage Conversion

Management Team

Coleman P. Burke
Founder & Chairman

As the Chairman and Managing Partner of NRC and its related entities, Coley is responsible for overseeing the development and execution of NRC's investment strategy. With more than 45 years of real estate investment, development and management experience, Coley plays a central role in identifying new opportunities, capital raising, and in our overall investment and management strategy. Coley graduated from St. Paul's School in 1959, Yale University in 1963 and Case Western Reserve University Law School in 1970. He spent four years (1963-1967) as a Ltjg., Fleet OOD and Communications Officer in the United States Navy. Prior to founding NRC, Coley was admitted to the New York State Bar and practiced law at Burke & Burke in New York City from 1970 to 1983.

Christopher S. Flagg
President

As President of NRC and its related entities, Chris oversees day-to-day management of all aspects of the firm, which includes managing our teams in New York, Massachusetts, Maine, New Hampshire, Vermont, Pennsylvania, Colorado and California, as well as capital raising. With over 29 years of real estate investment, development and management experience, Chris plays a leading role in the strategic direction of NRC. Chris joined the management team in 1990. Chris graduated from Deerfield Academy in 1983 and received a B.A. degree from Hamilton College in 1987.

Christopher H. Pachios
Vice President

As Vice President of NRC and its related entities, Chris helps to oversee day-to-day operations of the firm, while primarily focusing on new acquisitions, business development and sourcing equity and debt. Chris joined the management team in 2003. Prior to joining the firm, Chris worked as a commercial real estate broker in Boston and New York. Chris is also a partner in a family real estate business founded by his grandfather in Portland, Maine. Chris graduated from St. Paul's School in 1994 and received a B.A. degree from Bowdoin College in 1998.

Peter L. Pachios
Managing Director

As Managing Director of NRC and its related entities, Peter's responsibilities include acquisitions, asset management, leasing, operations and development. Peter joined the management team in 2007. Prior to joining the firm, Peter worked for the Boston Red Sox, primarily focusing on growing the non-baseball related business. Peter is also a partner in a family real estate business founded by his grandfather in Portland, Maine. Peter graduated from St. Paul's School in 1999 and received a B.A. degree from Georgetown University in 2003.

Adam K. Myers
Managing Director, Chief Engineer

As Managing Director and Chief Engineer of NRC and its related entities, Adam's broad range of responsibilities include acquisitions, construction management, asset management, operations, and property management. Adam leads the development, construction and maintenance initiatives throughout the company's portfolio. Adam joined the management team in 2011. Prior to joining the firm, Adam worked for over 10 years in real estate development and construction management. He founded, owned and operated a project management consulting company that specialized in commercial construction across North America. Adam graduated from Kenyon College with a B.A. degree in 1997 and the Daniels College of Business at the University of Denver with an M.B.A in 2006.

Anthony J. Gatti
Vice President, Maine Operations

Tony joined NRC in 1993. As Vice President, Tony oversees the day-to-day operations of the Portland, Brunswick and Waterville, Maine teams, primarily focusing on leasing, tenant relations and property management. Anthony is a native of Maine and lives in Scarborough, Maine.

Daniel P. Jacques
Construction Manager, Maine Operations

Dan joined NRC in 2005 as part of the construction management, maintenance and operations team. Dan served as NRC's construction supervisor on the Merrill's Wharf redevelopment for Pierce Atwood. Prior to joining the firm, Dan worked in project management as the east coast manager for a worldwide chemical engineering company. Dan is a Maine native, and graduated with a B.A. from the University of Maine in 1979 and attended the Muskie School at the University of Southern Maine from 1988 to 1989.

CARROLL ASSOCIATES

Firm Description

Carroll Associates is a small consulting firm engaged in the practice of landscape architecture, land planning, and site design. The firm was created in 1993, and is involved in a wide range of design and planning projects throughout Maine and New England.

The firm provides professional services to a broad-based clientele that includes municipal and institutional organizations, architects, engineers, real estate developers, and private individuals. While maintaining a diverse workload, the firm is entrenched in public, urban, and residential based planning and design work. Carroll Associates has significant experience in public, urban waterfront settings, institutional projects ranging from elementary schools to university work; municipal projects and recreational projects including work at Acadia National Park. The overriding objective in each is to provide a sensitive and well thought out solution which respects the natural environment and creates a functional and inviting setting for the building and its user.

Carroll Associates has been involved with many complex state and municipal projects which are specifically relevant to this project. Relevant Site Planning and Urban Design projects in Portland include the following:

- Ocean Gateway Ferry Terminal
- Marriot Residence Inn
- Riverwalk Condominiums (unbuilt)
- Maine State Pier Redevelopment Design Competition (selected design, unbuilt)
- Merrill's Wharf Redevelopment
- Thompsons Point Redevelopment
- International Marine Terminal Expansion
- Portland Gateway Hotel

In all of these projects the ability to integrate a new facility or program with historical buildings, complex physical and environmental sites, and established neighborhoods was critical to the overall success of the project.

We are well experienced with working within an interdisciplinary design team and the need to provide strong design solutions with limited budgets. Key to the firm's success is the commitment to providing attention and focusing on the specific needs of the client, remaining flexible and bringing projects to closure on time and within budget.

Professional services offered through Carroll Associates may include any or all of the following:

- Site Selection and Analysis
- Program Development and Budgeting
- Site Feasibility/ Utilization Studies
- Recreation Planning and Design
- Site Master Planning
- Construction Documents, Bidding, and Administration
- Consultant Team Coordination and Management
- Local, State, and Federal Permitting and Approvals



Brick Hill, South Portland, ME

Brickhill consisted of redevelopment of former Maine Youth Center into mixed use 'Smart Growth' project. The program for the 56 acre site includes 300 affordable housing apartments and condominiums, 250,000 SF of professional office space, recreation amenities including an 8 acre park, boat launch, community gardens, and hiking trails while preserving the historic brick structures on the site. The project is 100% completed in 2017. Carroll Associates provided Master Planning and Site Design Services for the project since 2001.



Forefront at Thompsons Point

The Forefront at Thompson's Point is a mixed-use development located on an existing vacant industrial site on the Fore River in Portland Maine. The original program consisted of a new Sports Event Cente, Concert Hall with an adjacent outdoor amphitheater seating 4500, a 235 room hotel, cultural center, restaurants, and approximately 180,000 sf of professional office space. Carroll Associates has been retained by the Developer to provide Master Planning and Landscape Architectural Services on the project.



Oceangate and Maine State Pier Redevelopment

Redevelopment of underutilized portion of Portland waterfront to provide new berthing for cruise ships and international ferry terminal. Oceangate Project includes extensive parking for ferry arrivals and departures, passengers, and tour busses; integration of adjacent narrow gauge railway, extension of existing streets to provide critical connections, and outdoor plazas and parks providing strong pedestrian connectivity to adjacent open space systems. Maine State Pier project includes redevelopment of aging waterfront pier and landside property to provide strong mixed use including office, retail, hotel, and a 2 acre park and with direct access to the waterfront.



Harborcorp, Portsmouth, NH

Redevelopment of vacant property in West End of Portsmouth, NH to provide mixed use development. Project envisions up to 115 Hotel rooms, 24 Condominium Units, Conference Facilities, Retail, dedicated parkland, and Structured Parking. The project ties into the existing Sheraton Hotel across the street. Approvals are in place and construction is expected to begin in 2019

CARROLL ASSOCIATES

PATRICK J. CARROLL
Principal Landscape Architect



Professional Registration:
Maine, New Jersey, New Hampshire, CLARB

Education:
Utah State University
Bachelor of Landscape Architecture,1978

Prior Experience
Carroll Associates, Portland ME 1993-
Moore Weinrich Architects, ME 1989- 2003
Environmental Planning and Design, ME 1988
Design Workshop, CO 1982- 1988
Land Design, UT 1989- 1988

As founder of Carroll Associates, Pat brings 40 years of landscape Architectural experience on a wide variety of projects throughout Maine, New England, and the Western United States. His successful project experience on largescale master planning and urban design provides a strong basis for solving complex design issues and managing important design and permitting challenges. His sensitivity and understanding of environmental constraints and culture provides for successful projects that are fitting and appropriate to each setting.

Erin Kay
Project Manager



Professional Registration:
Maine

Education:
Rhode Island School of Design
Master of Landscape Architecture, 2010

University of New Hampshire
BA Studio Art, 2004

Prior Experience
Carroll Associates, Portland ME 2013-
Crossby/Schlessinger, MA 2010- 2013

Erin joined Carroll Associates in 2010, and brings significant experience in urban design and planning from her experience in Boston prior to joining the firm. She has actively participated in many of the larger urban projects Carroll Associates has undertaken in the last five years, including Thompsons Point, Harborcorp and other complex and challenging projects. Her ability to quickly synthesize a site and develop creative solutions make her a valuable member of the design team.

WSA

WINTON SCOTT
ARCHITECTS

5 Milk Street, Portland, ME 04101
207.774.4811|www.wintonscott.com

Established in 1975, Winton Scott Architects is a small, design-oriented architectural practice located in Portland, Maine. Our work encompasses a diverse array of project types and scales ranging from multi-block urban developments, to historic renovations, commercial and institutional buildings, and multifamily and single family residences.

Our firm has been recognized numerous times for design excellence by the Maine and New England Chapters of the American Institute of Architects, as well as the United States Green Building Council; and our work has been profiled in national trade journals, local publications, and several books focussed on design and architecture.

Winton Scott Architects is comprised of a staff of six, including four senior architects ranging in experience from 15 to 45 years. The office is organized horizontally with all staff members capable of managing projects from program and design through production of construction documents and construction contract administration. This depth of experience and continuity in staffing have allowed WSA to take on large, complex projects while consistently delivering the highest level of professional services to our clients. The culture of the office is that of an open, creative collaboration of seasoned architects striving for the highest level of design excellence and client satisfaction.

We believe that architecture should be sustainable, adaptable, timeless, and derivative of its context and function. All buildings, even the most modest in scale and budget, can be at once artful, functional, and inspiring if they are rigorously conceived and executed with craft and precision. Each of our designs responds to the specific needs of our clients and the individual character of a particular site and its surrounding context.









Project Images From Top:

Ocean Gateway Cruise Ship Terminal
Skidompha Library
Youth Alternatives Family Center
Merrill Auditorium

Winton Scott Architects

Recent Urban Design / Planning Projects



Project: Maine State Pier Redevelopment

Program: Offices, Hotel, Retail, Restaurants, Marine Operations, Park

Areas: Site area = 7.2 Acres
Buildings = 325,000 S.F.

WSA Role: Design Team Leader, Masterplanning, Architect for Office Building.



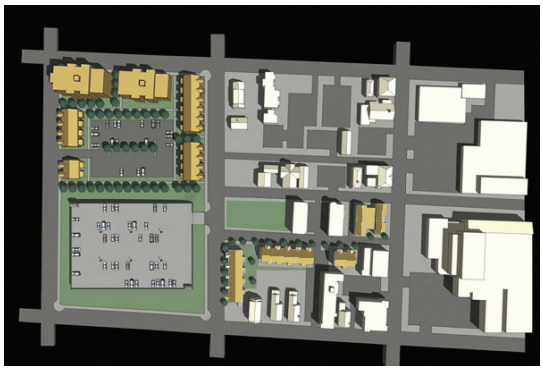
Project: Brick Hill- (Maine Youth Center Redevelopment)

Value: $65M

Program: Offices, apartments, condominiums

Areas: Site area = 59 Acres
Buildings = 336,000 S.F.

WSA Role: Masterplanning, Architects for 3 apartment projects, 2 office buildings

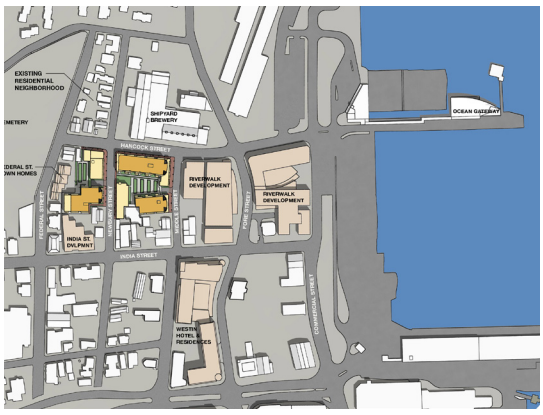


Project: Pearl Place & Unity Village Infill Housing

Program: Market rate & Subsidized apartments (188 Units)

Areas: Site area = 2.5 Acres
Buildings = 220,000 S.F.

WSA Role: Masterplanning, Architecture



Projects: Westin Hotel & Residences
The Village at Oceangate
Eastern Waterfront Garage
Oceangateway Cruiseship Terminal

Program: Hotel, Condominiums, Office, Retail Parking Garage, Terminal

Areas: Site area = 14.75 Acres
Buildings = 890,000 S.F.

WSA Role: Masterplanning, Architecture

WSA
WINTON SCOTT
ARCHITECTS



Winton Scott, NCARB
President

Professional Registrations	Maine, Massachusetts, and NCARB Certification
Other Experience	Louis I. Kahn, Architect, Philadelphia, PA Senior Project Architect Phillips Exeter Library Eero Saarinen and Assoc., New Haven Designer and Job Captain Ford Foundation Headquarters
Education	University of Texas, Bachelor of Architecture with Highest Honors, 1960

Before founding founding Winton Scott Architects in 1975, Winton Scott had built an impressive list of project experiences with some of the most highly respected architectural firms in the country. During this same period, he also accepted several teaching appointments with some notable schools of architecture, honing his own design interests.

Although Winton is a skilled designer, comfortable with any site, any building type and any scale, one of his special interests is urban design. His keen sensibilities in this arena are dramatically apparent in several recent projects completed by WSA



Stephen W. Weatherhead, RA
Principal

Professional Registrations	Licensed Architect, State of Maine
Education	Syracuse University, Bachelor of Architecture Professional Degree, 1988 Syracuse University in Florence, Italy Architecture Study Abroad Program, 1986

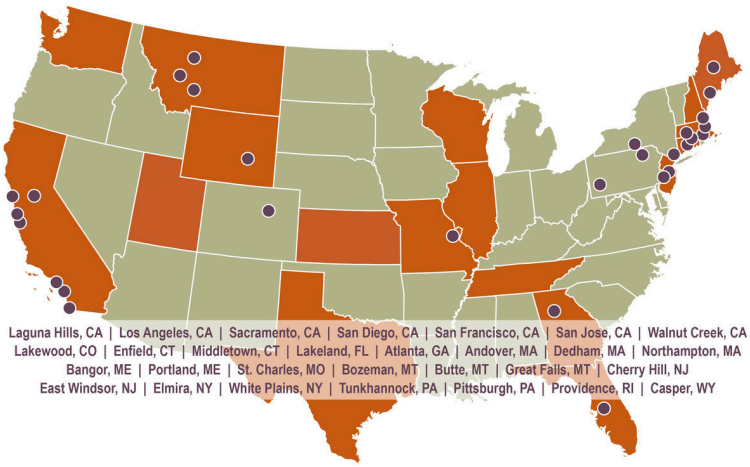
Steve joined Winton Scott Architects in 1994 to take on the role of Project Architect for the renovations to Merrill Auditorium. Since that time, he has gained extensive design and management experience on a wide range of renovation and new construction projects undertaken by the firm. His work encompasses projects ranging from custom homes to large scale commercial and institutional projects as well as a large portion of the firm's municipal work which includes a multitude of projects completed for the City of Portland.

With over 28 years of experience in all phases of architectural practice from conceptual design through construction, Steve knows how to effectively manage the design team and lead an open process that has consistently produced successful building projects based on the specific needs of his clients. He has managed projects for WSA totaling over $100M in construction value that have utilized a full range of project delivery methods both in the private and public sectors.

PROFILE OF THE FIRM

Woodard & Curran is an integrated engineering, science, and operations company. Privately held and steadily growing, we serve public and private clients locally and nationwide.

Talented people are at the heart of our firm. Our company was founded in 1979 on a simple business concept: provide an enjoyable place to work with opportunity, integrity, and commitment, and we will attract talented people. It happened. At the heart of our company are people who are experts in their fields and passionate about what they do, showing a level of commitment and integrity that drive results for our clients. You experience this power every day in our actions, our solutions, and our promises kept.



Commitment evident in personal approach

Our commitment is reflected in the personal attention, collaborative resources, and dedication to results that we devote to each project. We assign the right people with the right expertise to the job, and provide clients with easy accessibility to senior experts.

Our work is characterized by responsiveness, resourcefulness, and willingness to do what it takes to get the job done properly. Examples range from helping communities garner state and federal funding for wastewater treatment system improvement to managing a multi-vendor manufacturing project through a major snowstorm and getting production lines up and running. We are experts at navigating the complexities of environmental regulations and have been involved in transforming many brownfields sites into marketable properties. In defining moments like these, it is commitment that brings our clients results.

Woodard & Curran serves clients locally and nationwide from offices throughout the U.S. Headquartered in Portland, Maine, the firm operates offices in the locations noted above, as well as treatment facilities in the states that appear in orange.

Operating with integrity

Our integrity impacts our decision-making at all junctures of our work — from the openness of our communication to the fairness of our prices to placing your interests above our pocketbook. We hire people who share our values of honesty, respect, and fairness and who want to do the right thing. They, in turn, treat everyone — our people, our clients, regulators, and stakeholders — respectfully and honestly.

Full-service firm with multidisciplined staff

Our integrity and commitment are matched only by the depth of our expertise. Our staff are specialists in their fields, offering in-depth understanding of cutting-edge technology, astute problem-solving, multidisciplinary engineering, and expert regulatory guidance. The firm has received numerous honors and awards, and we have ranked among *Engineering News-Record's* top 100 environmental firms every year since 2000.

Services to the private sector

Woodard & Curran provides a range of site/civil and environmental engineering, science, and operations support to companies in the real estate sector, as well as to hospitals, colleges and universities, and law firms, helping our clients realize their project vision.



BARRY SHEFF, PE
PRINCIPAL-IN-CHARGE

Professional Profile

Barry is a Senior Principal and Senior Project Manager with over 25 years' experience working with the public sector on infrastructure planning and implementation, and with the private sector on urban revitalization projects. He is responsible for design and project management, with expertise engaging and facilitating stakeholder processes. His project work has involved utility infrastructure with focus on stormwater and wastewater utility planning studies, evaluations, and engineering; green infrastructure; master development planning and site design; and environmental/land-use permitting at the local, state, and federal levels. Barry focuses his work on sustainable environmental design and is committed to collaborating with owners and stakeholders to develop practical solutions to complex problems. He has been involved in numerous projects with high-performance buildings and LEED certification. Barry has a track record of understanding client expectations, consistent budget controls and excellent communication skills that enable him to drive the success of small and large projects of varying complexities.

Related Experience

Maine Medical Center, Portland, ME – Parking Garage. Principal-in-Charge for the permitting and design of the new 2,000+ car parking garage in St. John Valley neighborhood of Portland. The project is the result of a partnership between a private land-owner and Maine Medical Center (MMC) as part of the hospital's major campus expansion. Woodard & Curran's work involves site options analysis, land-use and environmental permitting, site/civil engineering and utility infrastructure design for the multi-level parking structure to serve MMC employees. Focus areas of the project involve the coordination with employee shuttle services, and the need for accommodating employee commuting patterns and routes while reducing demand on the existing urban street network surrounding the hospital campus.

Patrons Oxford Insurance – Patrons Oxford Insurance Headquarters. Principal-in-Charge for the permitting and design of the new Patrons Oxford Insurance Headquarters in Portland, Maine. The project was the first development in the Portland Technology Park in Portland (designed by Woodard & Curran). The project involved close coordination with the design team and owner, and included the low impact design considerations for parking and site features, as well as integration into the Technology Park's stormwater management plan.

East Brown Cow Management Inc., South Portland, ME – Sable Oaks Office.
Principal-in-Charge responsible for civil site design and land-use permitting of a 45,000-SF office building with associated parking lot, access drives, plazas, and landscaping. The project included design of stormwater treatment systems, erosion control, site amenities, and utilities. Permitting efforts involved the City of South Portland, Maine Department of Environmental Protection (DEP), Army Corps of Engineers, and Federal Aviation Administration given proximity to the Portland International Jetport.

Education

- Bachelors, Civil / Environmental Engineering, University of Vermont

Registrations

- Registered Professional Engineer - ME, #9708
- NCEES License - National, 60366
- Maine DOT Local Project Administration Tier 1 Certification

Professional Associations

- American Society of Civil Engineers
- American Public Works Association
- New England Water Environment Association (NEWEA)
- Order of the Engineer

East Brown Cow Management Inc., Portland, ME – Hyatt Place Hotel. Principal-in-Charge for this redevelopment project to convert an existing parking lot on a 20,000 SF urban parcel of land into an 80,000 SF hotel. We collaborated with the architect and owner's representative to provide local permitting and site / civil engineering design associated with the project. The project was complicated by private power distribution infrastructure that crossed the site and needed to be maintained, as well as the City's desire to have off-site roadway improvements incorporated into the project.

PDT Architects, Portland, ME – Adams School Workforce Housing. Project Manager for this urban redevelopment project, supporting AVESTA Housing and its design team. Located in the Munjoy Hill neighborhood of Portland, the project is a result of a public RFP for redevelopment proposals of this brownfield site, the home of a former elementary school. The project involved the demolition of the existing Adams School building and site amenities, and remediation of environmental contamination; and development of a 16-unit affordable ownership-housing complex, with public open space and playground area. Our work involved local and state environmental permitting, and site engineering and design associated with the placement of this project in a densely developed residential neighborhood. The engineering effort required an intensive balance of earthwork activities to control remediation costs and ensure adequate environmental protections for the residents and users of the open spaces.

The Watermark and Ocean Gateway Garage – Mixed Use Development. Project Manager for the environmental due diligence phases (Phase 1 environmental site assessment and soil/groundwater investigations), site design, and permitting for this private mixed use development on the Portland waterfront (adjacent to the Ocean Gateway facility) with boutique hotel, luxury condominiums, retail, commercial space, office building, 750-car parking garage, and additional surface parking lots. Site/civil work includes layout, grading, drainage, erosion and sedimentation control, and utility design. Permitting includes City Site Plan, Subdivision, Historic Preservation, Maine DEP Site Law, and Maine Historic Preservation permitting. The parking garage was constructed while the remaining portions of the project were unbuilt.

MaineDOT, Portland, ME – Ocean Gateway Multimodal Facility. Program and Project Manager of the permitting and design for implementing first phase of the Master Plan of the redevelopment of a 19.5-acre ship repair facility to a multi-use marine transportation facility on Portland's waterfront. The phase one facility encompassed the former Bath Iron Works site and the associated City-owned land-based infrastructure. Under Barry's responsible charge, Woodard & Curran prepared, submitted, and obtained land-use and environmental permits for the project, including local land-use and Board of Harbor Commissioners approvals; Maine Department of Public Safety Construction Permit; Maine Traffic Movement Permit; U.S. Army Corps of Engineers Department of the Army Permit; and Maine DEP Site Location of Development Permit and Natural Resources Protection Act. We also designed the site infrastructure (vehicle queuing, pick-up and drop-off, short- and long-term parking) to be flexible in its use. The project includes the design of City streets, a major regional trail connection, and the narrow gauge passenger railway. The design creates a new city block and the impetus for economic development. The design of utility infrastructure and blending the facility into an existing congested urban environment proved challenging, but in the end, met the City's future needs. Barry was responsible for working with a steering committee to develop and refine concepts working within available construction funding constraints, and for preparing Phase 1 improvement recommendations as a summary of the preliminary design efforts. As the Program Manager, Barry was responsible for managing the contract with the State of Maine and the 10-firm design team.

University of Southern Maine, Portland, ME – Community Education Center and Parking Garage. Project Manager/Engineer responsible for site and utility design of a 1200-car parking garage, 500-seat lecture hall, and 15,000-SF office classroom building. Coordinated the site survey; completed preliminary site evaluations; prepared grading and utility plans for surface parking areas, open space, and roadways; developed construction documents; completed stormwater design; coordinated with the City of Portland for roadway realignments and discontinuances; coordinated design plans with the project architect and landscape architect; and prepared technical specifications for construction documents. Coordinated with the regulatory agency; prepared local Demolition Permit applications; prepared Application for Maine DEP Site Law and City's Major Site Plan Applications under tight time frames. The project is LEED Gold certified.

City of Portland, ME – Bayside Adapts, Phase I. Principal-in-Charge of the team providing planning and engineering services to facilitate the City's first climate change adaptation planning effort, for the City's Bayside neighborhood. The focus of the project was to conduct a Sewer and Stormwater Data Gap Analysis, and public engagement process to help the community identify a socially responsible, technically sound and financially feasible adaptive strategy to protect the Bayside Neighborhood from the effect of rising tides, extreme rain events and storm surge. Our work involved coordination and contracting with a subconsultant, RPS ASA to evaluate and recommend sea level rise and storm surge scenarios appropriate for City of Portland's planning horizon.

BECKER
STRUCTURAL ENGINEERS

About Us

Becker Structural Engineers, Inc., was founded in 1995 and is a full service structural consulting firm with a staff of twenty-seven. We provide practical, cost-effective and innovative solutions on a wide range of challenging projects in three practice areas; buildings, parking structures and bridges.

We believe in competency and character as our defining values. We are pro-active and interactive in our approach. Our dedicated staff and our investment in technology allows us to deliver high quality service on multiple large and small projects simultaneously. We embrace an engineering approach to projects which combines classical engineering theory and practical experience, paired with the versatility and efficiency of Autodesk Revit to create structural models which interact and coordinate with architectural and mechanical models to define the comprehensive building system. This approach advances the design and coordination of our projects.

Our building design practice includes residential, commercial, education and public institutional buildings. We have substantial experience with contemporary building design which is complemented by an extensive background and expertise renovating and restoring historic structures. Our design capabilities are complemented by our construction phase services, which include construction reviews for general conformance and implementation and administration of the IBC Special Inspections Program. We believe a strong job site presence contributes to enhanced quality and improved construction efficiency. Working with the owner, architects, contractor and testing agencies our office provides a full range of construction monitoring capabilities.

Becker Structural Engineers have been the selected structural engineering consultant for municipalities, owners and developers throughout New England. Recent and relevant work includes on-going services under a **General Consulting Services for the City of Portland** and a **General A/E Services** agreement with the **Portland Housing Authority.** Significant buildings in Portland include the multi-story medical offices for **InterMed**, the **Hyatt Hotel** located on Fore St. and the rehabilitation of the **historic Twitchell-Champlain** building on Merill's Wharf which now serves as the law offices for Pierce Atwood**.** We strive to integrate ourselves in understanding the overall approach that each owner is seeking to obtain, with guidance on analysis and cost recommendations to fit within the sustainability of the program design.


City of Portland
International Jetport
Parking Garage



Hyatt Hotel


InterMed Medical Offices


Historic Twitchell-Champlain Offices

75 York Street, Portland, Maine 04101 ■ 207.879.1838 ■ beckerstructural.com

BECKER
STRUCTURAL ENGINEERS



Casco Bay Ferry Terminal



Canal Zero Redevelopment



Maine Medical Center
Employee Parking Garage



Portland Public Library

50 Sewall Street M.O.B. (LEED Certified), Portland, ME
58 Fore Street Building 2/3 & Marina Building, Portland, ME
84 Marginal Way M.O.B and Parking Structure, Portland, ME
173 Main Street Redevelopment, Waterville, ME
409 Cumberland Ave Housing, Portland, ME
Bayside Anchor Housing, Portland, ME
Bayside Village Student Housing, Portland, ME
Berlin City Honda Showroom, South Portland, ME
Berlin City TSL Showroom, South Portland, ME
Canal Zero, Portland, ME
Casco Bay Ferry Terminal, Portland, ME
CEI Office Building (LEED Certified), Brunswick, ME
Consigli Office Building, Milford, MA
Dead River Corporate Office, South Portland, ME
DHS Office Building, Portland & Lewiston, ME
Elm Terrace Apartments, Portland, ME
Emerson Shailer Housing, Portland, ME
Exactitude Office/Manufacturing Building, Cumberland, ME
Ferry Terminal Redevelopment IMT Office Building, Portland, ME
Genest Warehouse Addition, Biddeford, ME
Gorham Savings Bank Operations Center, Gorham, ME
Handyboat Restaurant/Dockside Grill, Falmouth Foreside, ME
Hill Farm Equestrian Center, New Gloucester, ME
Huston Commons, Portland, ME
Hyatt - Old Port Hotel, Portland, ME
IDEXX Laboratories Data Center Relocation, Westbrook, ME
Irish Heritage Center Structural Review, Portland, ME
Jackson Laboratories Building Renovation, Bar Harbor, ME
LL Bean Vertical Expansion Feasibility Study, Freeport, ME
Maine DEP - Deering & Greenlaw Buildings, Augusta, ME
Maine Medical Center Family Practice Office Building, Portland, ME
Maine Medical Center Employee Parking Garage, Portland, ME
Maine Municipal Association Office Addition, Augusta, ME
Maine Standards Building, Cumberland, ME
Maine Veterans Homes Office Building, Augusta, ME
Marriot Residence Inn, Portland, ME
Merrill Auditorium, Portland City Hall, Portland, ME
Norway Savings Bank, Gray, ME
Park Danforth New Residence Wing, Portland, ME
Patrons Insurance Building, Portland, ME
Pearl Place I & II, Portland, ME
Pinetree Shopping Center Retail Development, Portland, ME
Portland Public Library, Portland, ME
Portland Public Market Redevelopment, Portland, ME
RMS Office Building, South Portland, ME
Saco Biddeford Savings Bank (LEED Silver), Saco, ME
Shops at Falmouth Village, Falmouth, ME
Strand Theatre, Rockland, ME
Topsham Retail Center, Topsham, ME
Twitchell - Champlin Building, Portland, ME
Vortechnics Office Building, Scarborough, ME
Westin Hotel, Portland, ME

BECKER
STRUCTURAL ENGINEERS



Paul B. Becker, P.E., SECB
President

As the founder of Becker Structural Engineers, Paul has over thirty-eight years of structural engineering experience in New England and the Mid-Atlantic States. His technical experience covers all aspects of the structural engineering profession including complex building systems using steel framing, cast in place, precast and post-tensioned concrete, deep foundation support systems, earth retaining structures, masonry and timber framing. He has served as lead design engineer and project manager, responsible for establishing and monitoring schedules, budgets and quality control on projects with construction costs of up to $75 million. As Principal in Charge of a project, he collaborates with the client and project team to establish the project scope, schedule and contracts and monitors the progress and quality of work.

PROFESSIONAL ENGINEER REGISTRATION

- Maine (#6554)
- Massachusetts (#39009)
- New Hampshire (#6258)
- New York (#86255
- Vermont (#7773)
- Georgia (#033280)
- Connecticut (#20725)
- Rhode Island (#9067)
- Ohio (#74529)
- Certified in the Practice of Structural Engineering (#2285-0708)



Todd M. Neal, P.E.
Vice President

A principal of BSE, Todd is a registered Professional Engineer in the State of Maine and has extensive experience in the design and fabrication of precast/prestressed concrete garages, building components, bridge components, architectural precast concrete. Specialty topics include repair and maintenance of parking structures. He offers expertise in construction management, structural testing and administration of special inspection programs in accordance with the IBC Codes. Todd is currently an active member on the PCI Parking Garage Design Committee and Joint Sealant Sub-Committee and contributed to the publication of the PCI “Maintenance Manual for Precast Parking Structures” and the PCI Committee Report “Joints in Precast Parking Structures”.

PROFESSIONAL ENGINEER REGISTRATION

- Maine (#9406)
- Connecticut (#27306)
- Massachusetts (#51354)
- West Virginia (#20277)
- New Brunswick, Canada (#L5173)
- Nova Scotia, Canada (#11330)
- Certified in the Practice of Structural Engineering (#2639-0708)



Ethan A. Rhile, P.E.
Senior Associate

Ethan joined BSE in September of 2001 after practicing structural engineering in the Mid-Atlantic States. He has extensive experience in the design of multiple story buildings and industrial facilities, with several projects eclipsing 250,000 square feet. He has served as a Project Manager, responsible for the technical design, quality control, budgeting, and construction administration for building projects up to ten stories in height, with construction budgets up to $100 million. He has an in-depth knowledge of computer software packages including STAAD-III, SAPP 2000, RISA 3D, RAM Elements, RAM Structural System, SP Mats, AutoCAD and Revit.

PROFESSIONAL ENGINEER REGISTRATION

- Maine (#10266)
- Commonwealth of Pennsylvania (#057589)

CONSIGLI CONSTRUCTION CO., INC.

At a Glance

CONSIGLI
Est. 1905

HISTORY & LEADERSHIP

Established in **1905**

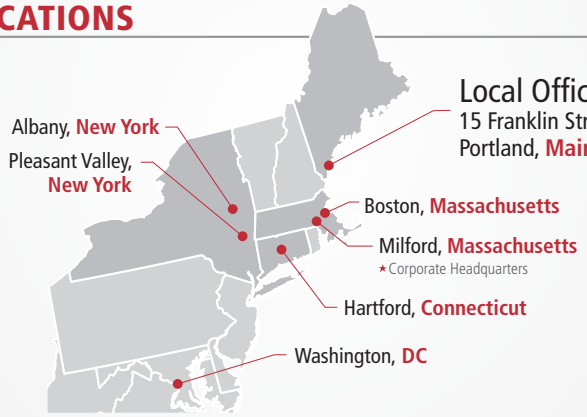
100% Employee Owned

ANTHONY CONSIGLI, CEO
MATTHEW CONSIGLI, President
MATTHEW TONELLO, Director of Operations/ME

FINANCIAL STRENGTH

$110M	$1.2B	$2B	$400M
2018 Revenue (MAINE)	2018 Revenue (CORPORATE)	Aggregate Bonding Limit	Single Project Bonding Limit

OFFICE LOCATIONS



PEOPLE

90	1,000	350	7
Employees (MAINE)	Employees (CORPORATE)	Self-perform Craftspeople	Regional Office Locations

OUR STORY

In 1905, Peter Consigli, a skilled mason, established Peter Consigli & Sons in Milford, Massachusetts, on the cornerstones of hard work, integrity and pride in craftsmanship. Four generations and over 100 years later, Consigli has grown from a local business into one of the largest construction managers in the Northeast.

With more than 1,000 employees corprate-wide and 90 in Maine, Consigli has expanded its roots, while maintaining its core competencies as a true builder with more than 350 skilled carpenters, laborers and masons on staff.

RELEVANT EXPERIENCE

Consigli has extensive knowledge of every component included in the Portland Square project from a wealth of lessons learned from similar projects. We are experts in parking garage construction having completed more than a dozen in recent years, including five of 750 cars or more. On the following pages we have demonstrated our experience with parking structures, deep foundations and office buildings in urban environments.

39	30,000	150+	2M+ SF
Total Parking Garages Constructed or in Construction	Total Parking Spaces Constructed or in Construction	Office Buildings Constructed or in Construction	of Office Space Constructed or in Construction



RELEVANT EXPERIENCE

CONSIGLI
Est. 1905



Cow Plaza Hotel LLC, Hyatt Place Hotel, Portland, ME

New construction of a 80,000 sq. ft. hotel in downtown Portland. The facility, located at the corner of Fore and Union Streets, contains 130 guest rooms and 1,000 sq. ft. of street-level retail space, a swimming pool and other high-end amenities.



East Brown Cow Inc., Canal Zero, Portland, ME

20,000 sq. ft. renovation and re-branding of East Brown Cow's Canal Plaza in Portland's Downtown will bring new life to the quiet plaza, which rests between four corporate office buildings. The plaza will feature locally quarried pavers, stairs and retaining wall and a new boutique circular building constructed of a mixture of exposed architectural concrete and a custom curtainwall system.



Aura, Club Renovations/Expansion, Portland, ME

8,460 sq. ft. renovation and 14,400 sq. ft. new construction to Portland's iconic nightclub will allow the venue to hold larger events, conferences, private events and weddings. Project scope includes demolition and reconstruction of much of the existing building and new kitchen, bar areas, dance floors and finishes. The project is being executed across three distinct phases with carefully planned urban logistics.



Maine Medical Center, Employee Parking Garage, Portland, ME

New 810,000 sq. ft., 2,400-car parking garage built to support Maine Medical Center's master plan in providing a consolidated parking option for employees. The nine-story garage will be supported on steel H-piles and cast-in-place concrete foundations with the above-grade structure consisting of precast concrete. Construction will occur adjacent to occupied businesses, private residences and active railroad tracks.



City of Portsmouth, Foundry Place Parking Garage, Portsmouth, NH

This six-story, 618-space parking garage on Deer Street, while also making roadway improvements. This challenging site—located in a tidal zone and abutted on both sides by a freight railroad and residential neighborhood—is also a heavily-contaminated brownfield, hosting heavy metals, lead, petroleum and oil. Extensive remediation efforts will be required, in tandem with abatement and demolition of several small existing structures on the site.

RELEVANT EXPERIENCE

CONSIGLI
Est. 1905



City Square II Development Co., CitySquare Underground Garage, Worcester, MA

Construction of a 564-space, 160,000 sq. ft. two-story below-grade garage as part of the CitySquare development in Worcester. The project required management of hazardous soils, challenging logistics and groundwater issues. The project also included the Installation of a public plaza atop the new below-grade structure.



Related Beal, Lovejoy Wharf, Boston, MA

New construction of a 250,000 sq. ft., 17-story residential building featuring 157 luxury condominiums plus amenities, public spaces and 2,000 sq. ft. of ground-floor retail space. This cast-in-place concrete structure was built around an active, waterfront site, adjacent to the TD Garden and Zakim Bridge.



Maine Historical Society, Brown Library & Longfellow Garden, Portland, ME

This 10,000 sq. ft. renovation and 10,000 sq. ft. expansion of historic library was completed within a constricted urban site; included upgrades to M/E/P and life safety systems and ADA requirements. The addition features a dramatic Kawneer curtain wall façade.



MaineHealth, Corporate Headquarters, Portland, ME

Conversion of a 1940s retail building, originally built for Sears & Roebuck, into 90,000 sq. ft. Class A office space for this leading regional healthcare network. The central core of the building was removed to create a new atrium that maximizes natural light throughout the building. Consigli procured and managed the installation of custom furniture systems.



Immucell Corp., Mast-out Facility, Portland, ME

16,800 sq. ft. new construction of a pharmaceutical-grade production facility for Mast Out, a treatment for a common infection found in cows worldwide. The cGMP facility will house space for fermentation, laboratory, processing and warehouse program areas, and it is utilizing pre-fabrication for equipment and building systems to manage the aggressive schedule.

People's United Bank

March 8, 2019

Ms. Barbara Barhydt
City of Portland, Planning Division
389 Congress Street, 4th floor
Portland, ME 04101

Re: North River IV, LLC and North River Company, LLC

To Whom It May Concern:

North River Company ("NRC"), the Manager of North River IV LLC, which is the owner of record of the properties known as Portland Square, Portland, ME, has had a banking relationship with People's United Bank, N.A. since 2010. In that time, People's United Bank has provided NRC and its affiliates with real estate financings in excess of $170,000,000, including loans for acquisition, new development and complex renovation projects. We consider the principals of NRC to be of the highest character and, based on our knowledge of NRC's management expertise, financial condition and access to significant liquid assets, People's United Bank would be comfortable entertaining requests for financing any type of real estate project and of any size.

NRC and its affiliates have access to cash reserves and credit facilities well in excess of $20,000,000 with People's United Bank.

People's United Bank is a subsidiary of People's United Financial, Inc., a diversified financial services company with over $45 Billion in assets. Founded in 1842, People's United Bank is a community-based, regional bank in the Northeast offering commercial and retail banking, as well as wealth management services through a network of nearly 400 retail locations in Connecticut, New York, Massachusetts, Vermont, New Hampshire and Maine.

If I may be of any further assistance regarding this highly valued relationship, please contact me at (207) 828-3023 or by email at timothy.mcmachen@peoples.com.

Sincerely,

Timothy J. McMachen
Senior Vice President
Commercial Real Estate

Att. G

MAINE REAL ESTATE TAX-Paid

QUITCLAIM WITH COVENANT DEED

DLN:1001540002732

RREEF AMERICA REIT III-Z4 LLC, a Delaware limited liability company with a place of business in 222 South Riverside Plaza, Chicago, Illinois 60606-5808 for consideration paid, grants to North River IV LLC, a Delaware limited liability company with a place of business at 224 12th Avenue, New York, NY 10001, with **QUITCLAIM COVENANT**, the land, together with all improvements thereon and all rights and easements appurtenant thereto, located at or near Union street and Fore street consisting of unites 1-6 One Portland Square, a Business Condominium, the building known as Two Portland Square and certain related parcels, Portland, Cumberland County, Maine, more particularly described on **Exhibit A** attached hereto.

IN WITNESS WHEREOF, RREEF America REIT III-Z4 LLC, has caused this deed to be executed by James E. Toney, Assistant Vice President its duly authorized Assistant Vice President, this 26th day of March, 2015.

RREEF AMERICA REIT III-Z4 LLC,
a Delaware limited liability company,

By: RREEF AMERICA REIT III-Z LLC,
a Delaware limited liability company, its manager,

By: James E. Toney
Its duly authorized Assistant Vice President

Witness:
Vanessa C. Z

STATE OF ILLINOIS
COUNTY OF COOK

March 26, 2015

Personally appeared before me the above-named James E. Toney, Assistant Vice President of RREEF America REIT III-Z LLC, a Delaware limited liability company, manager of RREEF America REIT III-Z4 LLC, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said company.

Notary Public/Attorney at Law
Print name: Beverly A Dillon

OFFICIAL SEAL
BEVERLY A. DILLON
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES MARCH 3, 2018

EXHIBIT A

Legal Description

Tract 1:

Parcel One - One Portland Square.

Units No. 1, 2, 3, 4, 5, and 6 of One Portland Square, a business condominium, situated at the corner of Union and Spring Streets in the City of Portland, County of Cumberland and State of Maine, as more particularly described in the Declaration of One Portland Square, a business condominium, dated as of October 27, 1987 and recorded in the Cumberland County Registry of Deeds on October 29, 1987 in Book 8039, Page 37, and in the plats and plans incorporated into the declaration and recorded in the Cumberland County Registry of Deeds in Plan Book No. 166, Page 44 sheets 1 through 13, by virtue of the recording of which declaration, plats and plans, the declarant created the condominium pursuant to the Maine Condominium Act, Title 33 of the Maine Revised Statutes of 1964, as amended, Chapter 31, Sections 1601-101 et seq., as amended.

Parcel Two - Upper Parking

A parcel of land shown as "Lot 3" on a land title survey prepared for Northland Realty Corporation by Lewis & Wasina, Inc. dated April 5, 1995, Project No. 9508 located on the southerly side of Spring Street Arterial, the easterly side of Cotton Street and the northerly side of Fore Street, City of Portland, County of Cumberland, State of Maine, and being more particularly described as follows:

Beginning at a found rebar at the intersection of the northerly right of way line of Fore Street and the easterly right of way line of Cotton Street;

Thence, N24° 18' 44" W along the easterly right of way line of Cotton street a distance of 356.32 feet to a set 5/8 inch rebar with aluminum cap stamped "Lewis & Wasina PLS 2114" at the southerly right of way line of Spring Street Arterial;

Thence, N65° 47' 27" E along the southerly right of way line of Spring Street Arterial a distance of 89.72 feet to a found rebar;

Thence, continuing to follow the southerly right of way line of Spring Street Arterial along a curve to the left having a delta of 3° 11' 35", a radius 3887.30 feet, an arc length of 216.65 feet and a chord bearing and length of N64° 11' 39" E, 216.62 feet to a found drill hole in a concrete sidewalk;

Thence, S11° 09' 10" E following the former easterly right of way line of cross street, now discontinued, along lot 1 and lands conveyed by deed to Two Portland Square limited partnership as shown on said plan a total distance of 413.33 feet to a found rebar on the northerly right of way line of Fore Street;

Thence, S78° 49' 49" W along the northerly right of way line of Fore Street a distance of 79.03 feet to a found rebar;

Thence, S75° 13' 06" W along the northerly right of way line of fore street a distance of 137.10 feet to the point of beginning.

All the above mentioned found rebar are 5/8 inch with aluminum cap stamped "SMRT RLS 1314".

Reference should be made to the plan for further details of the boundary and easements.

The basis of bearing for this description is magnetic North, 1972, as shown on said plan.

Parcel Three - Lower Parking

A certain lot or parcel of land being the majority of the block bounded northerly by Fore Street, easterly by Cross Street, southerly by Commercial Street and westerly by Center Street in the City of Portland, County of Cumberland, and State of Maine and further bounded and described as follows:

Beginning at a drill hole at the intersection of the northwesterly line of Commercial Street and the easterly line of Center Street, said point also being the most southwesterly corner of certain land conveyed to the Atbro Corporation by Deed dated October 3, 1979, and recorded in the Cumberland County Registry of Deeds in Book 4506, Page 48;

Thence North 43° 29' 22.8" East along Commercial Street, a distance of 69.18 feet to a reinforcing rod;

Thence North 46° 50' 30" East along said Commercial Street, a distance of 54.32 feet to a reinforcing rod;

Thence North 52° 30' 11.2" east along said Commercial Street, a distance of 35.64 feet to a drill hole;

Thence North 24° 17' 37.6" West along land formerly of Ari Newman and Lee Beamis, and now Harbor Landing Condominium, see Declaration of Condominium recorded in Book 6505, Page 312, Cumberland County Registry of Deeds, a distance of 93.23 feet to a reinforcing rod;

Thence North 65° 44' 46" East along land now or formerly of said Ari Newman and Lee Beamis, a distance of 109.60 feet to a P.K. spike in the westerly line of Cross Street;

Thence North 13° 21' 13.9" West along said Cross Street, a distance of 287.70 feet to a reinforcing rod, said point being located at the intersection of the westerly line of Cross Street and the southerly line of Fore Street;

Thence South 69° 41' 09.0" West along said Fore Street, a distance of 318.64 feet to a reinforcing rod, said point being located at the intersection of the southerly line of Fore Street and the easterly line of Center Street;

Thence South 24° 16' 16.2" East along said Center Street, a distance of 451.12 feet to the point of beginning.

Excepting from the above described premises those premises taken by the State of Maine by its Department of Transportation set forth in its notice of layout and taking dated August 21, 1991 and recorded in the Cumberland County Registry of Deeds in Book 9688, Page 341.

Tract 2: Two Portland Square.

A certain lot or parcel of land with any buildings thereon situated at the intersection of Fore Street and Union Street in the City of Portland, County of Cumberland, and State of Maine, being Lot 2 on plan for Two Portland Square Subdivision by Stevens Morton Rose & Thompson dated October 22, 1987, revised to September 18, 1989 and recorded in Plan Book 182, Page 29.

Subject to and together with that certain parking easement established in Declaration of Easement by Portland Square limited partnership dated December 18, 1989 and recorded in Book 9028, Page 117, as affected by Subject Property Notice dated December 18, 1989 and recorded in Book 9028, Page 136, and by Permitted Parking Areas Plan dated December 18, 1989 and recorded in Book 9028, Page 141.

Rights, easements, covenants, conditions and restrictions set forth in Declaration of Easement by Portland Square Limited Partnership dated October 30, 1987, recorded at Book 8045, Page 303, as affected by Additional Declaration of Easement dated December 18, 1989, recorded at Book 9028, Page 92, Release of Easement dated December 18, 1989, recorded at Book 9028, Page 97, Subject Property Notice dated December 18, 1989, recorded at Book 9028, Page 102, and Permitted Parking Areas Plan dated December 18, 1989, recorded at Book 9028, Page 112.

EXISITING AND/OR PROPOSED EASEMENTS OR COVENANTS

The following Easements and/or Covenants are existing and/or proposed for the Portland Square Project:

1. Easements within the discontinued section of Cross Street between Spring Street and Fore Street, including the following:
    - 50-foot sewer easement to City of Portland.
    - 50-foot Scenic Easement/ View Corridor, to City of Portland
    - 10-foot pedestrian easement
    - 27-foot utility easement to Central Maine Power
    - 27-foot utility easement to Northern Utilities
    - 10-foot storm drainage easement across Portland Square One and Portland Square Two
    - 25-foot x 35-foot easement to Portland Water District at the intersection of Fore Street and Cross Street
2. Drive Through Teller Easement on Portland Square Two parcel (Lot2)
3. Licenses for building footings, overhangs and canopies located within the public street rights-of-ways.

These easements and licenses will be shown on the ALTA Existing Conditions Survey, Subdivision Plan, or Site Plans that are made part of this Application.

Att. I

BK7168PG0048

19647

QUITCLAIM DEED WITH COVENANT

KNOW ALL PERSONS BY THESE PRESENTS, that PORTLAND SQUARE LIMITED PARTNERSHIP, a limited partnership organized and existing under the laws of the Commonwealth of Massachusetts, and having a place of business at 2150 Washington Street, Newton, Massachusetts 02162, for consideration paid, does hereby remise, release, bargain, sell, convey and forever quitclaim unto the CITY OF PORTLAND, a Maine municipal corporation having a principal place of business at 389 Congress Street, Portland, Maine, with quitclaim covenant, the following-described easements in and to a certain portion of Cross Street as described in Exhibit A attached hereto and incorporated herein by reference, which portion was duly discontinued by order of the City Council of the said City of Portland on January 6, 1986:

A perpetual easement for the maintenance, repair and replacement of certain public utility facilities, to wit, all such facilities on and under the surface of the said discontinued portion of Cross Street, including pipes and associated structures and equipment, as may be necessary for the collection of sewage and storm water, as and where the same may presently exist, together with the right to enter upon any portion of the said discontinued portion of Cross Street at all times and with vehicles and equipment and to do therein all things necessary for the foregoing purposes; provided, however, that the Grantee shall promptly restore the surface of the said discontinued portion of Cross Street to substantially the same condition, using the same or substantially similar materials, as existed immediately prior to any opening thereof occasioned by the exercise of any of the foregoing rights.

Also, a perpetual easement for the lawful use and passage of pedestrians on and over such portion or portions of the said discontinued portion of Cross Street as may thus be described on a plan of Portland Square entitled "Cross Street Easement Plan" dated January 3, 1986, and prepared by Hunter-Ballew Associates, which plan is on file with the City of Portland Department of Planning and Urban Development, as the same may from time to time be duly amended by agreement of the Grantor and Grantee.

Also, a perpetual easement for the scenic view of all points of general interest as such view may presently or hereafter be visible in a generally southeasterly direction from any portion of the said discontinued portion of Cross Street, it being the intent hereof to establish and maintain a substantially unobstructed visual corridor for the full length and width of the said discontinued portion of Cross Street; for the foregoing purposes, no substantial building or structure shall be erected or installed on or over any portion of the said discontinued portion of Cross Street; provided, however, that

nothing herein shall be construed to prohibit customary site improvements, including, by way of example and not of limitation, railings, walkways, lighting, trees, landscaping, steps, bollards, planters, retaining walls, street furniture and regulatory and informational signs.

IN WITNESS WHEREOF, the said Portland Square Limited Partnership has caused this instrument to be executed and sealed by Peter Barber, Vice President of Northland Realty Corporation, general partner of Northland Union Street Limited Partnership, general partner of Portland Square Limited Partnership, thereunto duly authorized this 25th day of April, 1986.

PORTLAND SQUARE LIMITED PARTNERSHIP

BY NORTHLAND UNION STREET LIMITED PARTNERSHIP
General Partner of Portland Square Limited Partnership

BY NORTHLAND REALTY CORPORATION
General Partner of Portland Union Street Limited Partnership

Patricia J. Walton

By _____
Its Vice President

COMMONWEALTH OF MASSACHUSETTS
Middlesex, SS

April 25, 1986

Then personally appeared the above-named Peter K. Barber, Vice Pres. of Northland Realty Corporation, and acknowledged the foregoing instrument to be his free act and deed in his said capacity, and the free act and deed of Portland Square Limited Partnership.

Before me,

Barbara B. Wahlquist
Name: Notary Public

My Commission Expires Oct. [illegible]

SEAL

EXHIBIT A

All that portion of Cross Street situated in Portland, Maine lying between the Northerly sideline of Fore Street and the Southerly sideline of Spring Street Arterial, being a strip of land approximately fifty (50) feet in width more particularly described as follows: beginning at a point on the Northerly side of Fore Street at the most Southerly corner of land described in deed from S. Richard Mack to Atbro Corp., dated April 18, 1980 and recorded in the Cumberland County Registry of Deeds in Book 4591, Page 289; thence on a course of North eleven degrees, nine minutes, nine and 6/10 seconds West (N 11° 9' 9.6" W) by said land now or formerly of Atbro Corp., other land now or formerly of Atbro Corp. and land now or formerly of City of Portland four hundred nine and 23/100 (409.23) feet to the Southerly sideline of Spring Street Arterial; thence Westerly by said sideline of Spring Street Arterial fifty-two (52) feet, more or less, to land now or formerly of City of Portland; thence South eleven degrees, nine minutes, and nine and 6/10 seconds East (S 11° 9' 9.6" E) by said land of City of Portland and other land now or formerly of Atbro Corp. three hundred seventy-six and 82/100 (376.82) feet to the Northerly sideline of Fore Street at the Easterly corner of land described in deed from Browneo Realty Inc. to Atbro Corp. dated September 10, 1979 and recorded in said Registry of Deeds in Book 5035, Page 321; thence Easterly by said sideline of Fore Street fifty-two (52) feet, more or less, to the point of beginning.

RECEIVED
RECORDED REGISTRY OF DEEDS
1986 MAY 12 PM 2:23
CUMBERLAND COUNTY
James J. Walsh

EVIDENCE OF STATE OR LOCAL APPROVALS

3 Portland Square will require the following permits and approvals:

Permit Required	Submittal Date	Anticipated Approval Date
• Level III Site Plan and Subdivision (PH1)	10/01/2019	12/24/2019
• Maine DEP SLODA Amendment	10/15/2019	12/24/2019
• State Fire Marshall	08/01/2020	10/01/2020

The Portland Square Project currently has the following Permits and Approvals either in place or under review/ pending:

Portland Square One

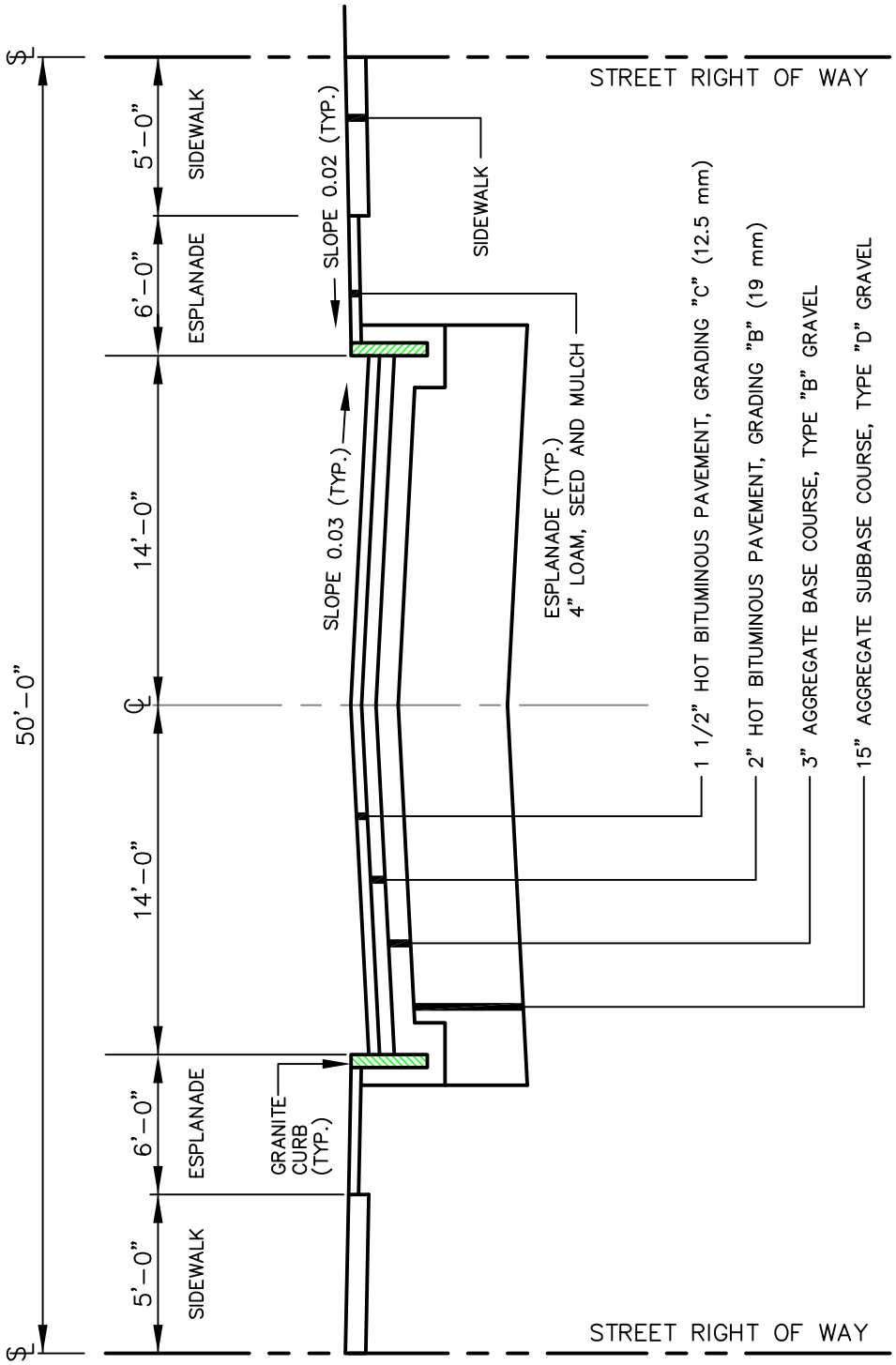
• Site Plan Approval from City of Portland		November, 1985	July, 1986
• Maine DEP SLODA	#L-013526-26-B-N		July 25, 1986
	#L-013526-26-B-A		July 27, 1987
• Site Plan Amendment from City of Portland		April 10, 2019	June 25, 2019
• SLODA Parking Amendment -City of Portland		April 10, 2019	June 25, 2019
• City of Portland Master Development Plan		04/05/2019	11/26/2019
• Maine DOT Traffic Movement Permit		09/05/2019	11/26/2019

Portland Square Two

• Site Plan Approval from City of Portland		1988	July 18, 1989
• Maine DEP SLODA	#L-013526-26-C-A		June 19, 1989
	#L-013526-26-C-A (Corrected)		July 21, 1989
	#L-013526-26-D-C		December 21, 1989
	#L-013526-26-F-M		November 30, 1990
	#L-013526-26-G-T		February 2, 1996
	#L-013526-26-H-N		February 15, 1996

Copies of all Approvals and Findings of Fact are attached to this Application.

Standard to be Waived: Cite Ordinance or Technical Manual Standard	**Cite Standard Language:** Cite specific language of applicable Ordinance or Technical Manual Standard	**Waiver Being Sought:** Describe waiver being sought. Ex. – We are requesting a two-way parking lot drive aisle width of 20' feet.	**Justification for Waiver:** Address specific waiver criteria, if applicable, and document reasons for the waiver request.
Local Street Lane Width & Esplanade Technical Manual Section 1 Figure I-1 Local Street Cross Section	Refer to attached Figure I-1.	The proposed Cotton St ROW includes two 11-foot lanes, an 8-foot parallel parking lane, an existing 8-foot sidewalk and a proposed 12-foot sidewalk. Sidewalk on the western side of Cotton St will not be extended to Spring Street.	Increasing the lane width to 14-feet and adding esplanades would eliminate 13 proposed on-street parking spaces. Extending sidewalk on the western edge of Cotton St. would require extensive grading on private property not owned by the developer
Street Grades at Intersections Technical Manual Section 1.4.1	"Street grades at intersections shall not be more than three (3) percent for a distance of one hundred (100) feet from the center of the intersection."	Cotton St is proposed to slope at max. 2 percent for the first 44 feet from the Spring St centerline, and max. 3.89 percent for the first 48 feet from the Fore St centerline.	Meeting this standard would cause the road grade to exceed the maximum slope of 8 percent. The intersection of Cotton St and Fore St is proposed to remain the same due to adjacent buildings
K-Values Technical Manual Section 1.5	"The K values corresponding to the minimum vertical curve lengths for the above street classifications and vertical curve types(sag curve or crest curve) are as follows: Local Streets Crest Vertical Curves: K = 20	Cotton Street Crest Vertical Curves: K = 4.80 Sag Vertical Curves: K = 4.80	Setting vertical curves that meet the standard is impossible since there is not enough road length for the change in elevation (50' at Spring St to 31' at Fore St).



LOCAL STREET CROSS SECTION
NOT TO SCALE

DATE: AUGUST 2009 REVISED:	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	**TRANSPORTATION SYSTEMS AND STREET DESIGN** SECTION I	FIGURE: **I-1**
	LOCAL STREET CROSS SECTION		

TRANSPORTATION

Transportation Analysis- Traffic Impact (14-526(a)1)

See Traffic Impact Study by Gorrill Palmer dated 09.17.2019 which is made a part of this Application.

Access and Circulation (14-526 (a)2a)

Vehicular access to the project will be from three adjacent streets and driveways. Access to the lowest level of parking will be from the Cross Street extension, coinciding with current access to the surface lot. Cotton Street will provide access to second level of parking with an entrance located midblock between Fore and Spring Streets. The third level of the garage will be accessed from Spring Street, with an entrance midblock between Cotton and Cross Streets. The Traffic Study analyzes each entrance and its impact on traffic flows in the neighborhood. No drive-up facilities are planned for this project, however two existing remote bank kiosks in the driveway between 1 Portland Square and Two Portland Square will remain in use.

Loading and Servicing (1-526(a)2b)

All service and deliveries to the proposed building will be from a dedicated service area located on the east side of the building, with access from the Cross Street Extension driveway. This service area will provide a secure area for truck deliveries to the office towers. Service to Two Portland Square will be enhanced by widening of the driveway between the two buildings, allowing a service vehicle to stop and unload without blocking thru traffic between Cross Street and Union Street. Service for retail and residential uses along Fore Street will be from Cotton Street, where a reserved service area will be established, allowing deliveries to this project as well as the Tracy Causer Block of retail uses. Turning templates for delivery vehicles will be submitted under a separate cover as part of this application.

Sidewalks (14-526 (a)2c)

The project envisions widened pedestrian sidewalks along all four sides of the development. Along Fore Street, the sidewalk will be widened resulting from a proposed slight change in the curbline to eliminate a non-conforming bump-out at Cotton/ Fore Street and bring the curbline closer to parallel with the south side of the street. The sidewalk at Cotton Street will be maintained at a 10 ft width. Along Spring Street, the sidewalk will be widened to approximately 23 feet in width, allowing landscaping, pedestrian amenities and activation between Cotton Street and Union Street. Along the east side (Cotton Street Extension), a major pedestrian corridor is envisioned, 16- 18 feet in width, connecting lower Cross Street and providing a strong pedestrian connection between Commercial Street and Monument Square to the North. We are also proposing to integrate this walkway into the existing 1-2 Portland Square garden and plaza, providing strong connections to those buildings and out to Union Street.

All sidewalks will be constructed to City of Portland Standards with brick walkways, raised granite tree wells and street trees, and populated with planters, benches, bike racks and streetlights to activate them from a pedestrian viewpoint.

Public Transit (14-526 (a)3)

The project is located in one of the best served areas of the City from a transit perspective. Routes within a quarter mile walking distance of the site include:

- Portland Metro Service
- Metro BREEZ Express Service
- South Portland Bus Service
- ZOOM Turnpike Express
- Intercity Shuttlebus

Portland Square is served by one bus stop on Union Street directly in front of 2 Portland Square, as well as bus stops at the corner of Pleasant/ Center Street and Middle Street near the corner of Temple and Union Streets. The closest bus shelter is on Congress Street.

A full description of the Public Transit services is documented in the Portland Square Transportation Demand Management Plan by VHB, dated September 10, 2019 and included in full with this application.

Off Street Parking: Vehicle and Motorcycle/ Scooter (14-526 (a) 4a and c)

The project proposes to create a total of 1000 parking spaces in the garage as a major component to this project. The parking will be spread over 6 floors, with egress from Spring Street, Cotton Street, and the Cross Street Extension. The floor plans for the garage illustrate the layout of parking on each floor as well as the ramp connections between all floors.

A memorandum from VHB is attached to this application which identifies the Parking Demand based on the retail, office, and residential uses proposed for this project.

Bicycle Parking (14-526 (a) 4b)

The proposed site is located among a grid network of low speed, bike friendly streets on the Portland peninsula. The site is within proximity of dedicated bike lanes on Spring Street, Commercial Street, the Casco Bay Bridge, and Eastern Promenade Trail. A full description of the bicycle transit services is documented in the Portland Square Transportation Demand Management Plan by VHB, dated September 10, 2019 and included in full with this application.

The project proposes to install a series of bicycle racks on Spring, Cotton, and Fore Streets, as well as accommodate secured bicycle parking within the garage.

Snow Storage (14-526 (a) 4d)

The project is intending to remove all snow from the site as it accumulates. No snow storage areas are envisioned.

Traffic Demand Management (TDM) (14-526 (a) 5)

A Traffic Demand Management Plan for the full buildout of Portland Square has been prepared by VHB, and is part of the overall MDP Application currently being reviewed by the City. An update to that TDM Plan specifically addressing this phase of the project is attached to this application.

PUBLIC INFRASTRUCTURE AND SAFETY

CONSISTENCY WITH CITY MASTER PLANS (14-526 (c) 1)

The Project is consistent with and complements the following Local Policy Goals as outlined in the Portland Plan 2030, as adopted in June, 2017, as well as compliant with related City Master Plans, off premises infrastructure, including sewer and stormwater, streets, trails, pedestrian and bicycle network, environmental management or other public facilities.

Environment

- Adopt sustainable land use and transportation policies that support connectivity, walkable neighborhoods, and multimodal transportation. The project envisions development on a vacant parcel in the heart of Portland's Old Port,

Housing

- *Encourage additional contextually appropriate housing density to neighborhood centers, concentration of services and transportation nodes and corridors as a means of supporting complete neighborhoods.* The proposed project increases the density of the housing in the Old Port District, providing critical housing in a neighborhood that is within walking distance of Metro bus routes, Public open space and existing commercial services in the Old Port.
- *Pursue policies that enable people that work in Portland to have the option to live in Portland.* The project allows employees and residents to live-work-play within close proximity of each other, encouraging walkability and reducing transportation demands.
- *Encourage quality sustainable design in new housing development*. The project is designed to meet the most stringent building requirements for efficiency, air quality, and long-term maintenance and sustainability. The Owner and project design team are committed to meeting or exceeding these goals.

Recreation and Open Space

- *Provide high quality, well designed, well maintained, safe and integrated parks, trails, open spaces, and recreational opportunities accessible to all residents.*
- *Strengthen connections between open spaces.*

The proposed plaza at Spring Street and its integration with the existing garden and plaza at One-Two Portland Square provide a high quality urban open space connecting this project to the Old Port, Monument Square, and Commercial Street activity zones. View corridors down Cross Street have been maintained and enhanced. Significant open space will become more attractive and usable by residents, tenants, and visitors to Portland.

Transportation

The project provides an appropriate amount of off-street parking to accommodate the current and future needs of the development. A Transportation Demand Management Plan has been developed for the entire Portland Square project and its implementation is critical to use of alternative transportation modes to reduce the demand on parking for the project.

We have also reviewed the other related City Master Plans on file and believe this project is consistent with the intent of the following:

- Spring Street Master Plan

PUBLIC SAFETY AND FIRE PREVENTION (14-526 (c))

CPTED

The project has been designed to be consistent with CPTED Principals in the following ways:

- Natural Surveillance. All public and semipublic components of the project have been designed to allow maximum visibility at all pedestrian and vehicular entrances. All walkways and stairways will be well lit. The existing overgrown shrubbery at One Portland Square will be removed and replanted to provide better visibility and integration of the garden area with the 3 PS project. Landscape beds along the project perimeter will consist of low plant materials minimizing opportunities for hiding spaces.

  All lighting will meet the Standards of Section 12 of the Technical Manual. Walkways, entrances, and garages will be lit to allow safe movement in/out or off the site.
  Mechanical Surveillance Systems may be deployed at building entrances and inside the parking garage to monitor areas not easily observed.
- Access Management. The project consists primarily of public sidewalks along streets making wayfinding fairly apparent. Building entrances will be well marked and lit to guide users to/ from the facility. The site plan is very linear along these streets providing a high sense of visibility for the pedestrian.
- Territorial Reinforcement. The project is designed to delineate the public and semipublic space within and adjacent to the project. Public space consists of all public sidewalks. The Spring Street Plaza and connection down to Fore Street, while privately owned and maintained, will be accessible to the public. The intent is to integrate this walkway with the existing garden and plaza areas at One-Two Portland Square, providing a welcoming connection and greenspace for the public as well as building tenants.

Emergency vehicle Access

- Emergency vehicle access is available on all sides of the proposed building. The project was reviewed by the Fire Department at a Pre-Application meeting and found to be generally in conformance with Emergency Access Requirements. The Design Team understands that further discussion with Fire and Police will be forthcoming throughout the design and review process.

Public Safety Standards

Additional Public Safety Standards outlined in Section 3 of the Technical Standards have been reviewed and found to be in conformance. Fire Hydrants are located on Spring and Fore Street at the intersection of Cotton Street, providing access directly in front of the proposed structures. We are working closely with the City 911 Coordinator on the addressing of the buildings, and signage will be developed that provides clear visibility of the building entrances and addresses from the public right-of-way.

Fire Checklist

- Please note the Fire Code Memorandum form Winton Scott Architects which is provided with this Application.

AVAILABILITY AND ADEQUACY OF PUBLIC UTILITIES (14-526 (c) 3)

The project will be served by public utilities which are allocated directly adjacent to the site. See Utility Memorandum by Woodard and Curran dated October 1, 2019**.**

ENVIRONMENTAL AND STORMWATER

Water Quality, Stormwater Management, and Erosion Control (14-526 (b) 3a)

The following materials and plans are submitted with this application to meet the requirements of Chapter 14-526 (b)3a:

- Stormwater Management Report, by Woodard and Curran, dated October 1, 2019, 2019
- Erosion Control Plans and Details, by Woodard and Curran, dated October 1, 2019

SITE DESIGN

See 3 Portland Square Level III Site plan Submission Design Notes by Winton Scott Architects dated September 26, 2019 which is made a part of this Application.

SITE DESIGN

See 3 Portland Square Level III Site plan Submission Design Notes by Winton Scott Architects dated September 26, 2019 which is made a part of this Application.

Winton Scott Architects

3 Portland Square Level III Site Plan Submission

Project Design Narrative
September 26, 2019

Project Site:

This Level III application is for the first phase build out of the upper lot portion of the Portland Square Master Development Plan currently under review by the Planning Board. The project site is the entire upper lot bound by Spring Street, Fore Street, Cotton Street, and the former upper Cross Street which is now part of the parcel owned by the applicant. The project site is in the B3 Zone and fronts a Pedestrian Activity overlay Zone on Fore Street and a Pedestrian Activity Encouragement Zone on Spring Street.

There is a significant change in grade of approximately 21' along the length of the block running from the high ground at Spring Street down to Fore Street, and allowable building heights of 125' from Spring St to a point 100' from the centerline of the Fore Street R.O.W. where the allowable height drops to 85'. The maximum allowable street wall height at Spring Street is 90 feet and the maximum street wall height at Fore Street is 65'.

Project Program:

The project encompasses the following proposed uses:

21,511 s.f.	of Office Space
5,565 s.f.	of Retail Space
392,159 s.f.	of Structured Parking (1,000 spaces)
37,103 s.f.	of Residential Space (24 Apartments)

The amount of parking proposed as part of this project, together with structured parking proposed in the Master Development Plan for the lower site, and existing parking located within the 2 Portland Square building, is intended to meet the entire need of the full build out development of both sites and the existing 1 & 2 Portland Square buildings. Because of this, the parking count proposed in this project exceeds what is required to support the phase1 uses listed above as it is based on the spaces needed to support the entire Master Development when it is fully implemented in the future.

Primary Design Considerations:

The site occupies an interesting area in the heart of downtown positioned at the western edge of the Fore Street Old Port neighborhood. The site itself is currently used as surface parking, and it is also flanked by additional open parking sites to the north across Spring Street, to the west across Cotton Street, and to the south across Fore

Street - the site of future phases of the Master Development Plan that will eventually replace this surface parking lot.

The site is not within and does not abut any Historic Districts but it is in close proximity to the Tracy Causer Building that survived the great fire of 1866 which is an individual listing in the Historic Preservation Ordinance.

The site context also contains a variety of building scales. Fore street to the east is the heart of the Old Port with its rich historic fabric and pedestrian centered streets. To the north is the downtown business district with its larger more contemporary structures such as 1 & 2 Portland Square, Canal Plaza, and the Civic Center. To the west, the fabric begins to transition to a less dense mix of residential and commercial buildings. To the south, is the Commercial Street corridor with its mix of water based industries along the piers combined with vibrant commercial structures.

This project offers an opportunity to bridge these varied built environments, “fill in” a significant hole in the urban fabric, and enhance and extend the pedestrian environment present in the Old Port and the Commercial Street Corridor. The Development Master Plan currently under review proposes multiple pedestrian amenities across both development sites intending to improve pedestrian linkages and circulation. This First Phase project proposes to develop a new plaza at Spring Street between 1 Portland Square and the new building that provides views down toward the water from Spring Street and connects to a pedestrian stair and walkways leading down into the existing park space behind 1 and 2 Portland Square and continues on to connect to Fore Street.

The buildings are designed with continuous street level storefronts along Fore Street and sidewalks along Cotton and Spring Streets will be widened and street trees added. Along Spring Street, additional amenities are planned including seating, planters, new lighting, and green screen panels or artist designed decorative metal screen panels that obscure the structured parking and provide visual interest at the street level. The plaza will include plantings, seating, and a sculpture element

Brick and pre-cast concrete elements are the predominant building material for the parking garage, retail storefronts and apartments while the upper levels of the offices also make use of glass and metal cladding.

Zoning Summary:

The project site sits within the B-3 Downtown Business Zone and is also affected by the Downtown Height Overlay, the Pedestrian Activity Overlay Zone and the Downtown Entertainment Overlay Zone. Downtown Urban Design Guidelines apply as well.

B3 Zone:	The project conforms to all dimensional, bulk, and density requirements in the ordinance. All proposed uses are allowable in the zone. Minimum building height is met at all street facades. Off-Street parking and loading is required in conformance with Divisions 20 and 21 Because the property is within 100’ of an individually listed landmark building, the project is subject to review by the Historic Ordinance Review Board for general compatibility of building forms and materials with the historic context.

Downtown Height Overlay:

As described above under Project Site, the site falls within two height limits. The allowable height is 125' above average Grade along Spring Street to a point 100' back from the centerline of the Fore Street R.O.W. where the allowable height drops to 85'. The Maximum allowable street wall height is 65' along Fore Street and 90' along Spring Street and Cotton Street.

All proposed heights meet the requirements above. On fore Street, the project provides a 15' setback at the 65' street wall height in conformance with the ordinance, where the building continues up one additional story.

The methodology for determining the average existing grade for the project has been reviewed with the zoning administrator and is as follows:

Average of existing grades at proposed building face/property line at 4 corners of site. (Note the hotel parcel is excluded from the calculation)

Corner of Cotton and Spring Street:	EL. 50.8'
Corner of Cotton and Fore Street:	EL. 30.3'
Corner of Fore and former Upper Cross Street	EL. 28.5'
Corner of Spring and former Upper Cross Street	EL. 51.1'

50.8 + 30.3 + 28.5 + 51.1 = 160.7 / 4 = EL. 40.175' = Average Grade.

Pedestrian Activity Overlay:

The site's frontage on Fore Street must adhere to the requirements of the PAD Overlay. Spring Street frontage must adhere to PAD encouragement zone requirements. The project as proposed provides glass storefront and allowable uses such as retail in excess of the minimum 75% of street frontage with 20' deep minimum spaces required in the PAD Overlay Zone.

Downtown Overlay Zone:

The project is not proposing any entertainment type uses so the provisions Entertainment of the DEOZ do not apply.

COMMITMENT & INTEGRITY
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MEMORANDUM

TO: Patrick Carroll, Carroll Associates Landscape Architects
FROM: Lauren Swett, PE & Amy LeBel, EIT
DATE: December 20, 2019
RE: Three Portland Square – Utilities

The proposed Portland Square redevelopment will be serviced by public water (for fire protection and domestic use), sanitary sewer, electric, natural gas and telecommunications. The proposed locations of the utility services are shown on the Utility Plan included in the Design Drawings.

WATER

The proposed development will be provided with both fire protection water service and domestic water service by the Portland Water District from mains located on Spring Street, Cotton Street and Fore Street. The project team met with representatives from Portland Water District on September 19, 2019 to review anticipated water demand and service connections for the proposed development. During this meeting, Portland Water District indicated the existing water mains on Fore Street and Cotton Street are insufficient to service the proposed development; therefore, replacement of segments of the Fore Street and Cotton Street water mains will be required. The project team will continue to coordinate the design with representatives from Portland Water District as the design progresses. A copy of the Ability to Serve Determination letter from Portland Water District will be provided upon receipt.

SEWER

Several sanitary sewer services to the buildings are proposed to connect to sewer infrastructure within Cotton Street (Office Tower), Fore Street (Fore Street Wrap) and Upper Cross Street (Parking Structure) as shown on the Utility Plan to accommodate the various uses of the buildings. If restaurant uses are proposed, internal grease traps will be utilized. Drainage within covered parking areas will be collected by floor drains and directed to an oil water separator prior to discharge into the sewer main within Upper Cross Street. A Wastewater Capacity Application will be sent to the Portland Department of Public Works to request confirmation of ability to serve the proposed development. The ability to serve confirmation will be provided to the Planning Department directly by the Department of Public Works.

GAS

The proposed buildings will utilize natural gas service provided by Unitil. A service connection through Upper Cross Street from the existing gas main in Fore Street is proposed. We will be coordinating with Unitil on the location and size of the gas service. A copy of the Ability to Serve Determination letter from Unitil will be provided upon receipt.

ELECTRIC

The proposed building will utilize underground electric services fed from Fore Street and Upper Cross Street as shown on the Utility Plan. A transformer is proposed east of the building and north of the driveway in a landscaped area. Adequate screening will be provided. As the design progresses, the project team will continue to coordinate the design with representatives from Central Maine Power (CMP). A copy of the Ability to Serve Determination letter from CMP will be provided upon receipt.

SOLID WASTE

Adequate provisions for recycling and solid waste disposal have been made. General solid waste, construction, demolition, and land-clearing debris will be managed in full accordance with all applicable laws and will not cause a deleterious effect on the environment.

Commercial Solid Waste

All solid waste materials and recyclables from the proposed redevelopment project will be transported and disposed of, or recycled, in accordance with applicable laws and regulations. The proposed design includes a service and loading area located between the office tower and parking structure. Access to this service and loading area will be provided via Upper Cross Street. Service will be scheduled to minimize impacts to business hours to the greatest extents practicable. A solid waste management plan with schedules for solid waste removal will be developed for the proposed buildings.

Construction & Land Clearing Debris

As with any construction project, the proposed construction will generate construction waste and demolition debris (CDD). The construction contractor will be responsible for hauling the CDD or contracting with a waste management service to haul the CDD, from the project site. The contractor will be fully responsible for handling, managing, and disposing of all waste generated by construction in accordance with Maine Solid Waste Management Regulations – 06-096 CMR 400-409. The contractor will be bound by contract to dispose of all materials in full accordance with all applicable local state and federal regulations. Actual waste volumes will be measured at the time of construction.

Special & Hazardous Waste

The proposed development is not anticipated to produce any hazardous waste. A previous site investigation adjacent to the hotel site on the Portland Square property identified the presence of typical urban fill, as is seen on redevelopment sites throughout the City. We anticipate that soils from the site may be classified as special waste and shall be handled and disposed of accordingly.

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MEMORANDUM

TO: Patrick Carroll, Carroll Associates Landscape Architects
FROM: Lauren Swett, PE & Amy LeBel, EIT
DATE: October 1, 2019
RE: Portland Square Garage – Stormwater Management – Preliminary Design

This Preliminary Stormwater Management Memo describes the proposed stormwater management approach for the project. A complete stormwater management plan, including design calculations will be submitted under separate cover as part of a Site Location of Development Application.

Existing Conditions

The 2.35 +/- acre existing property, located in a highly developed urban environment, currently consists of a paved parking lot surrounded by a landscaped esplanade containing shrubs and trees. A breakdown of existing cover conditions is provided below in Table 1. The site slopes from north to south towards Fore Street, from approximate elevation 51' down to 29'. In general, runoff from the parking lot drains via sheet flow in a southerly direction to a series of catch basins that discharge to the separated storm drain on Cotton Street. This storm drain discharges to the separated storm drain on Fore Street and ultimately to the storm drain in Cross Street. We have been communicating with Brad Roland from the Department of Public works to confirm our understanding of these existing stormwater connections.

Table 1: Portland Square Existing Conditions Surface Cover Breakdown

Cover Type	Surface Area (SF)
Pervious	13,125
Roof Impervious	0
Non-Roof Impervious	79,575
Total Redevelopment Area	92,700

Proposed Development

The proposed building covers almost the entire parcel, as required per zoning setbacks. The proposed project also includes redevelopment of the adjacent Portland Square plaza, stairs and private access driveway (referred to as Upper Cross Street). The site layout is shown in the project drawings submitted under separate cover. It should be noted that a 22,000 square-foot green roof is planned as part of construction of future Phase 5 of the Portland Square Master Development Plan. The following table shows the surface cover breakdown for the proposed redevelopment project (Phase 2 only).

Table 2: Portland Square Proposed Conditions Surface Cover Breakdown

Cover Type	Surface Area (SF)
Pervious	2,315
Roof Impervious	73,960
Non-Roof Impervious	16,425
Total Redevelopment Area	92,700

Stormwater runoff from the site will discharge to separated storm drain in Cotton Street and Upper Cross Street, which ultimately discharge to the separated storm drain in Fore and Cross Street, like in the existing condition.

STORMWATER STANDARDS

The redevelopment project will abide by regulations of Maine DEP Chapter 500 Stormwater Management Rules as applicable to Site Law and City of Portland Technical Manual Section 5 including Basic, General and Flooding Standards. Due to the project location, it will not be required to comply with the Phosphorous and Urban Impaired Stream Standards. The following sections discuss stormwater management requirements for the Site relative to these Standards.

Basic Standard (Soil Erosion and Sedimentation Control)

Erosion and sediment control measures will be utilized during construction to ensure that the work will not result in the release of sediment off-site. Proposed erosion and sediment control measures are included in the design drawings, which include a narrative and construction details describing the plan for all temporary and permanent erosion control techniques to be utilized on this project in accordance with MaineDEP Best Management Practices.

The overall goal of the Soil Erosion and Sediment Control Plan is to restrict the potential for erosion and sedimentation during construction. A variety of erosion control techniques will be implemented to achieve this goal, including:

- Installation and maintenance of stabilized construction entrances at the travelled interface between stabilized and non-stabilized portions of the construction site;
- Diversion barriers to keep up-gradient runoff from flowing through active construction areas;
- Positive grades throughout the construction site to direct flow to sediment control barriers;
- Installation and maintenance of sediment barriers adjacent to and down-gradient of the construction site;
- Catch basin inlet protection devices;
- Preservation and maintenance of vegetated areas to the maximum extent possible;
- Temporary stabilization of disturbed vegetated areas to be exposed for more than seven days;
- Application of permanent seeding and mulching (or other permanent surface treatment as indicated on the drawings) applied as soon as areas achieve final grades;
- Controls for fugitive dust, debris, and other materials; and
- Inspection of all in-place measures after every significant rainfall until the site is permanently stabilized.

All measures will be implemented in accordance with the “Maine Erosion and Sedimentation Handbook for Construction: Best Management Practices”. All temporary measures will be installed prior to any earthmoving operation and removed after the areas are permanently stabilized.

All control measures will be maintained in effective operating condition until the Site is permanently stabilized. The Contractor will be responsible for implementing and maintaining all erosion and sediment control measures. Inspections shall be performed at least once a week, as well as before and after storm events. A person with knowledge of stormwater management and erosion and sediment control, including the standards and conditions in the permit, shall conduct the inspections and perform maintenance of the facilities. If maintenance or modifications are necessary, implementation will be completed within seven days and prior to any rainfall event.

Permanent erosion control measures will include vegetation and pavement. After construction, the responsible party for the owner will conduct inspections of the Site per the inspection and maintenance requirements outlined later in this memorandum.

Site Location of Development General Standard (Water Quality)

Woodard & Curran assessed the regulatory thresholds for permitting under MaineDEP Stormwater Law and MaineDEP Site Location of Development (Site Law) for the proposed redevelopment of Portland Square. The Portland Square property received a Site Location of Development Act Order (#L-013526-A-N) (SLOD) from the DEP in 1986. Since that time, a number of amendments have been made to that permit. The current project proposes to redevelop existing surface parking lots with structured parking, retail space, residences, and offices. This change requires an amendment to the existing SLOD, which will be reviewed by the City of Portland as part of their Delegated Review Authority.

An impact analysis was conducted for the proposed redevelopment project to determine treatment requirements based on land use and pollutant rankings provided in Table 2 of Maine DEP Chapter 500 Rules. The existing site is largely comprised of a high use paved surface parking lot (pollutant ranking 5). The proposed site will primarily be comprised of flat building roof (pollutant ranking 3). The ranked impact change is less than zero, and the project is being permitted under Site Law; therefore, 50 percent of the developed area must be treated in accordance with Table 3 in Chapter 500.

Through continued discussions with the Maine Department of Environmental Protection (DEP), we have received feedback that a stormwater treatment system is not required for the area converted from surface parking to rooftop. The DEP commented that "the net reduction in pollutant export from this redevelopment will be much greater than what is required by the Chapter 500 redevelopment standard." The attached email from Jeff Dennis, biologist with the Watershed Management Unit in the Division of Environmental Protection at the Maine DEP, includes detailed discussion on the topic. No additional stormwater *quality* measures are proposed for the roof area. Separate management of water *quantity* is described later in this memo.

City of Portland Redevelopment Standard (Water Quality)

In accordance with Section 5 of the Technical Manual, projects including redevelopment of non-roof impervious area greater than 5,000 square feet shall provide stormwater quality treatment in accordance with the General Standard for at least 50 percent of the redeveloped non-roof impervious area. Approximately 16,425 square-feet of non-roof impervious surface is proposed, requiring treatment for approximately 8,213 square-feet of impervious area. The proposed stormwater systems have been designed based on Volume III of the DEP Stormwater BMP Manual.

Proprietary Filterra bioretention systems have been selected to provide stormwater quality treatment for the Site. The proposed treatment system includes a Filterra Peak Diversion (FTPD) vault sized to treat 7,830 square-feet of impervious area in the plaza adjacent to Spring Street and a Standard Filterra (FT) vault sized to treat 1,915 square-feet of impervious area on Upper Cross Street. The combination of the two treatment measures results in treatment of greater than 50 percent of the non-roof redeveloped area. Overflow will be directed via gutter flow into an adjacent catch basin. We have sized the proposed Filterra bioretention systems per MaineDEP sizing guidelines as shown in the table on the following page.

The proposed Filterra bioretention configurations and details are included on the Site Plan Drawings. Final treatment calculations will be provided with the final Stormwater Management Plan submitted with the SLOD application.

Table 3: Filterra Sizing

Filterra Model Number	*Area in Acres*	*Treatment Flow Rate at 140"/hr (cfs)*	*Outlet Pipe Size*
4x4	0.100	0.05	4"
4x6	0.151	0.08	4"
4x8	0.202	0.10	4"
6x6	0.227	0.12	4"
6x8 / 4x12	0.301	0.16	4"
6x10	0.378	0.19	6"
6x12	0.454	0.23	6"
7x13	0.573	0.29	6"

Flooding Standard (Water Quantity)

Chapter 500 Stormwater Rules require that the stormwater management system detain, retain, or result in the infiltration of the stormwater flows from the 24-hour storm of the 2-year, 10-year, and 25-year frequencies, such that peak flows from the post-development Site do not exceed those from the pre-development Site.

Adequate provisions will be made to collect and control stormwater via a proposed R-Tank subsurface detention system, which is being designed to store and treat stormwater volumes generated from a portion of the roof. The R-Tank system is proposed within the Cotton Street sidewalk due to space constraints on site from zoning building setback requirements and the existing City sewer easement east of the site. It is proposed that this system is installed in the right-of-way within the sidewalk, but licensed to the Applicant; the owner of the site will be responsible for all inspection and maintenance of the system as described later in this memorandum. We are finalizing design, but it will ensure that the peak runoff rates for the 24-hour, 2-, 10-, and 25-year Type III storm events will be maintained or reduced below existing conditions. Stormwater from the Site will continue to discharge to the separated storm drain at the intersection of Fore Street and Cross Street. Final calculations will be provided with the SLOD application.

INSPECTION AND MAINTENANCE OF STORMWATER SYSTEMS

General inspection and maintenance during and after construction must take place in accordance with the requirements outlined in Chapter 500, Stormwater Management, Appendix B, Inspection and Maintenance and Stormwater Management, Maine Department of Environmental Protection Publication No. DEPLW0738. During construction, the contractor will be responsible for inspection and maintaining the Site. Upon completion, the property owner will be responsible for implementing the maintenance and inspection requirements for the stormwater management system associated with the new development. The responsible party will ensure that stormwater management facilities are properly maintained and inspected in accordance with the attached Stormwater Inspection and Maintenance Plan.

ATTACHMENTS

- MaineDEP Email
- Erosion and Sedimentation Control Inspection Form
- NRCS Web Soil Survey
- Stormwater Inspections & Maintenance Plan
- BMP Maintenance Log

Lauren Swett

From: Dennis, Jeff <Jeff.Dennis@maine.gov>
Sent: Tuesday, July 9, 2019 11:59 AM
To: Michael Guethle
Cc: Lauren Swett; Matthew Grooms; Stebbins, Mark N; Strause, Aubrey; Witherill, Donald T; Sirois, Alison; Waddell, David A
Subject: RE: Center Street Hotel Stormwater

Mike,

It turns out that the Kraken filter system has been evaluated by a consultant and a report on that evaluation will soon be sent to Washington State Department of Ecology for a General Use Level Designation (GULD) approval under the state's Technology Assessment Program (TAPE) program. I was able to get access to the summary and individual storm data on which the report is based. While the summary data suggests that the Kraken would provide the necessary level of pollutant removal for us to approve the system under the Innovative Measures provision in Chapter 500, review of the individual storm data revealed a problem with the sampling methodology that makes it impossible for us to assess the validity of the evaluation's conclusions. We will be looking into this further but at this point are not able to approve the Kraken device as an innovative measure. If you would like more detail on this, I would be glad to discuss it with you.

I discussed the situation yesterday with Mark Stebbins, Director of the Land Division in DEP's Bureau of Land Resources. While the language in the Redevelopment section of Chapter 500 (Section C.2.d) would require the Center Street Hotel project to provide treatment for 50% of the stormwater runoff from the site because the project is part of the Portland Square Master Development Plan and thus requires Site Location of Development approval, we agree that it is not appropriate to require treatment of runoff at the hotel site for the following reasons:

1. Development of the hotel site will replace nearly 2 acres of very high use parking with a roof. Only 15% of this site will be non-roof land use. The result of this, using phosphorus export coefficients in Volume II of the Maine Stormwater Management Manual, is a greater than 60% reduction in export from the site for phosphorus, and likely a similar reduction for other pollutants. This change of land use by itself will reduce export of pollutants from the site by more than twice as much as would treating 50% of the runoff from the existing parking lot. Additional pollutant removal will likely be accomplished by the green roof that will cover a portion of the hotel structure.

2. The hotel project is part of the much larger Portland Square Master Development Plan, which, when completed, will result in well over 7 acres of very high use parking being replaced by roofed structured parking and roofed retail and residential businesses. There will be no parking exposed to precipitation and the drains within the roofed structured parking will drain to the sanitary sewer and the treatment plant. Much of the roof associated with these structures will also be green roof. The net reduction in pollutant export from this redevelopment will be much greater than what is required by the Ch 500 redevelopment standard. Though it is not given credit as an innovative measure, replacement of high use parking with a roofed structure is a much more effective pollutant reduction BMP than the approved General Standard BMPs. We will be looking into approving roofed parking as an innovative measure for new development, not just redevelopment.

3. The stormwater from the hotel site will discharge indirectly to the Commercial Street combined sewer. As such, most of this runoff will be treated in the PWD wastewater treatment plant before being discharged to the Fore River. The long term plan for abatement of CSOs from this combined sewer is to add storage to the system so that stormwater from the area will continue to be sent to the treatment plan, rather than separating the sewer and discharging the stormwater directly to the Fore River. Therefore, it is likely that stormwater from this area will continue to receive secondary treatment at the treatment plant for the long term.

If you have any questions, give me a call or send an email.

Jeff

Jeff Dennis, Biologist

Watershed Management Unit
Division of Environmental Assessment

Maine Department of Environmental Protection
State House Station #17
28 Tyson Drive, Augusta, ME 04333

Phone: 207-215-6376
Fax: 207-287-7826
jeff.dennis@maine.gov

From: Michael Guethle [mailto:michael.guethle@wright-pierce.com]
Sent: Wednesday, July 03, 2019 9:20 AM
To: Matthew Grooms <mgrooms@portlandmaine.gov>; Lauren Swett <lswett@woodardcurran.com>
Cc: Dennis, Jeff <Jeff.Dennis@maine.gov>
Subject: RE: Center Street Hotel Stormwater

EXTERNAL: This email originated from outside of the State of Maine Mail System. Do not click links or open attachments unless you recognize the sender and know the content is safe.
Good morning,

As far as Wright-Pierce is concerned, we are effectively needing MaineDEP agreement on the treatment method, as the City's regulations defer to MaineDEP-approved devices, and in turn their acceptance new treatment measures. Our initial comments suggested condition of approval was based on obtaining monitoring data to suit these needs; per Lauren's explanation below we agree that further discussions have indicated monitoring will not likely be beneficial for this site.

I am open to removing my suggested condition of approval regarding monitoring, and instead including a condition that "stormwater treatment using the Kraken will be dependent on MaineDEP's additional review of the Kraken manufacturer's test data for the project site". If needed, I can modify my formal review comments to incorporate this change.

Lauren and I briefly discussed other available BMPs on the phone earlier this week, and I will let her follow up on the design constraints regarding the Kraken system as opposed to others.

Thank you all,

-Mike

Michael A. Guethle, PE
Wright-Pierce | Project Engineer
Direct 207.319.1512 | **Office** 207.761.2991

From: Matthew Grooms <mgrooms@portlandmaine.gov>
Sent: Wednesday, July 3, 2019 8:06 AM
To: Lauren Swett <lswett@woodardcurran.com>

Cc: Michael Guethle <michael.guethle@wright-pierce.com>; Jeff.Dennis@maine.gov
Subject: Re: Center Street Hotel Stormwater

Hi Lauren,

I am okay with the condition, though I am curious if DEP has accepted other proprietary systems suitable for small infill sites, that could serve as a backup to the Kraken if it is not accepted? Our view is that treatment, even for roof area, is preferable to no treatment, and if we do hear on Tuesday that the Kraken is not acceptable, then I would be prepared to answer questions on whether or not there are alternatives.

I will work on the draft condition language this morning, and will try to circulate with enough time for your feedback.

Thanks,

Matt

On Tue, Jul 2, 2019 at 5:39 PM Lauren Swett <lswett@woodardcurran.com> wrote:

> Hi Mike and Matt,
>
> I have been having some discussions with Jeff Dennis on the approach on stormwater management at the Center Street Hotel. Mike you had included a potential condition in your comments, and I want to propose tweaking that some.
>
> We have been approaching stormwater with the Kraken system proposed to be an "Innovative Treatment Measure", that isn't yet an approved BMP, but could be used with some added conditions of treatment monitoring associated with it. There was some misunderstanding at the DEP on how the innovative treatment system process is supposed to work, but I think as of this week, we have a handle on it, and I've had a variety of discussions with Jeff Dennis who has the authority over these applications. A few things:
>
> - The Kraken is proposed for treatment of roof runoff, which is generally a lot cleaner than parking lot runoff. While this is good, it means that monitoring of the system won't give much useful data because the starting point before it goes through the treatment system is pretty clean.
> - The Kraken manufacturer has done a number of tests themselves (in more useful scenarios), and they are working on getting that data to Jeff Dennis, possibly tomorrow, but more likely by the end of the week, and Jeff won't have a chance to review until next week.
> - In the case that the Kraken is not acceptable (which I'm guessing won't be the case!) Jeff also has some justification information on not providing any treatment at all, with the replacement of parking lot with roof providing adequate improvement. This is something that would need more discussion, and we're only going to approach that if the Kraken isn't going to work (again, I'm pretty confident it will be OK).
>
> Mike's original condition I believe referred to continuing to work with the DEP to determine appropriate monitoring requirements. Could we instead have a condition that stormwater treatment using the Kraken will be dependent on the final review of the Kraken manufacturer's test data? And, if the Kraken is found to not meet the DEP's standards for innovative treatment measures, we will work with the DEP to appropriately address stormwater treatment on the site.

Mike, let me know what you think of that, relative to your review, and Matt, let me know if you think that makes sense. And Jeff, please weigh in to make sure this sounds appropriate to you. If the data comes in before next Tuesday's public hearing, and Jeff looks at it and is comfortable with it relative to our project, we could just make the condition go away Tuesday night at the meeting.

Thanks everyone for working with us on this! We want to ultimately do the right thing here, and it seems like the different paths we're considering will all result in improvement.

Lauren

Lauren Swett, P.E.*

Technical Manager

Woodard & Curran

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M.ASCE

Chair, Leader Training Committee

American Society of Civil Engineers

http://regions.asce.org/leader-training-committee/

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STORMWATER EROSION & SEDIMENTATION CONTROL
INSPECTION REPORT FORM

Inspectors: Date: ___ / ___ / _____

_____ of _____ (Project Owner)

_____ of _____ (Contractor)

_____ of _____

_____ of _____

Storm Event? ☐ Yes ☐ No Rainfall Amount _____ Storm Duration _____ hours

Visual Observations of Activity and Site Conditions:

Disturbed Soil Areas:

Storage of Soils:

Sediment & Erosion Control Measures:

Construction Site Entrance:

Surface Stabilization:

Corrective Actions Taken

Attachments (if any):

Signature:

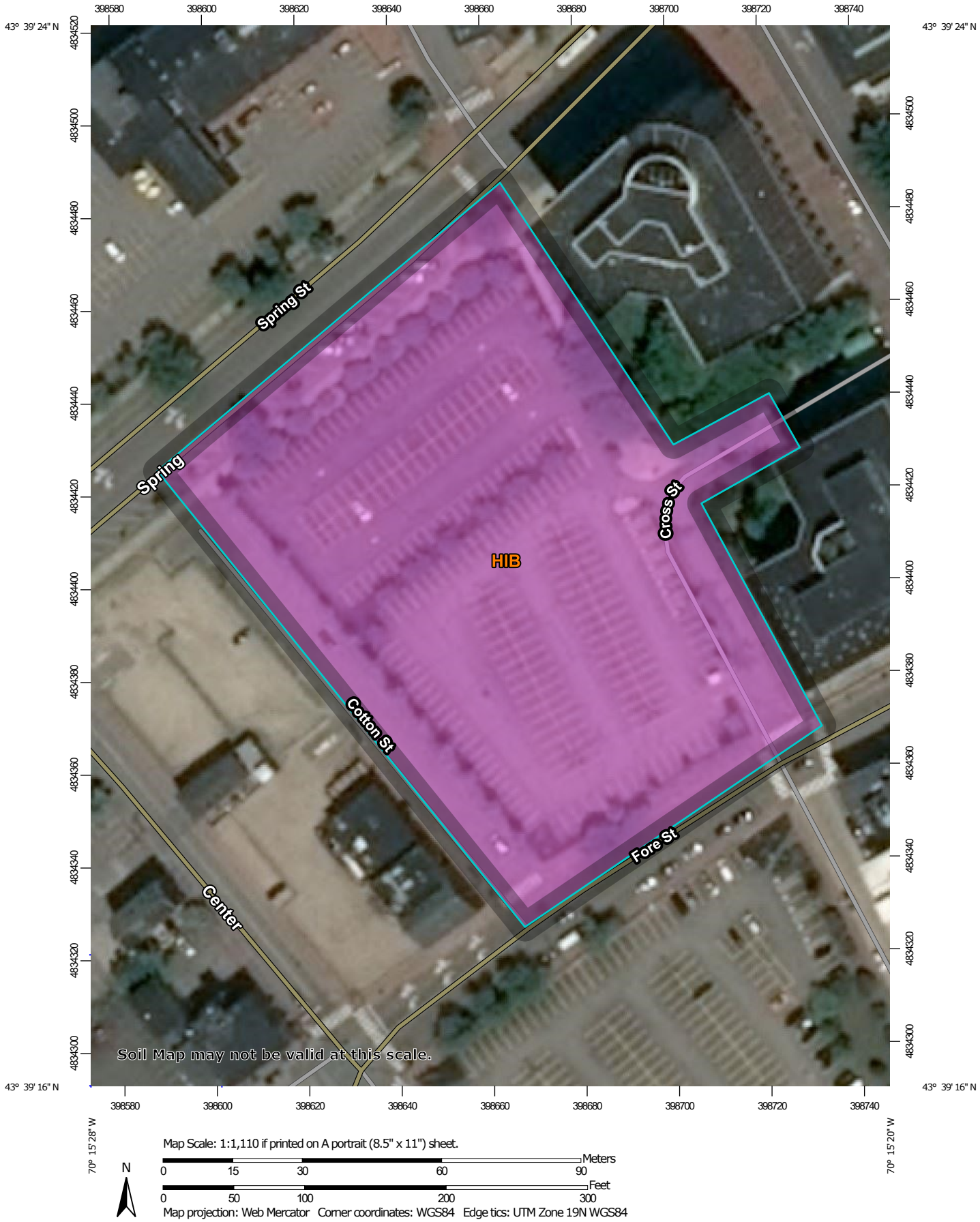
_____

Representing:

_____

Representing:

Hydrologic Soil Group—Cumberland County and Part of Oxford County, Maine
(Portland Square Garage)



Map Scale: 1:1,110 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 16, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
HIB	Hinckley loamy sand, 3 to 8 percent slopes	A	3.0	100.0%
Totals for Area of Interest			**3.0**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

STORMWATER INSPECTIONS & MAINTENANCE PLAN

Portland Square Garage

General inspection and maintenance during and after construction must take place in accordance with the requirements outlined in Appendix B of the Maine Department of Environmental Protection (MaineDEP) Chapter 500 Rules. Upon completion of the project, the Owner will assume responsibility for overseeing the property, including the inspection and maintenance of the Site's stormwater drainage system outlined herein. A person with knowledge of stormwater management and erosion and sediment control, including the standards and conditions in the permit, shall conduct the inspections and perform maintenance of the facilities.

Inspection and maintenance activities will be performed per the attached checklist and schedule; an example page of the BMP Maintenance Log that shall be kept on-site is also attached.

INSPECTION AND MAINTENANCE OF STORMWATER SYSTEMS

The inspection and maintenance criteria outlined in Chapter 500 Stormwater Regulations will be followed. Monitoring and maintenance is critical for the proper operation of the stormwater management system. First year post-construction monitoring differs primarily by its increased frequency to assure proper system functioning. Post-construction routine monitoring is based on USEPA requirements for good housekeeping practices. Stormwater infrastructure consists of manholes, catch basins, stormwater piping, Filterra Bioretention Systems and RTank Detention System. Inspection and maintenance of the proprietary treatment systems will be performed per the attached manufacturer guidelines.

Inspection frequency should be at least once every six months and after every major storm in the first year following construction. Trash, debris, and sediment shall be removed from storm drain pipes, manholes and catch basins as needed on a semi-annual basis.

STORMWATER MANAGEMENT MAINTENANCE TASKS AND RECOMMENDED SCHEDULE

Commented [AL1]: Do we need this?

TASKS	CATCH BASINS	MANHOLES	STORM DRAIN PIPES	FILTERRA BIORETENTION SYSTEM	R-TANK SUBSURFACE DETENTION SYSTEM	SCHEDULE
Inspect for sediment accumulation	X	X	X	X	X	Spring and Fall
Remove sediment accumulation	X	X	X	X	X	As needed
Clean debris	X	X	X	X	X	As needed
Inspect structural elements during wet weather and compare to as-built plans	X	X	X	X	X	Annually
Make adjustments or replacements as determined by wet weather observations	X	X	X	X	X	As needed
Keep records of all inspections and maintenance activities	X	X	X	X	X	Annually
Have a professional engineer perform emergency inspections upon identification of severe problems	X	X	X	X	X	As needed

STORMWATER INSPECTION CHECKLIST

Inspection by: _____ Date: _____

Stormwater Management Feature	Condition						Comments
Subsurface Detention System*	no siltation		some siltation		heavily silted in		
Subsurface Detention System*	no clogging/flooding		some clogging/flooding		heavy clogging/flooding		
Subsurface Detention System*	outlet free of erosion		some erosion at outlet		outlet heavily eroded		
Subsurface Detention System*	inlet/outlet clear		some debris		completely blocked		
Filterra Bioretention System**	No sediment or trash accumulation		Some sediment or trash accumulation		Excessive sediment or trash accumulation		
Filterra Bioretention System**	Plants healthy and pest-free		Plants are somewhat healthy		Plants are not healthy (no growth or excessive growth)		
Filterra Bioretention System**	Structure is in good condition.		Structure has small visible cracks.		Structure has cracks wider than ½ inch.		

** See attached manufacturer's guidelines for R-Tank maintenance and inspection.*

***See attached manufacturer's guidelines for Filterra Bioretention System maintenance and inspection.*

Filterra Owner's Manual



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Enclosed

Local Area Filterra Plant List

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Introduction

Thank you for your purchase of the Filterra® Bioretention System. Filterra is a specially engineered stormwater treatment system incorporating high performance biofiltration media to remove pollutants from stormwater runoff. The system's biota (vegetation and soil microorganisms) then further breakdown and absorb captured pollutants. All components of the system work together to provide a sustainable long-term solution for treating stormwater runoff.

The Filterra system has been delivered to you with protection in place to resist intrusion of construction related sediment which can contaminate the biofiltration media and result in inadequate system performance. These protection devices are intended as a best practice and cannot fully prevent contamination. It is the purchaser's responsibility to provide adequate measures to prevent construction related runoff from entering the Filterra system.

Included with your purchase is Activation of the Filterra system by the manufacturer as well as a 1-year warranty from delivery of the system and 1-year of routine maintenance (mulch replacement, debris removal, and pruning of vegetation) up to twice during the first year after activation.

Design and Installation

Each project presents different scopes for the use of Filterra systems. Information and help may be provided to the design engineer during the planning process. Correct Filterra box sizing (by rainfall region) is essential to predict pollutant removal rates for a given area. The engineer shall submit calculations for approval by the local jurisdiction. The contractor is responsible for the correct installation of Filterra units as shown in approved plans. A comprehensive installation manual is available at www.ContechES.com.

Activation Overview

Activation of the Filterra system is a procedure completed by the manufacturer to place the system into working condition. This involves the following items:

- Removal of construction runoff protection devices
- Planting of the system's vegetation
- Placement of pretreatment mulch layer using mulch certified for use in Filterra systems.

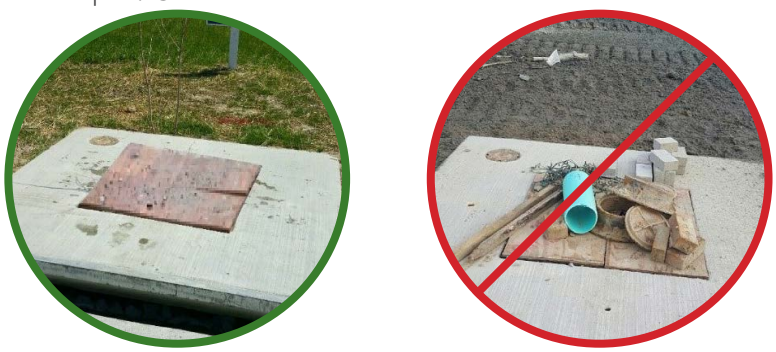
Activation MUST be provided by the manufacturer to ensure proper site conditions are met for Activation, proper installation of the vegetation, and use of pretreatment mulch certified for use in Filterra systems.



Minimum Requirements

The minimum requirements for Filterra Activation are as follows:

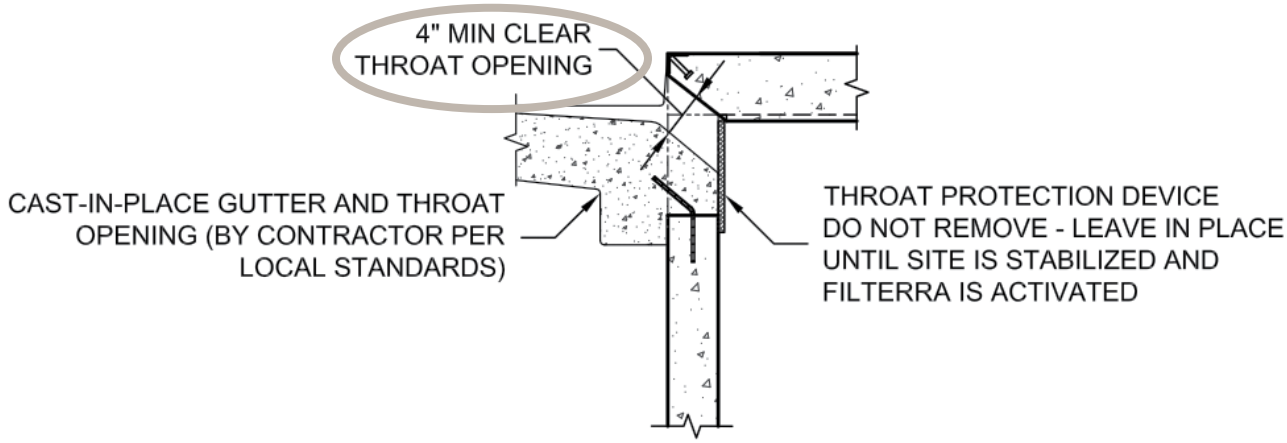
1. The site landscaping must be fully stabilized, i.e. full landscaping installed and some grass cover (not just straw and seed) is required to reduce sediment transport. Construction debris and materials should be removed from surrounding area.



2. Final paving must be completed. Final paving ensures that paving materials will not enter and contaminate the Filterra system during the paving process, and that the plant will receive runoff from the drainage area, assisting with plant survival for the Filterra system.



3. Filterra throat opening should be at least 4" in order to ensure adequate capacity for inflow and debris.



An Activation Checklist is included on page 12 to ensure proper conditions are met for Contech to perform the Activation services. A charge of $500.00 will be invoiced for each Activation visit requested by Customer where Contech determines that the site does not meet the conditions required for Activation.

Filterra Plant Selection Overview

A Plant List has been enclosed with this packet highlighting recommended plants for Filterra systems in your area. Keep in mind that plants are subject to availability due to seasonality and required minimum size for the Filterra system. Plants installed in the Filterra system are container plants (max 15 gallon) from nursery stock and will be immature in height and spread at Activation.

It is the responsibility of the owner to provide adequate irrigation when necessary to the plant of the Filterra system.

The "Planting Requirements for Filterra Systems" document is included as an appendix and discusses proper selection and care of the plants within Filterra systems.

Warranty Overview

Refer to the Contech Engineered Solutions LLC Stormwater Treatment System LIMITED WARRANTY for further information. The following conditions may void the Filterra system's warranty and waive the manufacturer provided Activation and Maintenance services:

- Unauthorized activation or performance of any of the items listed in the activation overview
- Any tampering, modifications or damage to the Filterra system or runoff protection devices
- Removal of any Filterra system components
- Failure to prevent construction related runoff from entering the Filterra system
- Failure to properly store and protect any Filterra components (including media and underdrain stone) that may be shipped separately from the vault

Routine Maintenance Guidelines

With proper routine maintenance, the biofiltration media within the Filterra system should last as long as traditional bioretention media. Routine maintenance is included by the manufacturer on all Filterra systems for the first year after activation. This includes a maximum of 2 visits to remove debris, replace pretreatment mulch, and prune the vegetation. More information is provided in the Operations and Maintenance Guidelines. Some Filterra systems also contain pretreatment or outlet bays. Depending on site pollutant loading, these bays may require periodic removal of debris, however this is not included in the first year of maintenance, and would likely not be required within the first year of operation.

These services, as well as routine maintenance outside of the included first year, can be provided by certified maintenance providers listed on the Contech website. Training can also be provided to other stormwater maintenance or landscape providers.



Why Maintain?

All stormwater treatment systems require maintenance for effective operation. This necessity is often incorporated in your property's permitting process as a legally binding BMP maintenance agreement. Other reasons to maintain are:

- Avoiding legal challenges from your jurisdiction's maintenance enforcement program.
- Prolonging the expected lifespan of your Filterra media.
- Avoiding more costly media replacement.
- Helping reduce pollutant loads leaving your property.

Simple maintenance of the Filterra is required to continue effective pollutant removal from stormwater runoff before discharge into downstream waters. This procedure will also extend the longevity of the living biofilter system. The unit will recycle and accumulate pollutants within the biomass, but is also subjected to other materials entering the inlet. This may include trash, silt and leaves etc. which will be contained above the mulch layer. Too much silt may inhibit the Filterra's flow rate, which is the reason for site stabilization before activation. Regular replacement of the mulch stops accumulation of such sediment.

When to Maintain?

Contech includes a 1-year maintenance plan with each system purchase. Annual included maintenance consists of a maximum of two (2) scheduled visits. Additional maintenance may be necessary depending on sediment and trash loading (by Owner or at additional cost). The start of the maintenance plan begins when the system is activated.

Maintenance visits are scheduled seasonally; the spring visit aims to clean up after winter loads including salts and sands while the fall visit helps the system by removing excessive leaf litter.

It has been found that in regions which receive between 30-50 inches of annual rainfall, (2) two visits are generally required; regions with less rainfall often only require (1) one visit per annum. Varying land uses can affect maintenance frequency; e.g. some fast food restaurants require more frequent trash removal. Contributing drainage areas which are subject to new development wherein the recommended erosion and sediment control measures have not been implemented may require additional maintenance visits.

Some sites may be subjected to extreme sediment or trash loads, requiring more frequent maintenance visits. This is the reason for detailed notes of maintenance actions per unit, helping the Supplier and Owner predict future maintenance frequencies, reflecting individual site conditions.

Owners must promptly notify the (maintenance) Supplier of any damage to the plant(s), which constitute(s) an integral part of the bioretention technology. Owners should also advise other landscape or maintenance contractors to leave all maintenance to the Supplier (i.e. no pruning or fertilizing) during the first year.



Exclusion of Services

Clean up due to major contamination such as oils, chemicals, toxic spills, etc. will result in additional costs and are not covered under the Supplier maintenance contract. Should a major contamination event occur the Owner must block off the outlet pipe of the Filterra (where the cleaned runoff drains to, such as drop inlet) and block off the throat of the Filterra. The Supplier should be informed immediately.

Maintenance Visit Summary

Each maintenance visit consists of the following simple tasks (detailed instructions below).

1. Inspection of Filterra and surrounding area
2. Removal of tree grate and erosion control stones
3. Removal of debris, trash and mulch
4. Mulch replacement
5. Plant health evaluation and pruning or replacement as necessary
6. Clean area around Filterra
7. Complete paperwork

Maintenance Tools, Safety Equipment and Supplies

Ideal tools include: camera, bucket, shovel, broom, pruners, hoe/rake, and tape measure. Appropriate Personal Protective Equipment (PPE) should be used in accordance with local or company procedures. This may include impervious gloves where the type of trash is unknown, high visibility clothing and barricades when working in close proximity to traffic and also safety hats and shoes. A T-Bar or crowbar should be used for moving the tree grates (up to 170 lbs ea.). Most visits require minor trash removal and a full replacement of mulch. See below for actual number of bagged mulch that is required in each media bay size. Mulch should be a double shredded, hardwood variety. Some visits may require additional Filterra engineered soil media available from the Supplier.

Box Length	Box Width	Filter Surface Area (ft^2)	Volume at 3" (ft^3)	# of 2 ft^3 Mulch Bags
4	4	4	4	2
6	4	6	6	3
8	4	8	8	4
6	6	9	9	5
8	6	12	12	6
10	6	15	15	8
12	6	18	18	9
13	7	23	23	12

Maintenance Visit Procedure

Keep sufficient documentation of maintenance actions to predict location specific maintenance frequencies and needs. An example Maintenance Report is included in this manual.



1. Inspection of Filterra and surrounding area

- Record individual unit before maintenance with photograph (numbered). Record on Maintenance Report (see example in this document) the following:

Record on Maintenance Report the following:

Standing Water	yes | no
Damage to Box Structure	yes | no
Damage to Grate	yes | no
Is Bypass Clear	yes | no

If yes answered to any of these observations, record with close-up photograph (numbered).



2. Removal of tree grate and erosion control stones

- Remove cast iron grates for access into Filterra box.
- Dig out silt (if any) and mulch and remove trash & foreign items.

3. Removal of debris, trash and mulch

Record on Maintenance Report the following:

Silt/Clay	yes | no
Cups/ Bags	yes | no
Leaves	yes | no
Buckets Removed	_____



- After removal of mulch and debris, measure distance from the top of the Filterra engineered media soil to the top of the top slab. Compare the measured distance to the distance shown on the approved Contract Drawings for the system. Add Filterra media (not top soil or other) to bring media up as needed to distance indicated on drawings.

Record on Maintenance Report the following:

Distance to Top of Top Slab (inches)	_____
Inches of Media Added	_____



4. Mulch replacement

- Add double shredded mulch evenly across the entire unit to a depth of 3".
- Refer to Filterra Mulch Specifications for information on acceptable sources.
- Ensure correct repositioning of erosion control stones by the Filterra inlet to allow for entry of trash during a storm event.
- Replace Filterra grates correctly using appropriate lifting or moving tools, taking care not to damage the plant.



5. Plant health evaluation and pruning or replacement as necessary

- Examine the plant's health and replace if necessary.
- Prune as necessary to encourage growth in the correct directions

Record on Maintenance Report the following:

Height above Grate	_____ (ft)
Width at Widest Point	_____ (ft)
Health	healthy | unhealthy
Damage to Plant	yes | no
Plant Replaced	yes | no



6. Clean area around Filterra

- Clean area around unit and remove all refuse to be disposed of appropriately.



7. Complete paperwork

- Deliver Maintenance Report and photographs to appropriate location (normally Contech during maintenance contract period).
- Some jurisdictions may require submission of maintenance reports in accordance with approvals. It is the responsibility of the Owner to comply with local regulations.

Maintenance Checklist

Drainage System Failure	Problem	Conditions to Check	Condition that Should Exist	Actions
Inlet	Excessive sediment or trash accumulation.	Accumulated sediments or trash impair free flow of water into Filterra.	Inlet should be free of obstructions allowing free distributed flow of water into Filterra.	Sediments and/or trash should be removed.
Mulch Cover	Trash and floatable debris accumulation.	Excessive trash and/or debris accumulation.	Minimal trash or other debris on mulch cover.	Trash and debris should be removed and mulch cover raked level. Ensure bark nugget mulch is not used.
Mulch Cover	"Ponding" of water on mulch cover.	"Ponding" in unit could be indicative of clogging due to excessive fine sediment accumulation or spill of petroleum oils.	Stormwater should drain freely and evenly through mulch cover.	Recommend contact manufacturer and replace mulch as a minimum.
Vegetation	Plants not growing or in poor condition.	Soil/mulch too wet, evidence of spill. Incorrect plant selection. Pest infestation. Vandalism to plants.	Plants should be healthy and pest free.	Contact manufacturer for advice.
Vegetation	Plant growth excessive.	Plants should be appropriate to the species and location of Filterra.		Trim/prune plants in accordance with typical landscaping and safety needs.
Structure	Structure has visible cracks.	Cracks wider than 1/2 inch or evidence of soil particles entering the structure through the cracks.		Vault should be repaired.
Maintenance is ideally to be performed twice annually.				

Filterra Inspection & Maintenance Log

Filterra System Size/Model:_____ **Location:** _____

Date	Mulch & Debris Removed	Depth of Mulch Added	Mulch Brand	Height of Vegetation Above Grate	Vegetation Species	Issues with System	Comments
1/1/17	*5 – 5 gal Buckets*	*3″*	*Lowe's Premium Brown Mulch*	*4′*	*Galaxy Magnolia*	*- Standing water in downstream structure*	*- Removed blockage in downstream structure*

Appendix 1 – Filterra® Activation Checklist

Project Name: _____ Company: _____

Site Contact Name: _____ Site Contact Phone/Email: _____

Site Owner/End User Name: _____ Site Owner/End User Phone/Email: _____

Preferred Activation Date: _____ (provide 2 weeks minimum from date this form is submitted)

Site Designation	System Size	Final Pavement / Top Coat Complete	Landscaping Complete / Grass Emerging	Construction materials / Piles / Debris Removed	Throat Opening Measures 4" Min. Height	Plant Species Requested
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	
		☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	

Attach additional sheets as necessary.

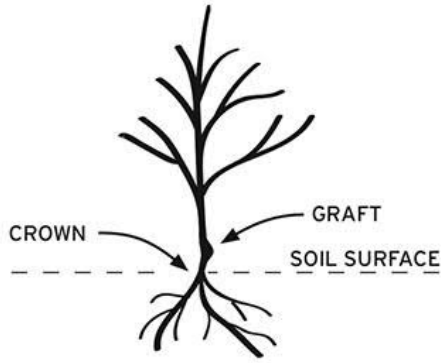
NOTE: A charge of $500.00 will be invoiced for each Activation visit requested by Customer where Contech determines that the site does not meet the conditions required for Activation. ONLY Contech authorized representatives can perform Activation of Filterra systems; unauthorized Activations will void the system warranty and waive manufacturer supplied Activation and 1st Year Maintenance.

_____ _____

Signature Date

Appendix 2 – Planting Requirements for Filterra® Systems

Plant Material Selection



- Select plant(s) as specified in the engineering plans and specifications.
- Select plant(s) with full root development but not to the point where root bound.
- Use local nursery container plants only. Ball and burlapped plants are not permitted.
- For precast Filterra systems with a tree grate, plant(s) must not have scaffold limbs at least 14 inches from the crown due to spacing between the top of the mulch and the tree grate. Lower branches can be pruned away provided there are sufficient scaffold branches for tree or shrub development.
- For precast Filterra systems with a tree grate, at the time of installation, it is required that plant(s) must be at least 6" above the tree grate opening at installation for all Filterra configurations. This DOES NOT apply to Full Grate Cover designs.
- Plant(s) shall not have a mature height greater than 25 feet.
- For standard 21" media depth, a 7 – 15 gallon container size shall be used. Media less than 21" (Filterra boxes only) will require smaller container plants.
- For precast Filterra systems, plant(s) should have a single trunk at installation, and pruning may be necessary at activation and maintenance for some of the faster growing species, or species known to produce basal sprouts.

Plant Installation

- During transport protect the plant leaves from wind and excessive jostling.
- Prior to removing the plant(s) from the container, ensure the soil moisture is sufficient to maintain the integrity of the root ball. If needed, pre-wet the container plant.
- Cut away any roots which are growing out of the container drain holes. Plants with excessive root growth from the drain holes should be rejected.
- Plant(s) should be carefully removed from the pot by gently pounding on the sides of the container with the fist to loosen root ball. Then carefully slide out. Do not lift plant(s) by trunk as this can break roots and cause soil to fall off. Extract the root ball in a horizontal position and support it to prevent it from breaking apart. Alternatively the pot can be cut away to minimize root ball disturbance.
- Remove any excess soil from above the root flare after removing plant(s) from container.
- Excavate a hole with a diameter 4" greater than the root ball, gently place the plant(s).
- If plant(s) have any circling roots from being pot bound, gently tease them loose without breaking them.
- If root ball has a root mat on the bottom, it should be shaved off with a knife just above the mat line.
- Plant the tree/shrub/grass with the top of the root ball 1" above surrounding media to allow for settling.
- All plants should have the main stem centered in the tree grate (where applicable) upon completion of installation.
- With all trees/shrubs, remove dead, diseased, crossed/rubbing, sharply crotched branches or branches growing excessively long or in wrong direction compared to majority of branches.
- To prevent transplant shock (especially if planting takes place in the hot season), it may be necessary to prune some of the foliage to compensate for reduced root uptake capacity. This is accomplished by pruning away some of the smaller secondary branches or a main scaffold branch if there are too many. Too much foliage relative to the root ball can dehydrate and damage the plant.
- Plant staking may be required.

Mulch Installation

- Only mulch that has been meeting Contech Engineered Solutions' mulch specifications can be used in the Filterra system.
- Mulch must be applied to a depth of 3" evenly over the surface of the media.

Irrigation Requirements

- Each Filterra system must receive adequate irrigation to ensure survival of the living system during periods of drier weather.
- Irrigation sources include rainfall runoff from downspouts and/or gutter flow, applied water through the tree grate or in some cases from an irrigation system with emitters installed during construction.
- At Activation: Apply about one (cool climates) to two (warm climates) gallons of water per inch of trunk diameter over the root ball.
- During Establishment: In common with all plants, each Filterra plant will require more frequent watering during the establishment period. One inch of applied water per week for the first three months is recommended for cooler climates (2 to 3 inches for warmer climates). If the system is receiving rainfall runoff from the drainage area, then irrigation may not be needed. Inspection of the soil moisture content can be evaluated by gently brushing aside the mulch layer and feeling the soil. Be sure to replace the mulch when the assessment is complete. Irrigate as needed**.
- Established Plants: Established plants have fully developed root systems and can access the entire water column in the media. Therefore irrigation is less frequent but requires more applied water when performed. For a mature system assume 3.5 inches of available water within the media matrix. Irrigation demand can be estimated as 1" of irrigation demand per week. Therefore if dry periods exceed 3 weeks, irrigation may be required. It is also important to recognize that plants which are exposed to windy areas and reflected heat from paved surfaces may need more frequent irrigation. Long term care should develop a history which is more site specific.

** Five gallons per square yard approximates 1 inch of water Therefore for a 6' by 6' Filterra approximately 20-60 gallons of water is needed. To ensure even distribution of water it needs to be evenly sprinkled over the entire surface of the filter bed, with special attention to make sure the root ball is completely wetted. NOTE: if needed, measure the time it takes to fill a five gallon bucket to estimate the applied water flow rate then calculate the time needed to irrigate the Filterra. For example, if the flow rate of the sprinkler is 5 gallons/minute then it would take 12 minutes to irrigate a 6' by 6' filter.



Notes

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R-TANK OPERATION, INSPECTION & MAINTENANCE

Operation

Your ACF R-Tank System has been designed to function in conjunction with the engineered drainage system on your site, the existing municipal infrastructure, and/or the existing soils and geography of the receiving watershed. Unless your site included certain unique and rare features, the operation of your R-Tank System will be driven by naturally occurring systems and will function autonomously. However, upholding a proper schedule of Inspection & Maintenance is critical to ensuring continued functionality and optimum performance of the system.

Inspection

Both the R-Tank and all stormwater pre-treatment features incorporated into your site must be inspected regularly. Inspection frequency for your system must be determined based on the contributing drainage area, but should never exceed one year between inspections (six months during the first year of operation).

Inspections may be required more frequently for pre-treatment systems. You should refer to the manufacturer requirements for the proper inspection schedule.

With the right equipment your inspection and measurements can be accomplished from the surface without physically entering any confined spaces. If your inspection does require confined space entry, you MUST follow all local/regional requirements as well as OSHA standards.

R-Tank Systems may incorporate Inspection Ports, Maintenance Ports, and/or adjoining manholes. Each of these features are easily accessed by removing the lid at the surface. With the cover removed, a visual inspection can be performed to identify sediment deposits within the structure. Using a flashlight, ALL access points should be examined to complete a thorough inspection.

Inspection Ports
Usually located centrally in the R-Tank System, these perforated columns are designed to give the user a base-line sediment depth across the system floor.

Maintenance Ports
Usually located near the inlet and outlet connections, you'll likely find deeper deposits of heavier sediments when compared to the Inspection Ports.

Manholes
Most systems will include at least two manholes - one at the inlet and another at the outlet. There may be more than one location where stormwater enters the system, which would result in additional manholes to inspect.

Bear in mind that these manholes often include a sump below the invert of the pipe connecting to the R-Tank. These sumps are designed to capture sediment before it reaches the R-Tank, and they should be kept clean to ensure they function properly. However, existence of sediment in the sump does NOT necessarily mean sediment has accumulated in the R-Tank.

After inspecting the bottom of the structure, use a mirror on a pole (or some other device) to check for sediment or debris in the pipe connecting to the R-Tank.

R-TANK OPERATION INSPECTION & MAINTENANCE

If sediment or debris is observed in any of these structures, you should determine the depth of the material. This is typically accomplished with a stadia rod, but you should determine the best way to obtain the measurement.

All observations and measurements should be recorded on an Inspection Log kept on file. We've included a form you can use at the end of this guideline.

Maintenance

The R-Tank System should be back-flushed once sediment accumulation has reached 6" or 15% of the total system height. Use the chart below as a guideline to determine the point at which maintenance is required on your system.

R-Tank Unit	Height	Max Sediment Dept
Mini	9.5"	1.5"
Single	17"	3"
Double	34"	5"
Triple	50"	6"
Quad	67"	6"
Pent	84"	6"

Before any maintenance is performed on your system, be sure to plug the outlet pipe to prevent contamination of the adjacent systems.

To back-flush the R-Tank, water is pumped into the system through the Maintenance Ports as rapidly as possible. Water should be pumped into ALL Maintenance Ports. The turbulent action of the water moving through the R-Tank will suspend sediments which may then be pumped out.

If your system includes an Outlet Structure, this will be the ideal location to pump contaminated water out of the system. However, removal of back-flush water may be accomplished through the Maintenance Ports, as well.

For systems with large footprints that would require extensive volumes of water to properly flush the system, you should consider performing your maintenance within 24 hours of a rain event. Stormwater entering the system will aid in the suspension of sediments and reduce the volume of water required to properly flush the system.

Once removed, sediment-laden water may be captured for disposal or pumped through a Dirtbag™ (if permitted by the locality).

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Step-By-Step Inspection & Maintenance Routine

1) **Inspection**
    a. Inspection Port
        i. Remove Cap
        ii. Use flashlight to detect sediment deposits
        iii. If present, measure sediment depth with stadia rod
        iv. Record results on Maintenance Log
        v. Replace Cap
    b. Maintenance Port/s
        i. Remove Cap
        ii. Use flashlight to detect sediment deposits
        iii. If present, measure sediment depth with stadia rod
        iv. Record results on Maintenance Log
        v. Replace Cap
        vi. Repeat for ALL Maintenance Ports
    c. Adjacent Manholes
        i. Remove Cover
        ii. Use flashlight to detect sediment deposits
        iii. If present, measure sediment depth with stadia rod, accounting for depth of sump (if present)
        iv. Inspect pipes connecting to R-Tank
        v. Record results on Maintenance Log
        vi. Replace Cover
        vii. Repeat for ALL Manholes that connect to the R-Tank

2) **Maintenance**
    a. Plug system outlet to prevent discharge of back-flush water
    b. Determine best location to pump out back-flush water
    c. Remove Cap from Maintenance Port
    d. Pump water as rapidly as possible (without over-topping port) into system until at least 1”
    of water covers system bottom
    e. Replace Cap
    f. Repeat at ALL Maintenance Ports
    g. Pump out back-flush water to complete back-flushing
    h. Vacuum all adjacent structures and any other structures or stormwater pre-treatment systems that require attention
    i. Sediment-laden water may be captured for disposal or pumped through a Dirtbag™.
    j. Replace any remaining Caps or Covers
    k. Record the back-flushing event in your Maintenance Log with any relevant specifics

R-Tank Maintenance Log

Site Name:_____

Location:_____

System Owner:_____

Company Responsible for Maintenance:_____

Contact:_____

Phone Number:_____

Date	Location	Depth to Bottom	Depth to Sediment	Sediment Depth	Observations/Notes	Initials

For more information about our products, contact Inside Sales at 800.448.3636 or email at info@acfenv.com

Portland Square Garage Stormwater Maintenance Log

BMP Structure	Inspector (Name)	Work Performed	Date Performed	Comments
Catch Basins & Drainage Manholes				
Filterra Bioretention System #1				
Filterra Bioretention System #2				
R-Tank				
Other				
Additional Comments:				

STORMWATER MANAGEMENT PLAN

Three Portland Square

41 Hutchins Drive
Portland, ME 04102
800-426-4262

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COMMITMENT & INTEGRITY DRIVE RESULTS

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North River IV, LLC
December 2019

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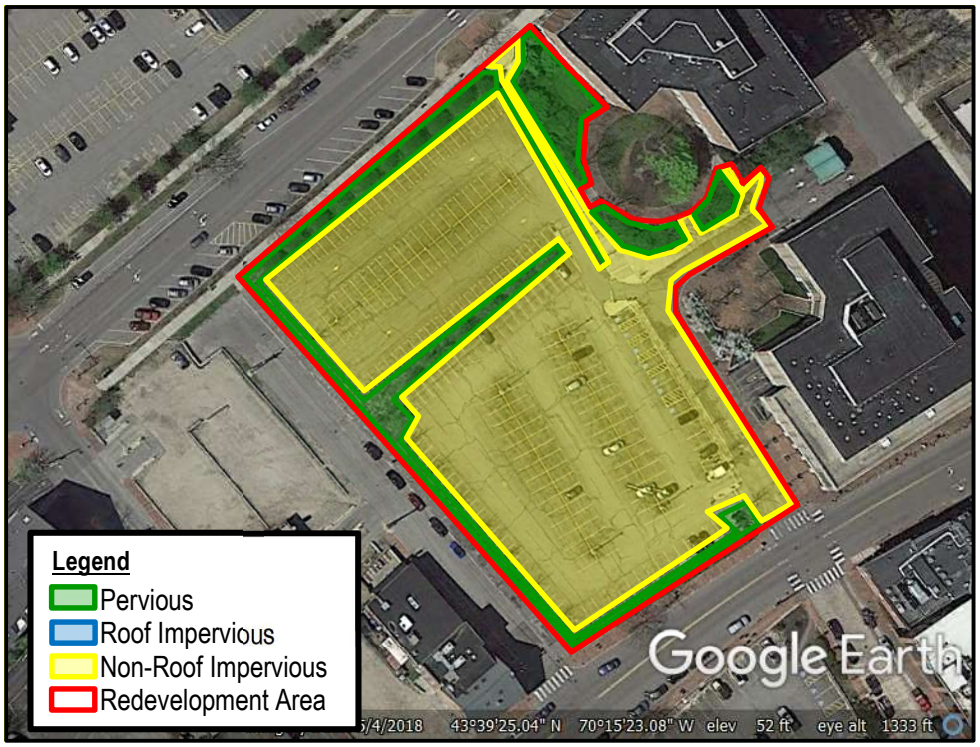
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Appendix B: Stormwater Quality Calculations
Appendix C: HydroCAD Report
Appendix D: Figures

1. STORMWATER MANAGEMENT PLAN

This Stormwater Management Plan (SWMP) describes existing site conditions, the proposed development, compliance with applicable stormwater standards, and inspection and maintenance requirements for the proposed stormwater system associated with the Three Portland Square redevelopment project in Portland, Maine.

1.1 Existing Conditions

The 2.31 +/- acre project area, located in a highly developed urban environment, currently consists of a paved parking lot surrounded by a landscaped esplanade containing shrubs and trees. The site slopes from north to south towards Fore Street, from approximate elevation 51' down to 29'. In general, runoff from the parking lot drains via sheet flow in a southerly direction to a series of catch basins that discharge to the separated storm drain in Cotton Street, then to the separated storm drain in Fore Street and ultimately to the storm drain in Cross Street. There is no existing stormwater treatment on the site. The following figure and table portray the surface cover breakdown of the existing site.

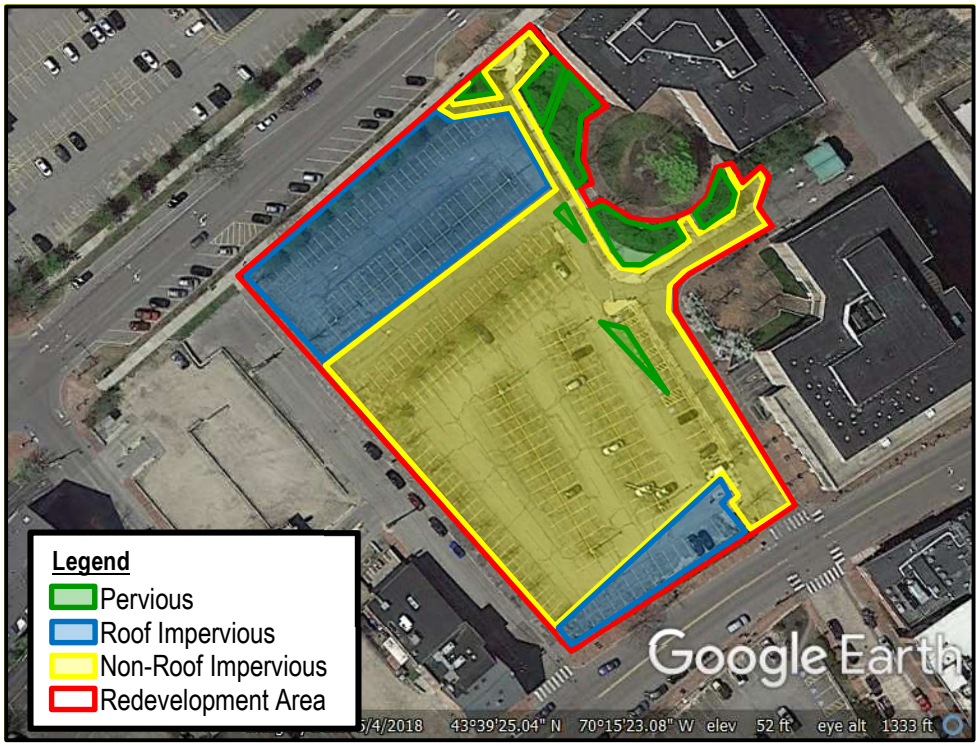


Cover Type	Area Description	Surface Area (SF)
Pervious	Landscaped Esplanade & Plaza Landscaping	17,980
Roof Impervious	N/A	0
Non-Roof Impervious	Parking Lot, Plaza and Upper Cross Street	82,630
	Total Existing Redevelopment Area	100,610

1.2 Proposed Development

The proposed project includes redevelopment of the existing surface parking lot with an 8-story office building with ground-level retail (Office Tower), a 7-level parking structure, and a 4-story office building with ground level retail/restaurant (Fore Street Wrap), as well as redevelopment of the adjacent plaza, stairs and private access driveway (Upper Cross Street), and associated site improvements. The proposed development will result in approximately 2.31-acres of disturbance and approximately 2.15-acres of impervious area.

The proposed buildings and parking structure cover almost the entire parcel, as required per City's zoning setbacks. The site layout is shown in the project drawings submitted under separate cover. The following figure and table show the surface cover breakdown for the proposed redevelopment project.



Cover Type	Area Description	Surface Area (SF)
Pervious	Plaza Landscaping	7,025
Roof Impervious	Office Tower and Fore Street Wrap	26,570
Non-Roof Impervious	Parking Structure, Plaza, Alley and Upper Cross Street	67,015
	Total Proposed Redevelopment Area	100,610

Stormwater runoff from the site will discharge to storm drain in Cotton Street and Upper Cross Street, which ultimately discharge to the storm drain in Cross Street, similar to the existing conditions. We anticipate meeting with the City of Portland to discuss connections to the City's existing infrastructure – there is a need for additional clarity on which

systems are separated or combined in some of the streets impacted by the project. We want to ensure that the proposed infrastructure will integrate with the City's current and future stormwater systems.

The proposed subsurface stormwater management system will consist of R-Tanks for storage and Jellyfish Filters for stormwater treatment. The proposed stormwater management systems are discussed in further detail in the following sections.

1.3 Stormwater Standards

The project is subject to the MaineDEP Chapter 500 Stormwater Standards. The project is not located within the watershed of an Urban Impaired Stream and is therefore not subject to the Urban Impaired Stream Standard. The following sections describe the project's compliance with the applicable stormwater standards.

1.3.1 Basic Standard (Soil Erosion & Sediment Control)

A variety of erosion and sediment control measures will be utilized during construction, including but not limited to the following:

- Stabilized construction entrances;
- Up-gradient runoff diversion barriers;
- Downgradient sediment barriers;
- Catch basin inlet protection devices;
- Preservation and maintenance of vegetated areas to the maximum extent possible;
- Temporary stabilization of disturbed areas to be exposed for more than seven days;
- Permanent stabilization of final graded areas;
- Controls for fugitive dust, debris, and other materials; and
- Inspection of all measures until the Site is permanently stabilized.

Structural measures will be installed as shown on the design drawings. Details and specifications for these measures are included on the drawings. All measures will be implemented in accordance with the "Maine Erosion and Sedimentation Handbook for Construction: Best Management Practices". All temporary measures will be installed prior to any earth-disturbing activities and will be removed upon permanent stabilization of the Site. The Contractor will be responsible for implementing and maintaining all erosion and sediment control measures in an effective operating condition during construction. Permanent erosion control measures will include vegetation and pavement. After construction, the Owner will be responsible for inspecting and maintaining the Site as described in Section 1.4 of this Report.

1.3.2 General & Redevelopment Standards (Stormwater Quality)

An impact analysis was conducted for the proposed redevelopment project to determine treatment requirements based on land use and pollutant rankings provided in Table 2 of Maine DEP Chapter 500 Rules. The existing site is largely comprised of a high use paved surface parking lot (pollutant ranking 5). The proposed site will primarily be comprised of flat building roof (pollutant ranking 3). The ranked impact change is less than zero, and the project is being permitted under Site Law; therefore, 50 percent of the developed area must be treated in accordance with Table 3 in Chapter 500. Greater than 50% of the redeveloped area will be captured and treated. Impact analysis and water quality calculations are provided in Appendix B. A Jellyfish filter system with below-grade R-Tanks for water quality volume

storage has been selected as the water quality treatment BMP for the Site. The proposed stormwater treatment system was designed based on Volume III of the DEP Stormwater BMP Manual.

Alternative stormwater management methods were considered, including green roof. The green roof option was eliminated due to significant structural design and building cost implications. Above-grade storage systems, like underdrained soil filters and rain gardens, were ruled out as there is limited available space on the Site due to zoning setback requirements.

R-Tank

Adequate provisions have been made to direct stormwater runoff from the parking structure rooftop, alley, and portion of the plaza and office tower roof to the underground R-Tank storage system. The R-Tanks will be installed in the alley between the office tower and parking structure, as shown on the Site Plan Drawings.

Jellyfish Filter

The system has been designed in accordance with the MaineDEP proprietary BMP approval letter to Contech dated January 21, 2015. The Jellyfish Filters have been sized to accommodate the water quality flow from 1-inch of runoff for a minimum 50 percent of the redeveloped area. Larger storm events will bypass the filter cartridges via an internal weir. The proposed Jellyfish Filter configurations and details are included on the Site Plan Drawings.

1.3.3 Flooding Standard (Stormwater Quantity)

Chapter 500 Stormwater Rules require that the stormwater management system detain, retain, or result in the infiltration of the stormwater flows from the 24-hour storm of the 2-year, 10-year, and 25-year frequencies, such that peak flows from the post-development Site do not exceed those from the pre-development Site. An R-Tank subsurface detention system is proposed to ensure post-development flows do not exceed pre-development flows from the project site. The stormwater management system was designed utilizing the HydroCAD 10.00 Stormwater Modeling System by Applied Microcomputer Systems. Utilizing the HydroCAD software, a 24-hour duration and Type-III rainfall distribution was applied to the rainfall depths provided in Appendix H of the MaineDEP Chapter 500 Rules in order to estimate the peak flows that the stormwater management system will need to accommodate.

HydroCAD provides a lookup table for curve number (CN), which is a measure of the retention and runoff properties of various surfaces based on the Hydrological Soil Group (HSG) and land cover type using TR-55 methodology. According to the latest NRCS Web Soil Survey data, the Site fully consists of Hinckley loamy sand, which is a HSG A soil. The area of each land cover type was delineated utilizing topographical survey information and HydroCAD computed the final CN for each subcatchment based on an area-weighted average. The HydroCAD model provided in Appendix C considers one study point: the separated storm drain at the intersection of Fore Street and Cross Street. Subcatchments, study points and the proposed R-Tank subsurface detention system are shown on the Pre- and Post-Development Drainage Area Figures provided in Appendix D.

The Time of Concentration (Tc) is the time required for runoff to travel from the most hydrologically distant point of a subcatchment to the point of discharge. The Tc for each subcatchment was computed within HydroCAD as the sum of the travel times for each consecutive segment along the longest flow path. The longest flow path was delineated utilizing topographic survey data and partitioned into segments based on flow types, land cover and slopes. The primary types of flow include sheet flow, shallow concentrated flow, and channel flows; sheet flow typically occurs within the first 100-feet of runoff. A minimum Tc of six minutes was utilized for all subcatchment areas.

Adequate provisions have been made to collect and control stormwater via the proposed stormwater management system. Storm drainage pipes have been sized to convey peak flow from the 25-year storm event. The proposed R-Tank subsurface detention system has been designed to store and treat stormwater volumes generated from the top deck of the parking structure, alley and portions of the plaza and office tower roof. We have been working with ACF

Environmental to determine the appropriate size and layout that is required for the site. This design is shown on the drawings. The table below provides a summary of the peak runoff rates for the 24-hour, 2-, 10-, and 25-year Type III storm events.

Table 1: Pre- vs. Post- Stormwater Comparison

Study Point		Peak Runoff Rate (cfs)		
		2-Year Storm	10-Year Storm	25-Year Storm
1	Pre-Development	5.44	8.96	11.79
	Post-Development	5.20	8.13	10.68

As shown above, there is a net decrease in the post-development rate of runoff during all storms at the Site's study point. Additionally, stormwater from the Site will continue to discharge to the separated storm drain at the intersection of Fore Street and Cross Street. Therefore, stormwater from the Site will not overwhelm the City's existing stormwater and sewer infrastructure.

1.4 Inspection & Maintenance Requirements

General inspection and maintenance must take place during and after construction in accordance with the requirements outlined in Chapter 500, Stormwater Management, Appendix B, Inspection and Maintenance and Stormwater Management, Maine Department of Environmental Protection Publication No. DEPLW0738. A formal stormwater agreement will be executed as the permitting process progresses. During construction, the contractor will be responsible for inspection and maintaining the Site. Upon completion, the property owner will be responsible for implementing the maintenance and inspection requirements for the stormwater management system associated with the new development in accordance with the Stormwater Inspection and Maintenance Plan provided in Appendix A.

APPENDIX A: STORMWATER INSPECTION & MAINTENANCE PLAN

STORMWATER INSPECTION & MAINTENANCE PLAN

Three Portland Square, Portland, Maine

General inspection and maintenance during and after construction must take place in accordance with the requirements outlined in Appendix B of the Maine Department of Environmental Protection (MaineDEP) Chapter 500 Rules. Upon completion of the project, the Owner will assume responsibility for overseeing the property, including the inspection and maintenance of the Site's stormwater drainage system and treatment measures outlined herein. A person with knowledge of stormwater management and erosion and sediment control, including the standards and conditions in the permit, shall conduct the inspections and perform maintenance of the facilities.

Inspection and maintenance activities will be performed per the attached checklist, schedule, and manufacturer guidelines; an example page of the BMP Maintenance Log that shall be kept on-site is also attached.

INSPECTION AND MAINTENANCE OF STORMWATER SYSTEMS

Trash, debris, and sediment shall be removed from stormdrain pipes and catch basins as needed on a semi-annual basis. In addition to the inspection and maintenance of stormwater systems, paved areas will be inspected annually each spring. These areas will be kept clean and clear through periodic sweeping and winter plowing as required. Inspections will also ensure pavement markings are repainted as needed to maintain proper traffic circulation. Paved areas will be plowed and sanded as often as necessary to maintain public safety. Periodic sweeping of pavement will reduce the amount of sediment available to enter the stormwater systems, in turn reducing the need to clean the stormwater systems. The R-Tank and Jellyfish systems must be inspected and maintained per the manufacturer's guidelines, which are outlined in the attached guidance documents.

STORMWATER INSPECTION CHECKLIST

Inspection by: _____ Date: _____

Stormwater Management Feature	Condition						Comments
Vegetative cover	no bare spots, no evidence of rill erosion		some bare spots, some rill erosion		large bare areas, extensive erosion		
Subsurface Drainage System*	no siltation		some siltation		heavily silted in		
Subsurface Drainage System*	no clogging/flooding		some clogging/flooding		heavy clogging/flooding		
Subsurface Drainage System*	outlet free of erosion		some erosion at outlet		outlet heavily eroded		
Subsurface Drainage System*	inlet/outlet clear		some debris		completely blocked		
Jellyfish System**	Cartridges are in good condition		Cartridges in need of cleaning		Cartridges in need of replacement		
Jellyfish System**	no clogging/flooding		some clogging/flooding		heavy clogging/flooding		

**See attached manufacturer's guidelines for R-Tank maintenance and inspection.*
*** See attached manufacturer's guidelines for Jellyfish System maintenance and inspection.*

Recommended Actions: _____

_____

Actions Completed: _____ Date: _____

MAINTENANCE TASKS	**SCHEDULE**
Inspect for sediment accumulation	Spring and Fall
Remove sediment accumulation	As needed
Clean debris	As needed
Inspect for erosion	As needed
Reestablish vegetation in erosion areas	Early spring
Inspect structural elements during wet weather and compare to as-built plans	Annually
Make adjustments or replacements as determined by wet weather observations	As needed
Keep records of all inspections and maintenance activities	Annually
Have a professional engineer perform emergency inspections upon identification of severe problems	As needed

R-TANK OPERATION, INSPECTION & MAINTENANCE

Operation

Your ACF R-Tank System has been designed to function in conjunction with the engineered drainage system on your site, the existing municipal infrastructure, and/or the existing soils and geography of the receiving watershed. Unless your site included certain unique and rare features, the operation of your R-Tank System will be driven by naturally occurring systems and will function autonomously. However, upholding a proper schedule of Inspection & Maintenance is critical to ensuring continued functionality and optimum performance of the system.

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Usually located centrally in the R-Tank System, these perforated columns are designed to give the user a base-line sediment depth across the system floor.

Maintenance Ports
Usually located near the inlet and outlet connections, you'll likely find deeper deposits of heavier sediments when compared to the Inspection Ports.

Manholes
Most systems will include at least two manholes - one at the inlet and another at the outlet. There may be more than one location where stormwater enters the system, which would result in additional manholes to inspect.

Bear in mind that these manholes often include a sump below the invert of the pipe connecting to the R-Tank. These sumps are designed to capture sediment before it reaches the R-Tank, and they should be kept clean to ensure they function properly. However, existence of sediment in the sump does NOT necessarily mean sediment has accumulated in the R-Tank.

After inspecting the bottom of the structure, use a mirror on a pole (or some other device) to check for sediment or debris in the pipe connecting to the R-Tank.

R-TANK OPERATION INSPECTION & MAINTENANCE

If sediment or debris is observed in any of these structures, you should determine the depth of the material. This is typically accomplished with a stadia rod, but you should determine the best way to obtain the measurement.

All observations and measurements should be recorded on an Inspection Log kept on file. We've included a form you can use at the end of this guideline.

Maintenance

The R-Tank System should be back-flushed once sediment accumulation has reached 6" or 15% of the total system height. Use the chart below as a guideline to determine the point at which maintenance is required on your system.

R-Tank Unit	Height	Max Sediment Dept
Mini	9.5"	1.5"
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Quad	67"	6"
Pent	84"	6"

Before any maintenance is performed on your system, be sure to plug the outlet pipe to prevent contamination of the adjacent systems.

To back-flush the R-Tank, water is pumped into the system through the Maintenance Ports as rapidly as possible. Water should be pumped into ALL Maintenance Ports. The turbulent action of the water moving through the R-Tank will suspend sediments which may then be pumped out.

If your system includes an Outlet Structure, this will be the ideal location to pump contaminated water out of the system. However, removal of back-flush water may be accomplished through the Maintenance Ports, as well.

For systems with large footprints that would require extensive volumes of water to properly flush the system, you should consider performing your maintenance within 24 hours of a rain event. Stormwater entering the system will aid in the suspension of sediments and reduce the volume of water required to properly flush the system.

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FAX 804.743.7779
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Step-By-Step Inspection & Maintenance Routine

1) **Inspection**
    a. Inspection Port
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        ii. Use flashlight to detect sediment deposits
        iii. If present, measure sediment depth with stadia rod
        iv. Record results on Maintenance Log
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    b. Maintenance Port/s
        i. Remove Cap
        ii. Use flashlight to detect sediment deposits
        iii. If present, measure sediment depth with stadia rod
        iv. Record results on Maintenance Log
        v. Replace Cap
        vi. Repeat for ALL Maintenance Ports
    c. Adjacent Manholes
        i. Remove Cover
        ii. Use flashlight to detect sediment deposits
        iii. If present, measure sediment depth with stadia rod, accounting for depth of sump (if present)
        iv. Inspect pipes connecting to R-Tank
        v. Record results on Maintenance Log
        vi. Replace Cover
        vii. Repeat for ALL Manholes that connect to the R-Tank

2) **Maintenance**
    a. Plug system outlet to prevent discharge of back-flush water
    b. Determine best location to pump out back-flush water
    c. Remove Cap from Maintenance Port
    d. Pump water as rapidly as possible (without over-topping port) into system until at least 1”
    of water covers system bottom
    e. Replace Cap
    f. Repeat at ALL Maintenance Ports
    g. Pump out back-flush water to complete back-flushing
    h. Vacuum all adjacent structures and any other structures or stormwater pre-treatment systems that require attention
    i. Sediment-laden water may be captured for disposal or pumped through a Dirtbag™.
    j. Replace any remaining Caps or Covers
    k. Record the back-flushing event in your Maintenance Log with any relevant specifics

R-Tank Maintenance Log

Site Name:_____

Location:_____

System Owner:_____

Company Responsible for Maintenance:_____

Contact:_____

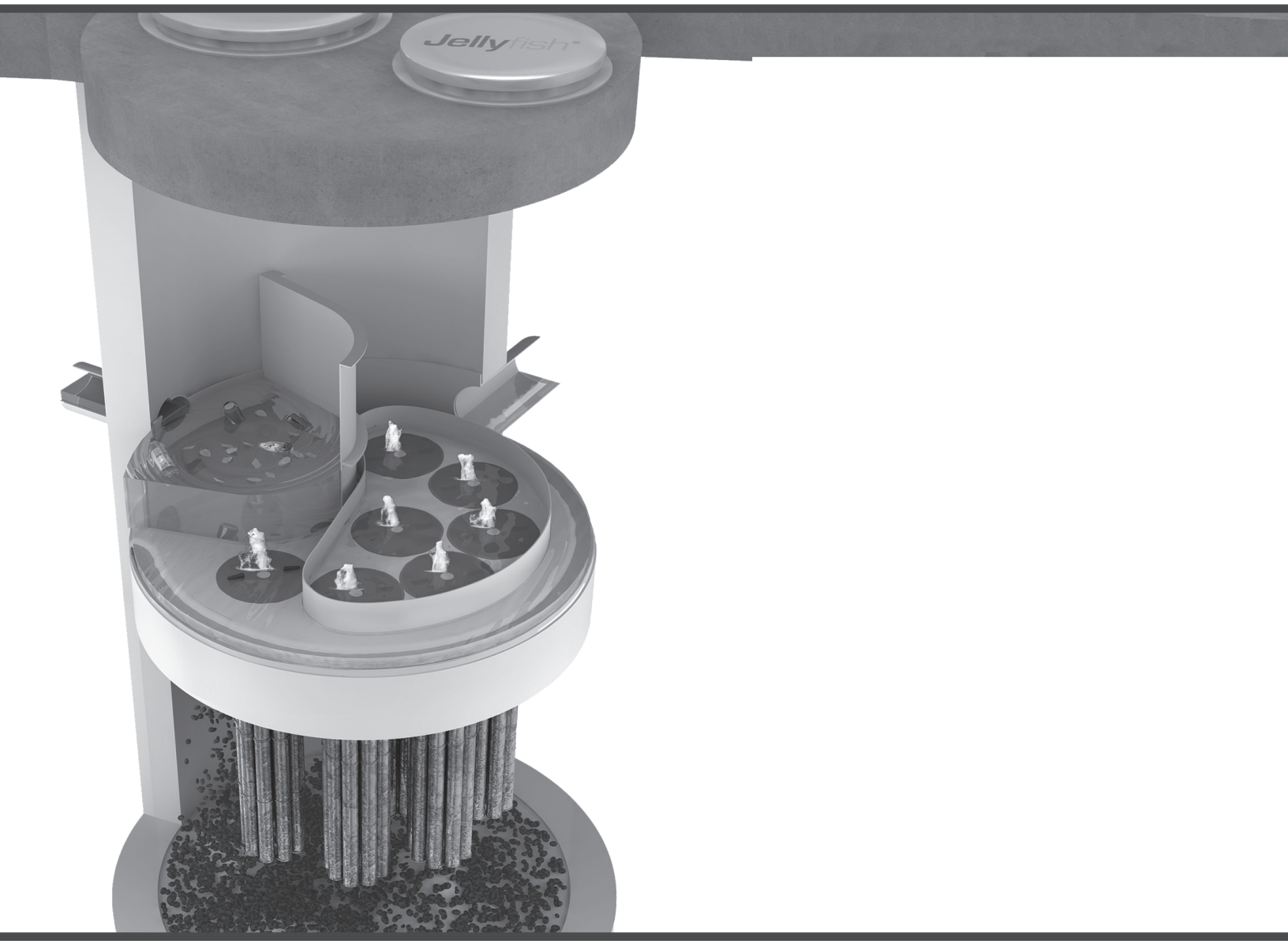
Phone Number:_____

Date	Location	Depth to Bottom	Depth to Sediment	Sediment Depth	Observations/Notes	Initials

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CONTECH®
ENGINEERED SOLUTIONS

Jellyfish® Filter Maintenance Guide



Jellyfish®

JELLYFISH® FILTER
INSPECTION & MAINTENANCE GUIDE

Jellyfish units are often just one of many structures in a more comprehensive stormwater drainage and treatment system.

In order for maintenance of the Jellyfish filter to be successful, it is imperative that all other components be properly maintained. The maintenance and repair of upstream facilities should be carried out prior to Jellyfish maintenance activities.

In addition to considering upstream facilities, it is also important to correct any problems identified in the drainage area. Drainage area concerns may include: erosion problems, heavy oil loading, and discharges of inappropriate materials.

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1.0 Inspection and Maintenance Overview

The primary purpose of the Jellyfish® Filter is to capture and remove pollutants from stormwater runoff. As with any filtration system, these pollutants must be removed to maintain the filter's maximum treatment performance. Regular inspection and maintenance are required to insure proper functioning of the system.

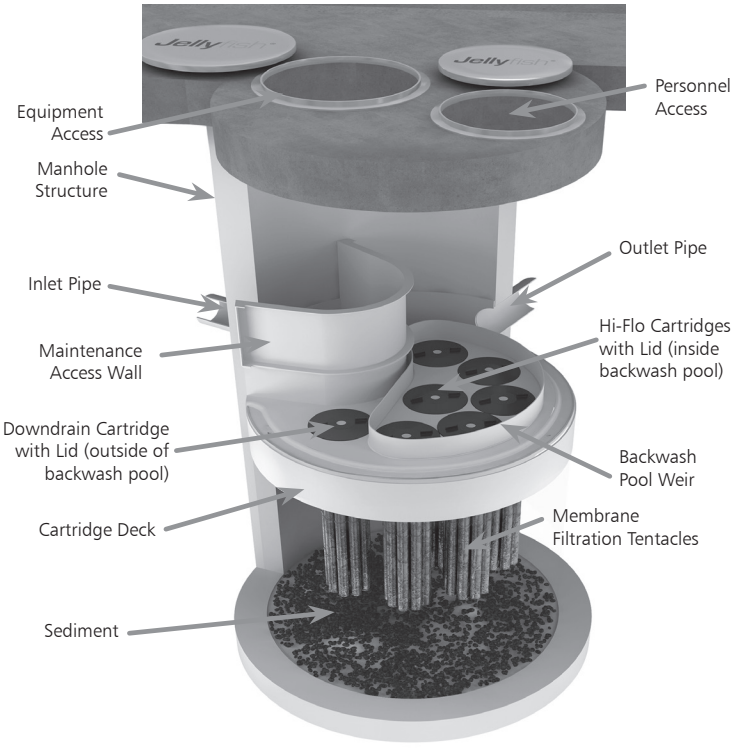
Maintenance frequencies and requirements are site specific and vary depending on pollutant loading. Additional maintenance activities may be required in the event of non-storm event runoff, such as base-flow or seasonal flow, an upstream chemical spill or due to excessive sediment loading from site erosion or extreme runoff events. It is a good practice to inspect the system after major storm events.

Inspection activities are typically conducted from surface observations and include:

- Observe if standing water is present
- Observe if there is any physical damage to the deck or cartridge lids
- Observe the amount of debris in the Maintenance Access Wall (MAW) or inlet bay for vault systems

Maintenance activities include:

- Removal of oil, floatable trash and debris
- Removal of collected sediments
- Rinsing and re-installing the filter cartridges
- Replace filter cartridge tentacles, as needed



Note: Separator Skirt not shown

2.0 Inspection Timing

Inspection of the Jellyfish Filter is key in determining the maintenance requirements for, and to develop a history of, the site's pollutant loading characteristics. In general, inspections should be performed at the times indicated below; *or per the approved project stormwater quality documents (if applicable), whichever is more frequent*.

1. A minimum of quarterly inspections during the first year of operation to assess the sediment and floatable pollutant accumulation, and to ensure proper functioning of the system.
2. Inspection frequency in subsequent years is based on the inspection and maintenance plan developed in the first year of operation. Minimum frequency should be once per year.
3. Inspection is recommended after each major storm event.
4. Inspection is required immediately after an upstream oil, fuel or other chemical spill.

3.0 Inspection Procedure

The following procedure is recommended when performing inspections:

1. Provide traffic control measures as necessary.
2. Inspect the MAW or inlet bay for floatable pollutants such as trash, debris, and oil sheen.
3. Measure oil and sediment depth in several locations, by lowering a sediment probe until contact is made with the floor of the structure. Record sediment depth, and presences of any oil layers.
4. Inspect cartridge lids. Missing or damaged cartridge lids to be replaced.
5. Inspect the MAW (where appropriate), cartridge deck and receptacles, and backwash pool weir, for damaged or broken components.

3.1 Dry weather inspections

- Inspect the cartridge deck for standing water, and/or sediment on the deck.
- No standing water under normal operating conditions.
- Standing water inside the backwash pool, but not outside the backwash pool indicates, that the filter cartridges need to be rinsed.



Inspection Utilizing Sediment Probe

- Standing water outside the backwash pool is not anticipated and may indicate a backwater condition caused by high water elevation in the receiving water body, or possibly a blockage in downstream infrastructure.
- Any appreciable sediment (≥1/16") accumulated on the deck surface should be removed.

3.2 Wet weather inspections

- Observe the rate and movement of water in the unit. Note the depth of water above deck elevation within the MAW or inlet bay.
- Less than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges (i.e. cartridges located outside the backwash pool).
- Greater than 6 inches, flow should be exiting the cartridge lids of each of the draindown cartridges and each of the hi-flo cartridges (i.e. cartridges located inside the backwash pool), and water should be overflowing the backwash pool weir.
- 18 inches or greater and relatively little flow is exiting the cartridge lids and outlet pipe, this condition indicates that the filter cartridges need to be rinsed.

4.0 Maintenance Requirements

Required maintenance for the Jellyfish Filter is based upon results of the most recent inspection, historical maintenance records, or the site specific water quality management plan; whichever is more frequent. In general, maintenance requires some combination of the following:

1. Sediment removal for depths reaching 12 inches or greater, or within 3 years of the most recent sediment cleaning, whichever occurs sooner.
2. Floatable trash, debris, and oil removal.
3. Deck cleaned and free from sediment.
4. Filter cartridges rinsed and re-installed as required by the most recent inspection results, or within 12 months of the most recent filter rinsing, whichever occurs sooner.
5. Replace tentacles if rinsing does not restore adequate hydraulic capacity, remove accumulated sediment, or if damaged or missing. It is recommended that tentacles should remain in service no longer than 5 years before replacement.
6. Damaged or missing cartridge deck components must be repaired or replaced as indicated by results of the most recent inspection.
7. The unit must be cleaned out and filter cartridges inspected immediately after an upstream oil, fuel, or chemical spill. Filter cartridge tentacles should be replaced if damaged or compromised by the spill.

5.0 Maintenance Procedure

The following procedures are recommended when maintaining the Jellyfish Filter:

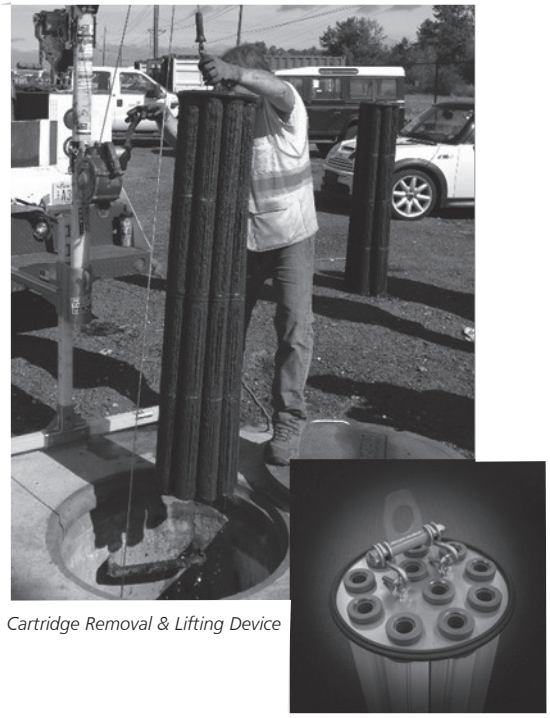
1. Provide traffic control measures as necessary.
2. Open all covers and hatches. Use ventilation equipment as required, according to confined space entry procedures. *Caution: Dropping objects onto the cartridge deck may cause damage*.
3. Perform Inspection Procedure prior to maintenance activity.
4. To access the cartridge deck for filter cartridge service, descend into the structure and step directly onto the deck. Caution: Do not step onto the maintenance access wall (MAW) or backwash pool weir, as damage may result. Note that the cartridge deck may be slippery.
5. Maximum weight of maintenance crew and equipment on the cartridge deck not to exceed 450 lbs.

5.1 Filter Cartridge Removal

1. Remove a cartridge lid.
2. Remove cartridges from the deck using the lifting loops in the cartridge head plate. Rope or a lifting device (available from Contech) should be used. *Caution: Should a snag occur, do not force the cartridge upward as damage to the tentacles may result. Wet cartridges typically weigh between 100 and 125 lbs*.
3. Replace and secure the cartridge lid on the exposed empty receptacle as a safety precaution. Contech does not recommend exposing more than one empty cartridge receptacle at a time.

5.2 Filter Cartridge Rinsing

1. Remove all 11 tentacles from the cartridge head plate. Take care not to lose or damage the O-ring seal as well as the plastic threaded nut and connector.



Cartridge Removal & Lifting Device

2. Position tentacles in a container (or over the MAW), with the threaded connector (open end) facing down, so rinse water is flushed through the membrane and captured in the container.
3. Using the Jellyfish rinse tool (available from Contech) or a low-pressure garden hose sprayer, direct water spray onto the tentacle membrane, sweeping from top to bottom along the length of the tentacle. Rinse until all sediment is removed from the membrane. *Caution: Do not use a high pressure sprayer or focused stream of water on the membrane. Excessive water pressure may damage the membrane*.

4. Collected rinse water is typically removed by vacuum hose.
5. Reassemble cartridges as detailed later in this document. Reuse O-rings and nuts, ensuring proper placement on each tentacle.

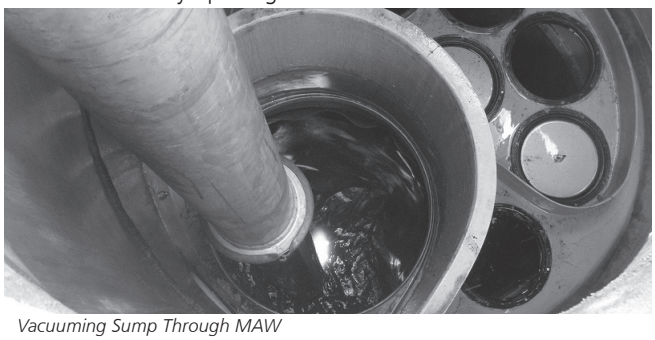
5.3 Sediment and Flotables Extraction

1. Perform vacuum cleaning of the Jellyfish Filter only after filter cartridges have been removed from the system. Access the lower chamber for vacuum cleaning only through the maintenance access wall (MAW) opening. Be careful not to damage the flexible plastic separator skirt that is attached to the underside of the deck on manhole systems. Do not lower the vacuum wand through a cartridge receptacle, as damage to the receptacle will result.
2. Vacuum floatable trash, debris, and oil, from the MAW opening or inlet bay. Alternatively, floatable solids may be removed by a net or skimmer.



Vacuuming Sump Through MAW

3. Pressure wash cartridge deck and receptacles to remove all sediment and debris. Sediment should be rinsed into the sump area. Take care not to flush rinse water into the outlet pipe.
4. Remove water from the sump area. Vacuum or pump equipment should only be introduced through the MAW or inlet bay.
5. Remove the sediment from the bottom of the unit through the MAW or inlet bay opening.



Vacuuming Sump Through MAW

6. For larger diameter Jellyfish Filter manholes (≥8-ft) and some vaults complete sediment removal may be facilitated by removing a cartridge lid from an empty receptacle and inserting a jetting wand (not a vacuum wand) through the receptacle. Use the sprayer to rinse loosened sediment toward the vacuum hose in the MAW opening, being careful not to damage the receptacle.

5.4 Filter Cartridge Reinstallation and Replacement

1. Cartridges should be installed after the deck has been cleaned. It is important that the receptacle surfaces be free from grit and debris.
2. Remove cartridge lid from deck and carefully lower the filter cartridge into the receptacle until head plate gasket is seated squarely in receptacle. ***Caution: Do not force the cartridge downward; damage may occur.***
3. Replace the cartridge lid and check to see that both male threads are properly seated before rotating approximately 1/3 of a full rotation until firmly seated. Use of an approved rim gasket lubricant may facilitate installation. See next page for additional details.
4. If rinsing is ineffective in removing sediment from the tentacles, or if tentacles are damaged, provisions must be made to replace the spent or damaged tentacles with new tentacles. Contact Contech to order replacement tentacles.

5.5 Chemical Spills

Caution: If a chemical spill has been captured, do not attempt maintenance. Immediately contact the local hazard response agency and contact Contech.

5.6 Material Disposal

The accumulated sediment found in stormwater treatment and conveyance systems must be handled and disposed of in accordance with regulatory protocols. It is possible for sediments to contain measurable concentrations of heavy metals and organic chemicals (such as pesticides and petroleum products). Areas with the greatest potential for high pollutant loading include industrial areas and heavily traveled roads. Sediments and water must be disposed of in accordance with all applicable waste disposal regulations. When scheduling maintenance, consideration must be made for the disposal of solid and liquid wastes. This typically requires coordination with a local landfill for solid waste disposal. For liquid waste disposal a number of options are available including a municipal vacuum truck decant facility, local waste water treatment plant or on-site treatment and discharge.

Jellyfish Filter Components & Filter Cartridge Assembly and Installation

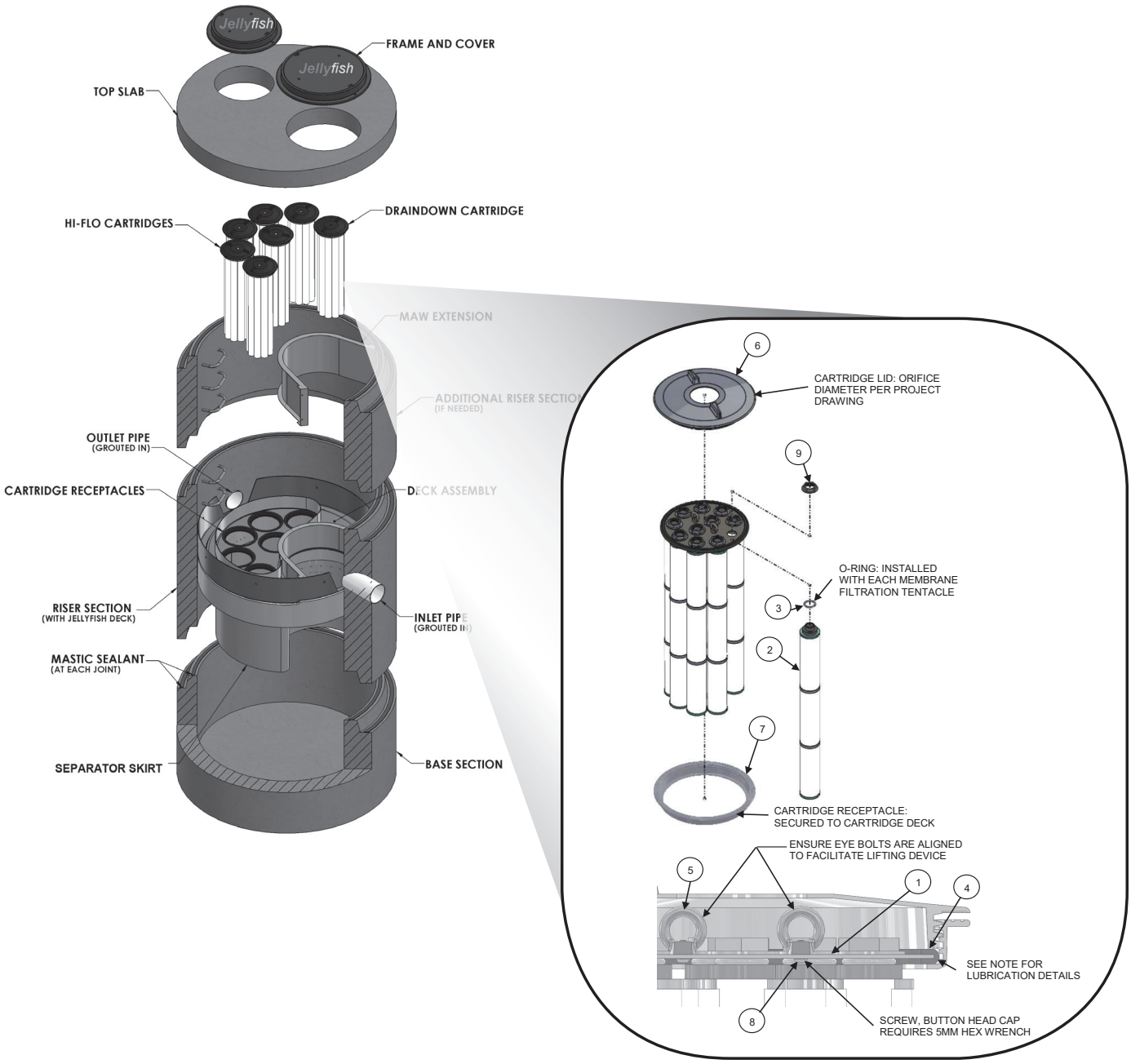


TABLE 1: BOM

ITEM NO.	DESCRIPTION
1	JF HEAD PLATE
2	JF TENTACLE
3	JF O-RING
4	JF HEAD PLATE GASKET
5	JF CARTRIDGE EYELET
6	JF 14IN COVER
7	JF RECEPTACLE
8	BUTTON HEAD CAP SCREW M6X14MM SS
9	JF CARTRIDGE NUT

TABLE 2: APPROVED GASKET LUBRICANTS

PART NO.	MFR	DESCRIPTION
78713	LA-CO	LUBRI-JOINT
40501	HERCULES	DUCK BUTTER
30600	OATEY	PIPE LUBRICANT
PSLUBXL1Q	PROSELECT	PIPE JOINT LUBRICANT

NOTES:

Head Plate Gasket Installation:
Install Head Plate Gasket (Item 4) onto the Head Plate (Item 1) and liberally apply a lubricant from Table 2: Approved Gasket Lubricants onto the gasket where it contacts the Receptacle (Item 7) and Cartridge Lide (ITem 6). Follow Lubricant manufacturer's instructions.

Lid Assembly:
Rotate Cartridge Lid counter-clockwise until both male threads drop down and properly seat. Then rotate Cartridge Lid clock-wise approximately one-third of a full rotation until Cartridge Lid is firmly secured, creating a watertight seal.

Jellyfish Filter Inspection and Maintenance Log

Owner:				Jellyfish Model No:		
Location:				GPS Coordinates:		
Land Use:	Commercial:		Industrial:		Service Station:	
	Roadway/Highway:		Airport:		Residential:	

Date/Time:						
Inspector:						
Maintenance Contractor:						
Visible Oil Present: (Y/N)						
Oil Quantity Removed:						
Floatable Debris Present: (Y/N)						
Floatable Debris Removed: (Y/N)						
Water Depth in Backwash Pool						
Draindown Cartridges externally rinsed and recommissioned: (Y/N)						
New tentacles put on Draindown Cartridges: (Y/N)						
Hi-Flo Cartridges externally rinsed and recommissioned: (Y/N)						
New tentacles put on Hi-Flo Cartridges: (Y/N)						
Sediment Depth Measured: (Y/N)						
Sediment Depth (inches or mm):						
Sediment Removed: (Y/N)						
Cartridge Lids intact: (Y/N)						
Observed Damage:						
Comments:						



Jellyfish®

CONTECH ENGINEERED SOLUTIONS

800.338.1122
www.ContechES.com

Support

- Drawings and specifications are available at www.conteches.com/jellyfish.
- Site-specific design support is available from Contech Engineered Solutions.
- Find a Certified Maintenance Provider at www.conteches.com/ccmp

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Stormwater BMP Maintenance Log

BMP Structure	Inspector (Name)	Work Performed	Date Performed	Comments
Pavement Sweeping				
Catch Basins				
R-Tank System				
Jellyfish System				
Other				
Additional Comments:				

APPENDIX B: STORMWATER QUALITY CALCULATIONS

WOODARD &CURRAN COMMITMENT & INTEGRITY DRIVE RESULTS
41 HUTCHINS DRIVE
PORTLAND, MAINE 04102

CLIENT: North River IV, LLC
PROJECT: Three Portland Square
CALCS BY: AL/LS
DATE: 12/11/2019
PROJECT NO.: 231886.00

Redevelopment Treatment Calculations - Per Section 4.C.2.d of the MaineDEP Chapter 500 Rules

Area of Redevelopment (acres) = 2.31

a. Existing Pollutant Impact

Land Use	Pollutant Ranking	Land Area (Ac.)	Impact
High Use Roads/Parking Lot	5	0.00	0.00
Other Roads/Medium Use Parking Lot	4	1.79	7.15
Other Parking Lots/Flat Asphalt Roofs/Industrial Roofs	3	0.00	0.00
Other Roofs/Landscaped Area/Paved Walkway	2	0.36	0.73
Non-grass Landscaping/Stormwater	1	0.16	0.16
Forest/Meadow	0	0.00	0.00
			8.04

b. Proposed Pollutant Impact

Land Use	Pollutant Ranking	Land Area (Ac.)	Impact
High Use Roads/Parking Lot	5	0.00	0.00
Other Roads/Medium Use Parking Lot	4	1.16	4.65
Other Parking Lots/Flat Asphalt Roofs/Industrial Roofs	3	0.61	1.83
Other Roofs/Landscaped Area/Paved Walkway	2	0.44	0.87
Non-grass Landscaping/Stormwater	1	0.10	0.10
Forest/Meadow	0	0.00	0.00
			7.45

c. Existing Impact/Total Redevelopment Acres

3.48

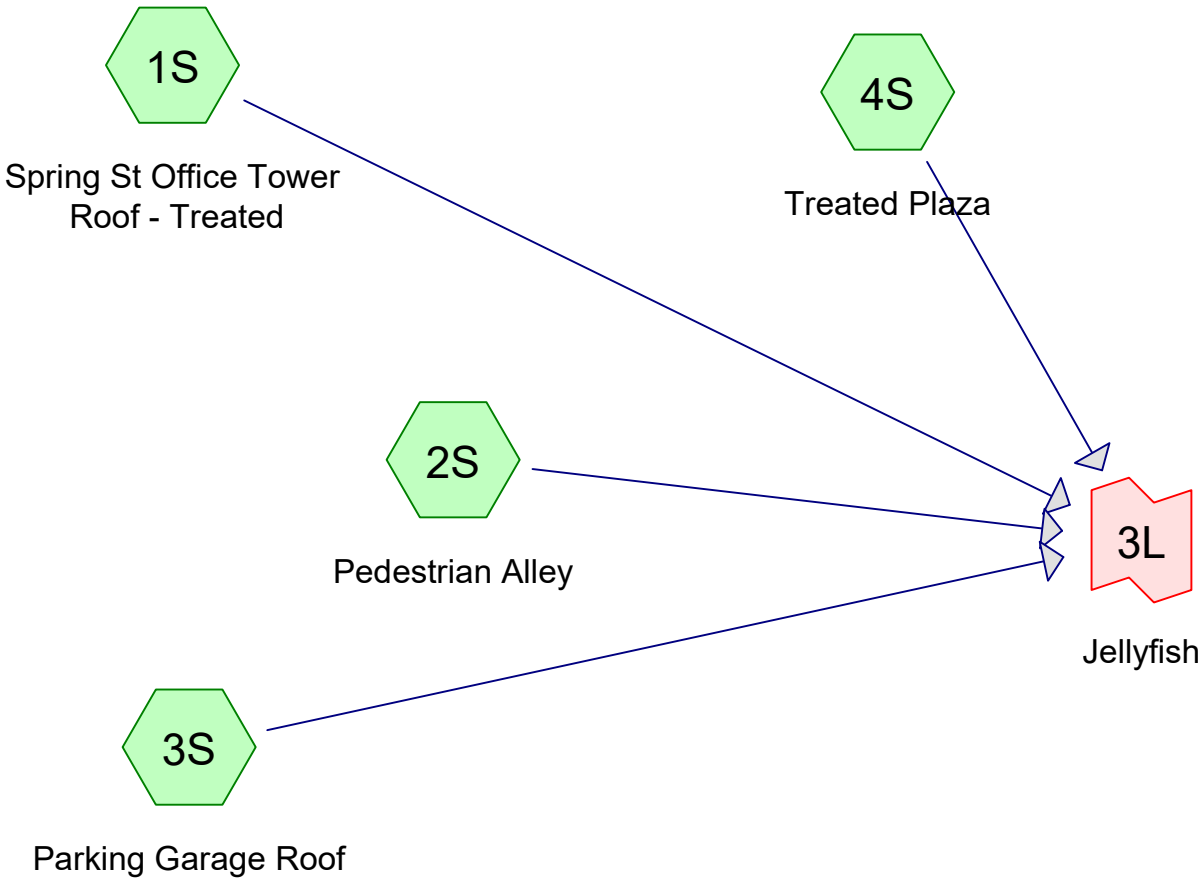
d. Proposed Impact/Total Redevelopment Acres

3.23

e. Item D Minus Item C

-0.25

Ranked Impact Change Due to Redevelopment	Percentage of Developed Area that Must be Treated
0.0 or less	0% (Stormwater projects)
	50% (Site projects)
≥ 0.0 to ≤ 1.0	60%
> 1.0 to ≤ 2.0	70%
> 2.0 to ≤ 3.0	80%
> 3.0	Same treatment level as for new development



Subcat Reach Pond Link

Routing Diagram for B2. Jellyfish Sizing
Prepared by Woodard Curran, Printed 12/19/2019
HydroCAD® 10.00-21 s/n 01204 © 2018 HydroCAD Software Solutions LLC

Summary for Subcatchment 1S: Spring St Office Tower Roof - Treated

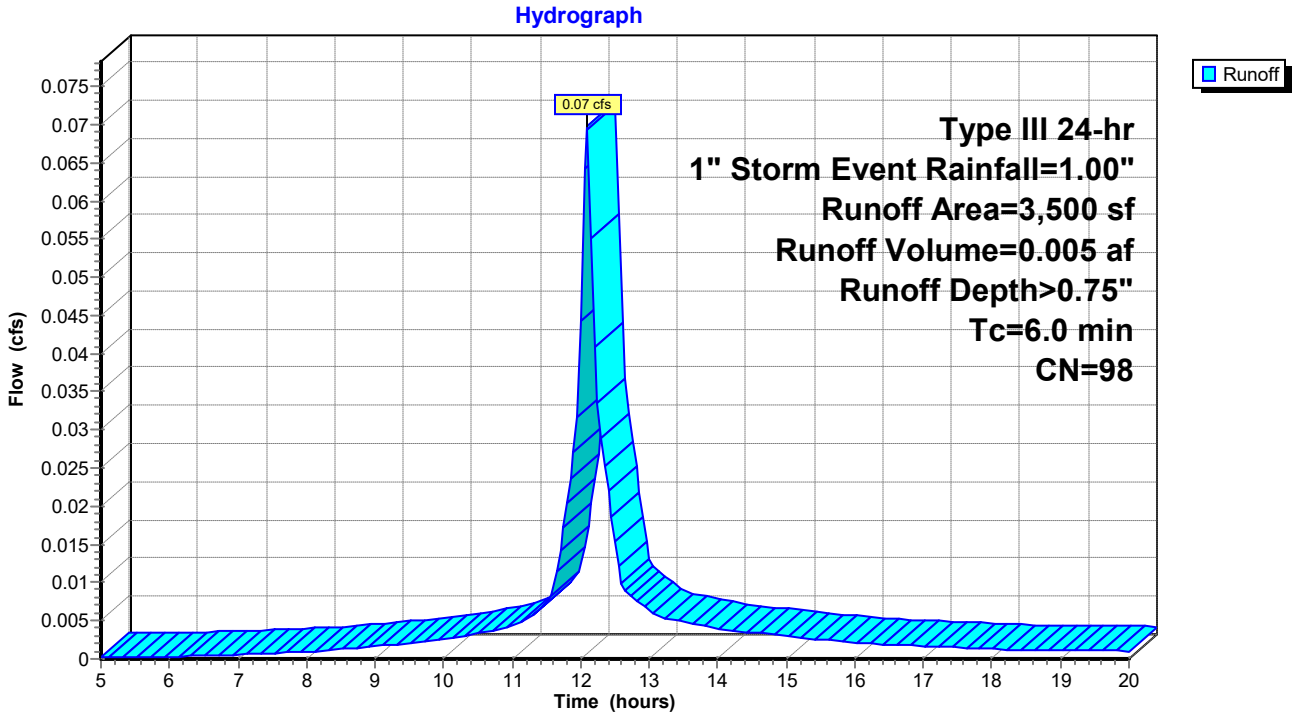
Runoff = 0.07 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 0.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	3,500	98	Impervious
	3,500		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1S: Spring St Office Tower Roof - Treated



Summary for Subcatchment 2S: Pedestrian Alley

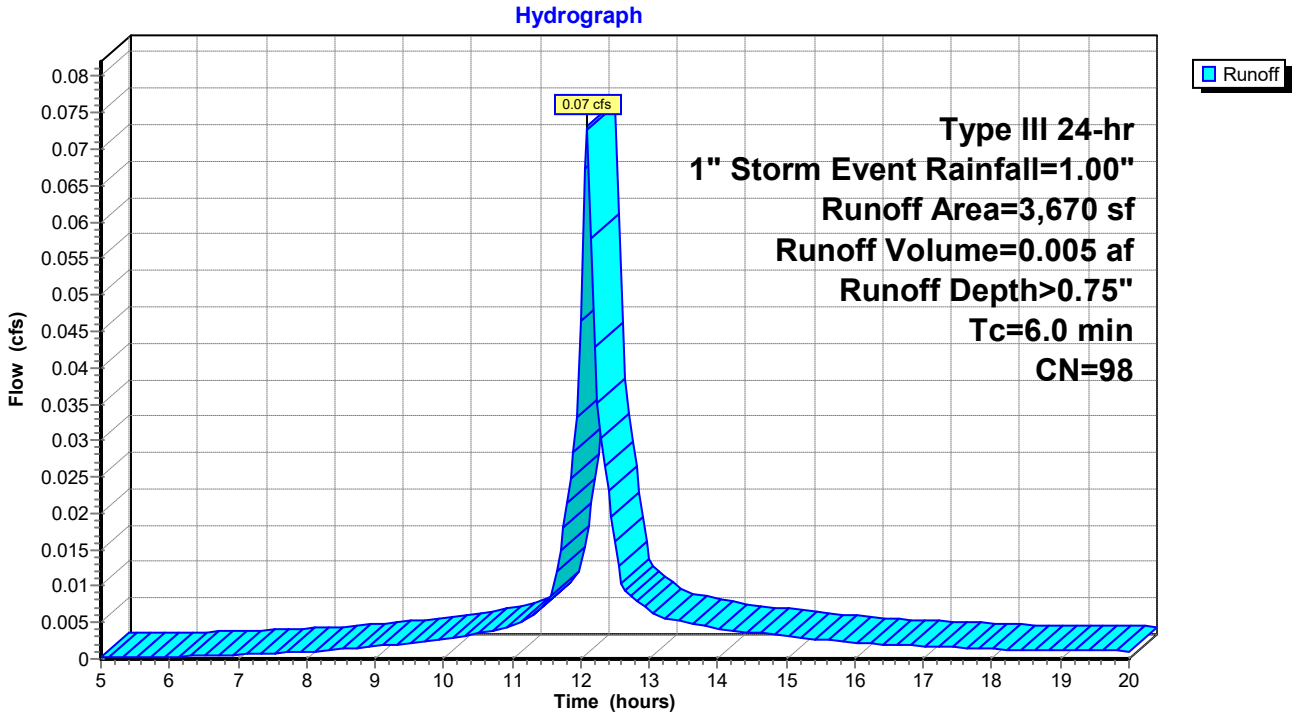
Runoff = 0.07 cfs @ 12.09 hrs, Volume= 0.005 af, Depth> 0.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	3,670	98	Impervious
	3,670		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: Pedestrian Alley



Summary for Subcatchment 3S: Parking Garage Roof

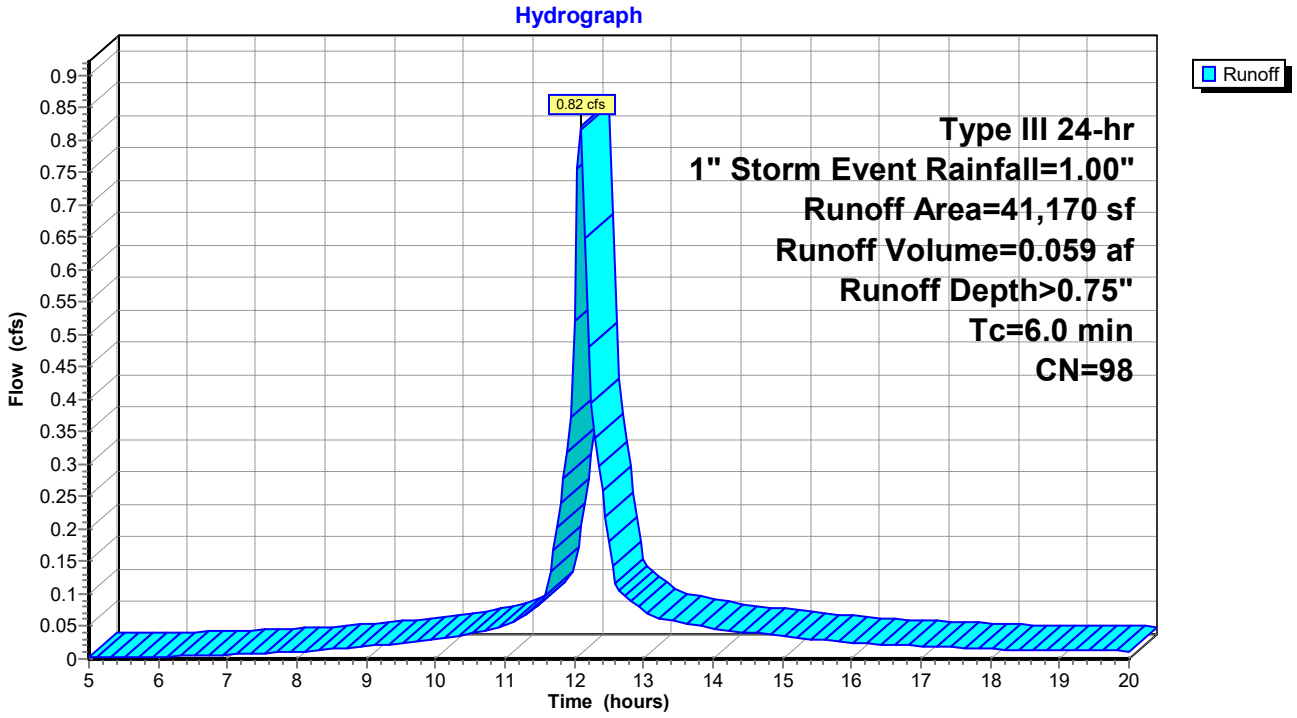
Runoff = 0.82 cfs @ 12.09 hrs, Volume= 0.059 af, Depth> 0.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
*	41,170	98	Impervious
	41,170		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Parking Garage Roof



Summary for Subcatchment 4S: Treated Plaza

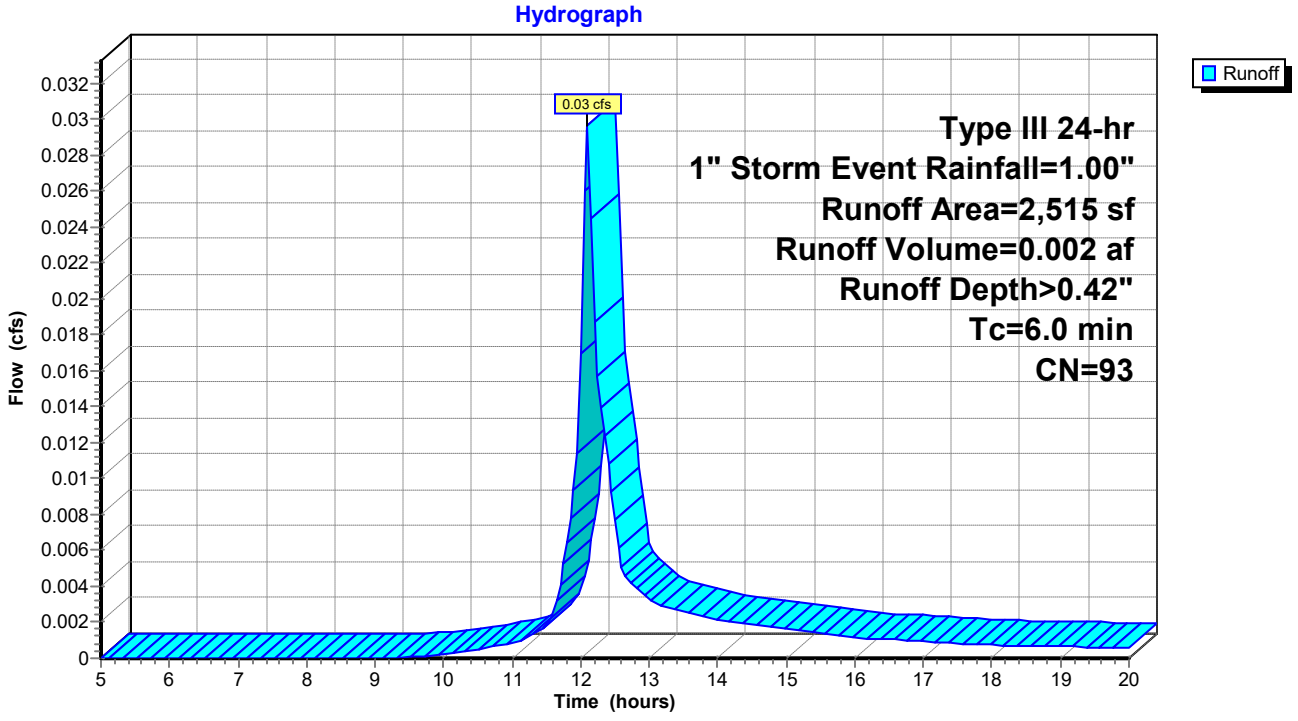
Runoff = 0.03 cfs @ 12.10 hrs, Volume= 0.002 af, Depth> 0.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 1" Storm Event Rainfall=1.00"

	Area (sf)	CN	Description
	233	49	50-75% Grass cover, Fair, HSG A
*	2,282	98	Impervious
	2,515	93	Weighted Average
	233		9.26% Pervious Area
	2,282		90.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S: Treated Plaza

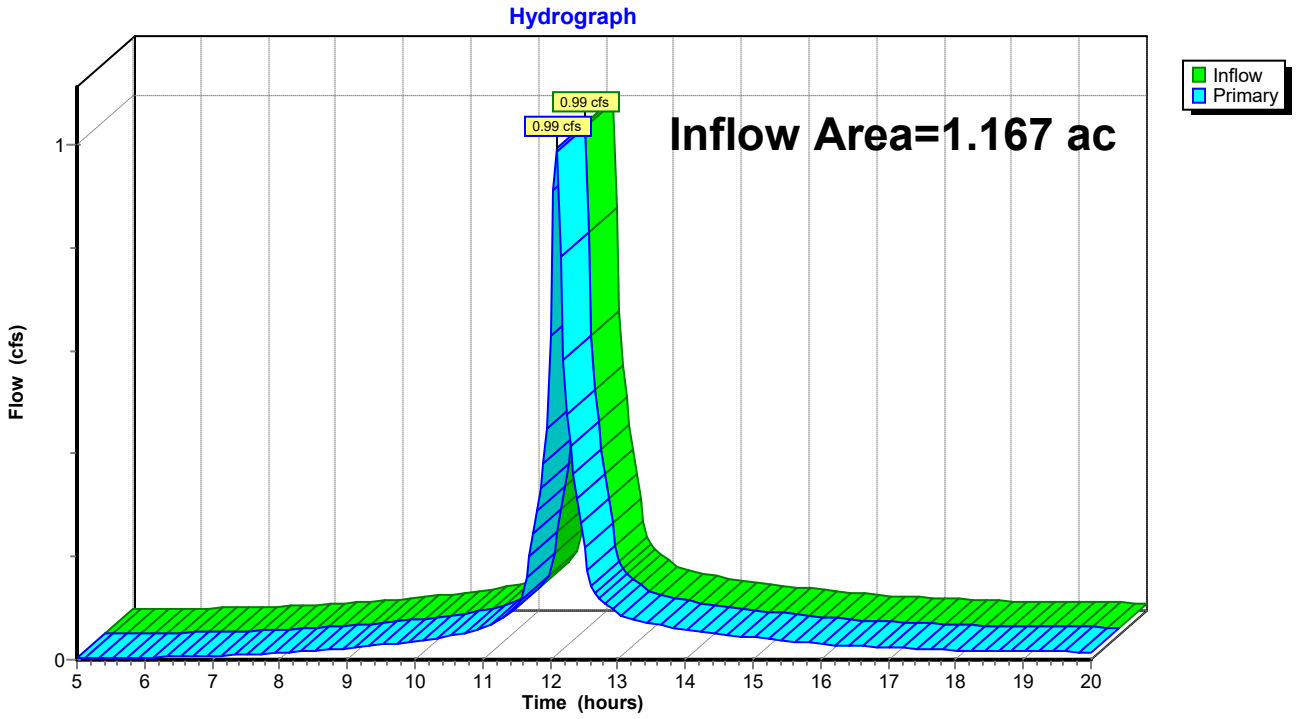


Summary for Link 3L: Jellyfish

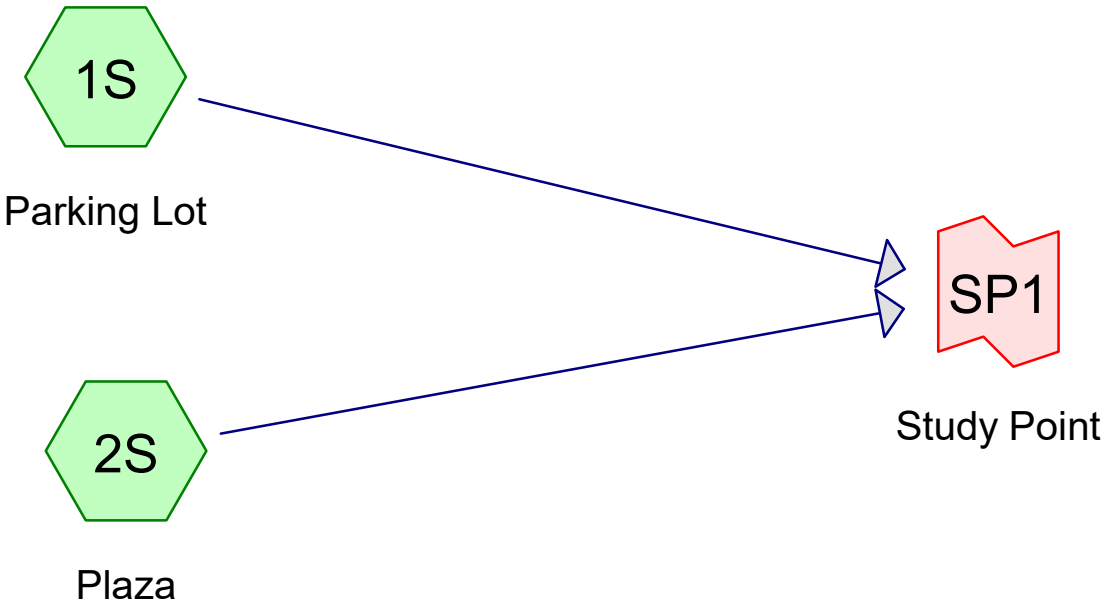
Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 0.73" for 1" Storm Event event
Inflow = 0.99 cfs @ 12.09 hrs, Volume= 0.071 af
Primary = 0.99 cfs @ 12.09 hrs, Volume= 0.071 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 5.00-20.00 hrs, dt= 0.05 hrs

Link 3L: Jellyfish



APPENDIX C: HYDROCAD REPORT



Subcat Reach Pond Link

Routing Diagram for C1. Pre Stormwater Analysis
Prepared by Woodard Curran, Printed 12/19/2019
HydroCAD® 10.00-21 s/n 01204 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.413	49	50-75% Grass cover, Fair, HSG A (1S, 2S)
1.897	98	Impervious (1S, 2S)

Summary for Subcatchment 1S: Parking Lot

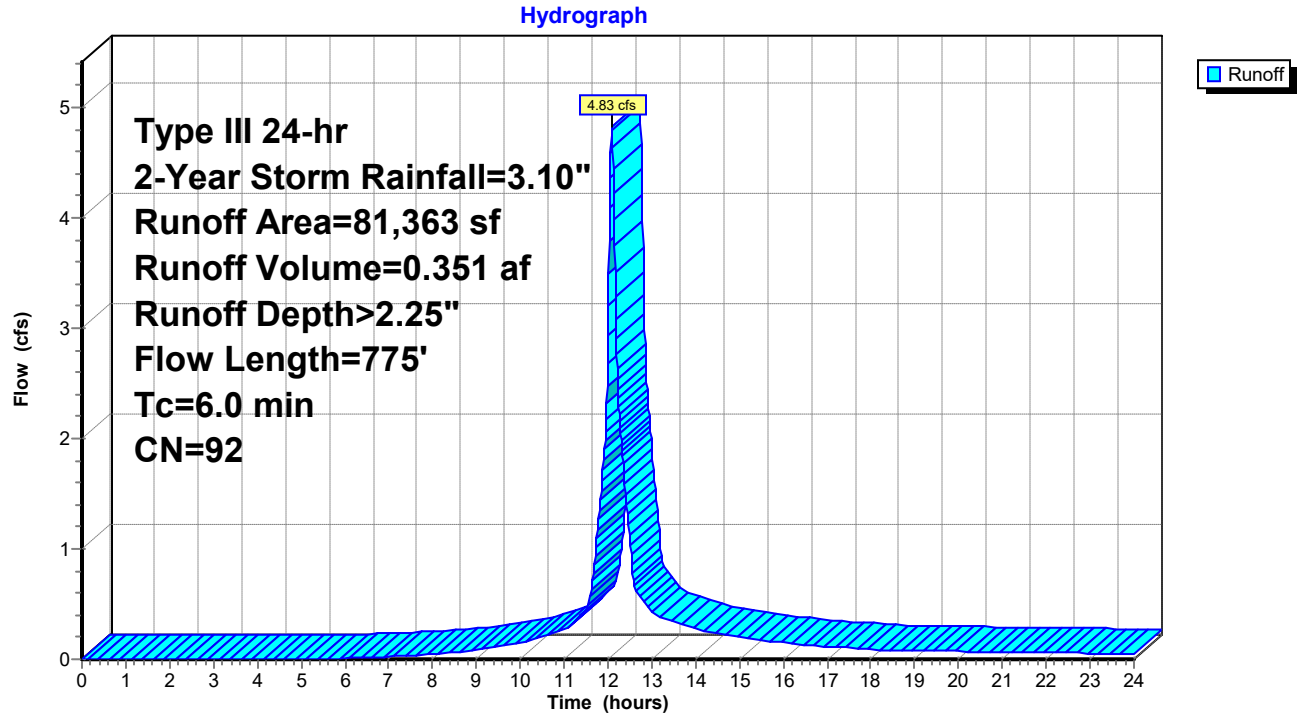
Runoff = 4.83 cfs @ 12.09 hrs, Volume= 0.351 af, Depth> 2.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
*	71,135	98	Impervious
	10,228	49	50-75% Grass cover, Fair, HSG A
	81,363	92	Weighted Average
	10,228		12.57% Pervious Area
	71,135		87.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0430	1.84		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
0.1	25	0.0430	4.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.0	650	0.0425	10.85	13.32	**Pipe Channel, 650** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
4.0					**Direct Entry,**
6.0	775	Total			

Subcatchment 1S: Parking Lot



Summary for Subcatchment 2S: Plaza

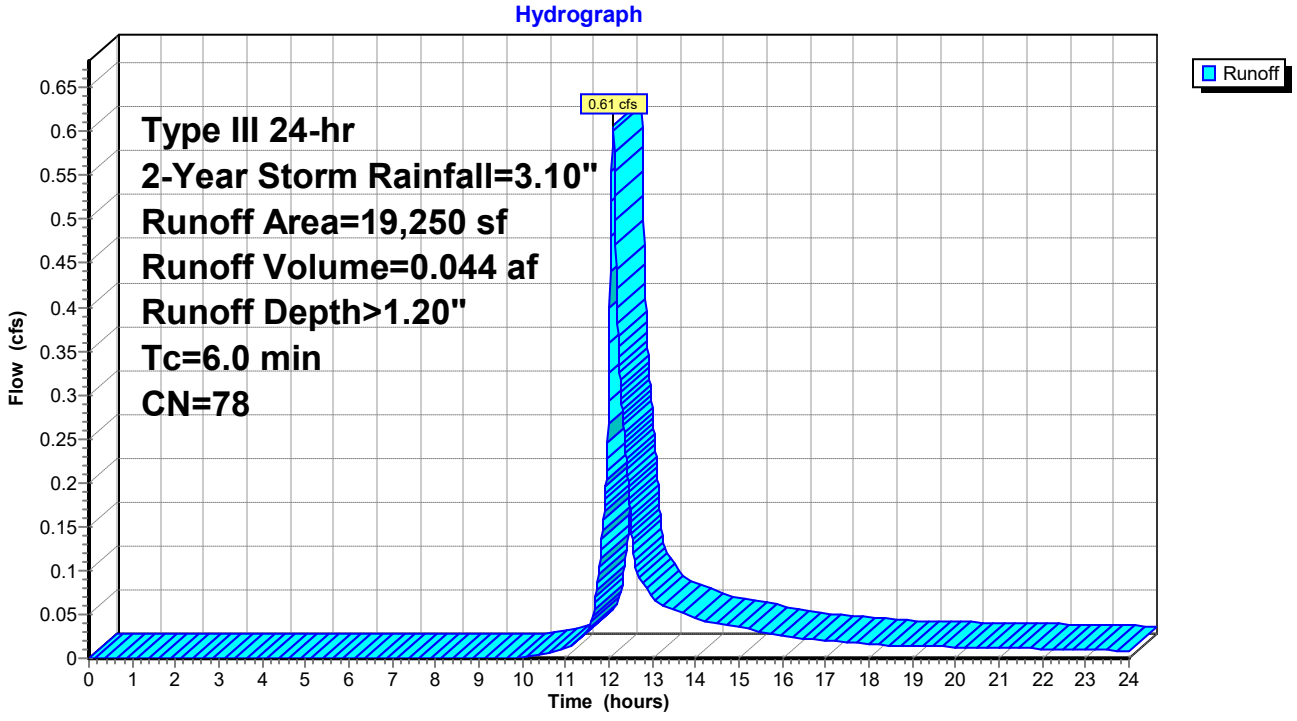
Runoff = 0.61 cfs @ 12.09 hrs, Volume= 0.044 af, Depth> 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.10"

	Area (sf)	CN	Description
	7,752	49	50-75% Grass cover, Fair, HSG A
*	11,498	98	Impervious
	19,250	78	Weighted Average
	7,752		40.27% Pervious Area
	11,498		59.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: Plaza

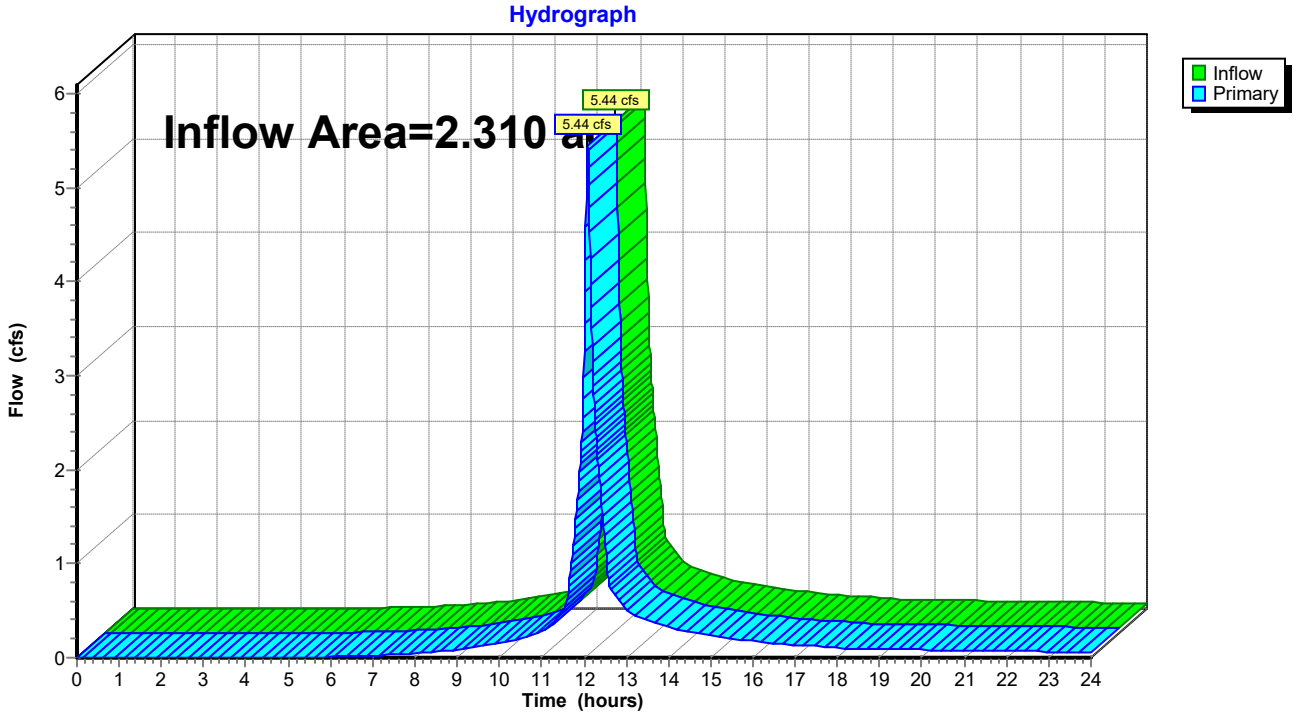


Summary for Link SP1: Study Point

Inflow Area = 2.310 ac, 82.13% Impervious, Inflow Depth > 2.05" for 2-Year Storm event
Inflow = 5.44 cfs @ 12.09 hrs, Volume= 0.395 af
Primary = 5.44 cfs @ 12.09 hrs, Volume= 0.395 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link SP1: Study Point



Summary for Subcatchment 1S: Parking Lot

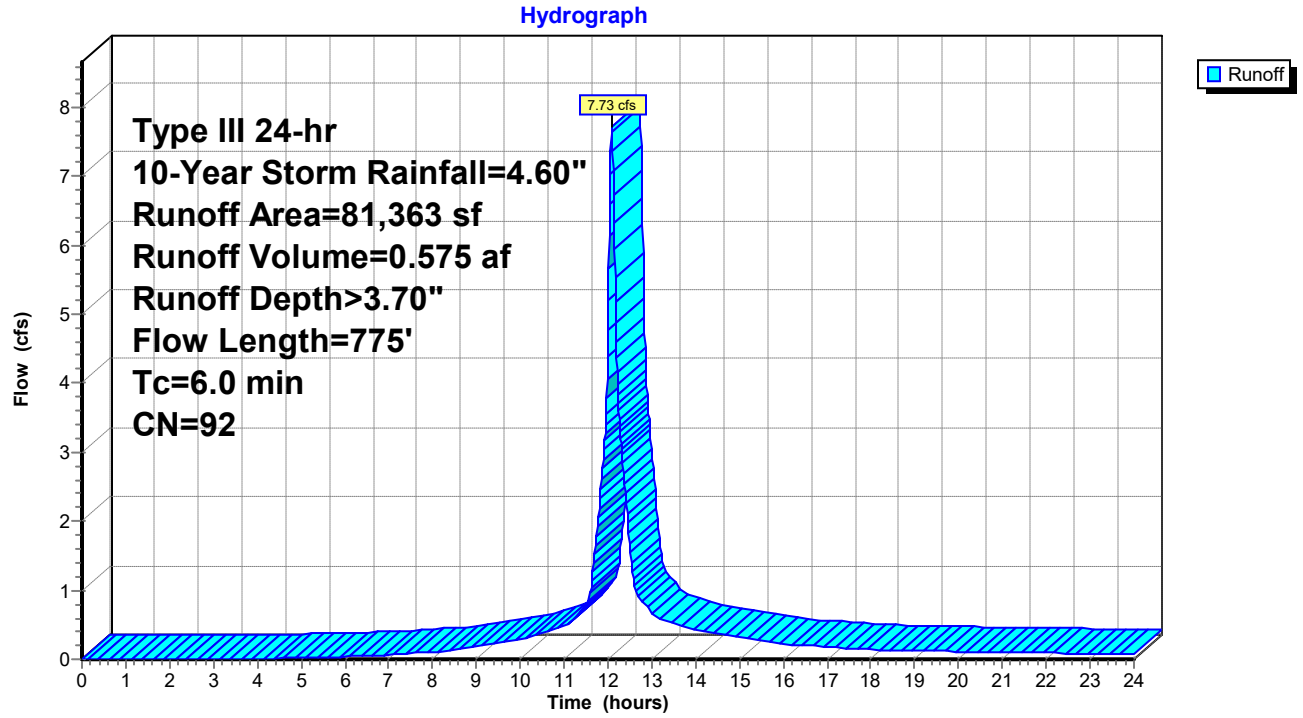
Runoff = 7.73 cfs @ 12.08 hrs, Volume= 0.575 af, Depth> 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
*	71,135	98	Impervious
	10,228	49	50-75% Grass cover, Fair, HSG A
	81,363	92	Weighted Average
	10,228		12.57% Pervious Area
	71,135		87.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0430	1.84		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
0.1	25	0.0430	4.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.0	650	0.0425	10.85	13.32	**Pipe Channel, 650** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
4.0					**Direct Entry,**
6.0	775	Total			

Subcatchment 1S: Parking Lot



Summary for Subcatchment 2S: Plaza

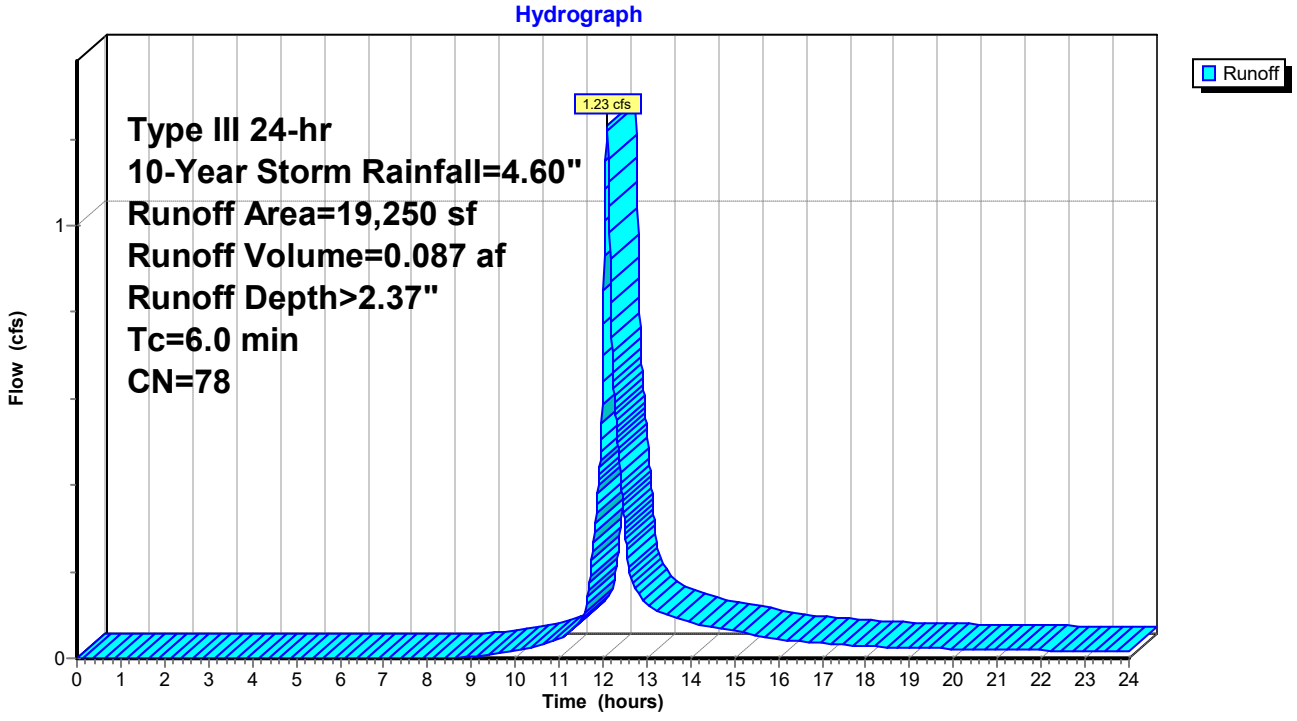
Runoff = 1.23 cfs @ 12.09 hrs, Volume= 0.087 af, Depth> 2.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=4.60"

	Area (sf)	CN	Description
	7,752	49	50-75% Grass cover, Fair, HSG A
*	11,498	98	Impervious
	19,250	78	Weighted Average
	7,752		40.27% Pervious Area
	11,498		59.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: Plaza

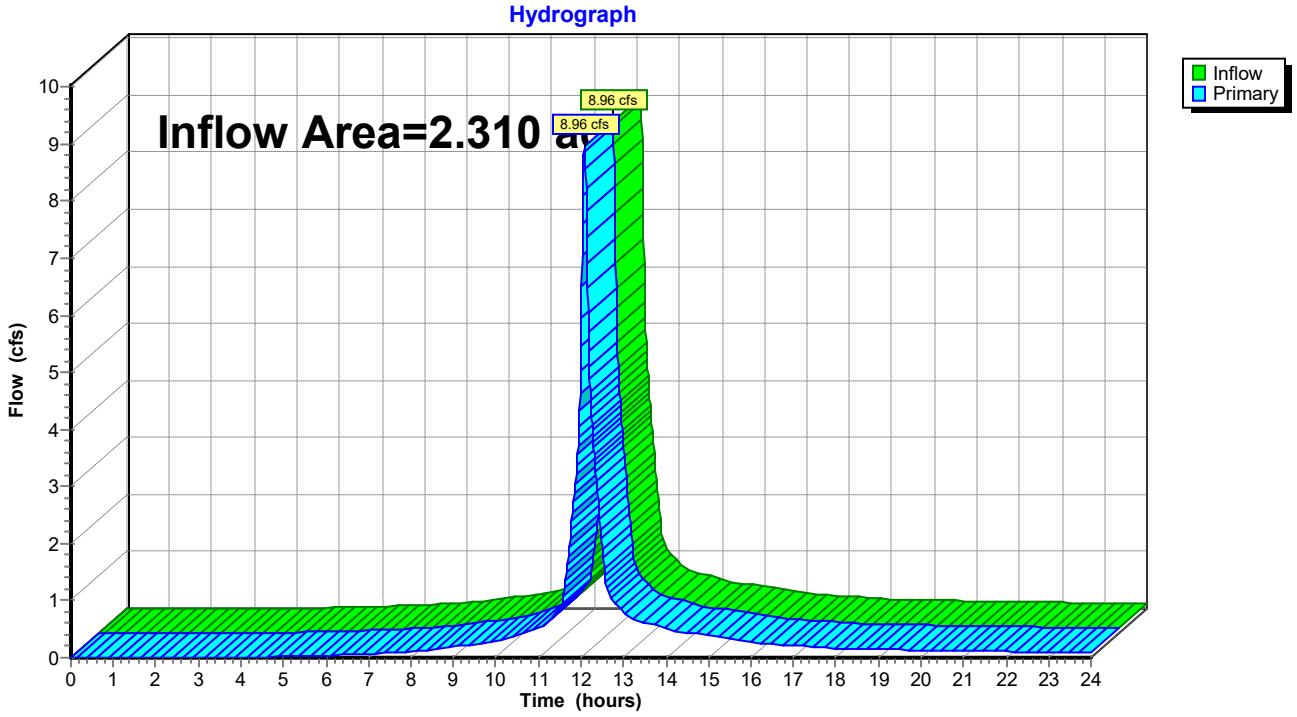


Summary for Link SP1: Study Point

Inflow Area = 2.310 ac, 82.13% Impervious, Inflow Depth > 3.44" for 10-Year Storm event
Inflow = 8.96 cfs @ 12.09 hrs, Volume= 0.663 af
Primary = 8.96 cfs @ 12.09 hrs, Volume= 0.663 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link SP1: Study Point



Summary for Subcatchment 1S: Parking Lot

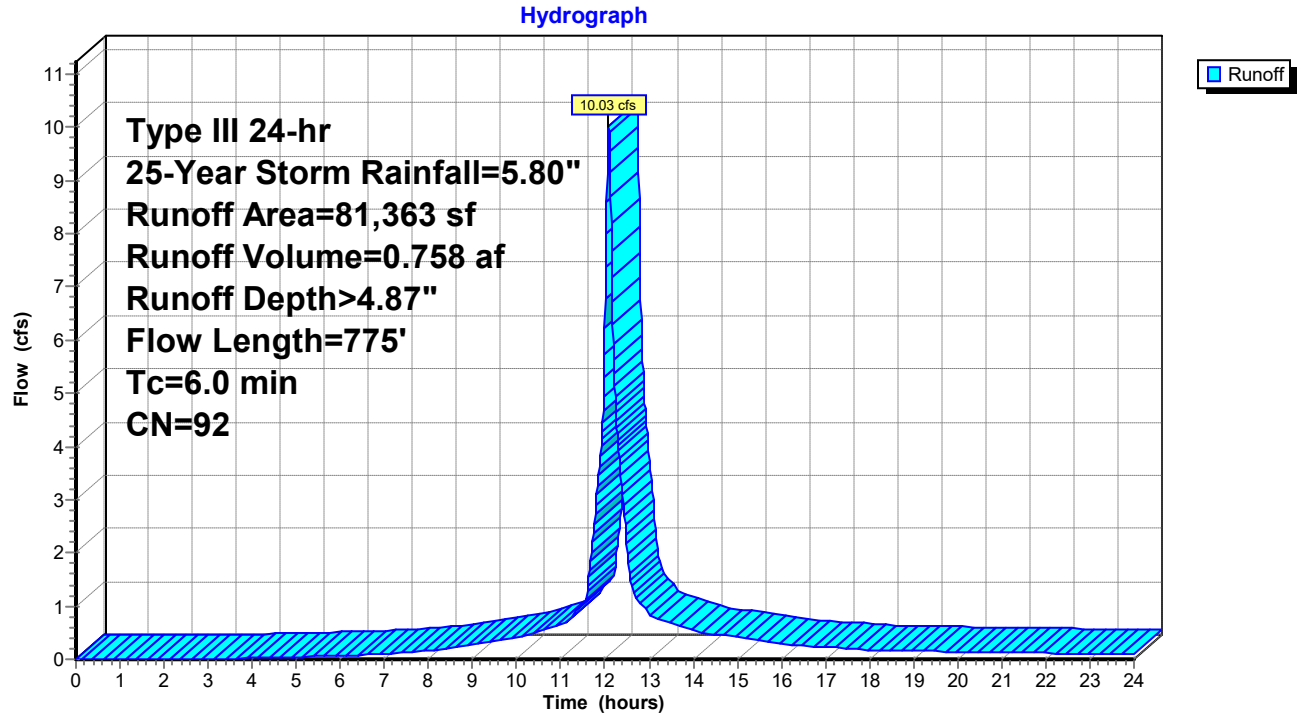
Runoff = 10.03 cfs @ 12.08 hrs, Volume= 0.758 af, Depth> 4.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
*	71,135	98	Impervious
	10,228	49	50-75% Grass cover, Fair, HSG A
	81,363	92	Weighted Average
	10,228		12.57% Pervious Area
	71,135		87.43% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.9	100	0.0430	1.84		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
0.1	25	0.0430	4.21		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
1.0	650	0.0425	10.85	13.32	**Pipe Channel, 650** 15.0" Round Area= 1.2 sf Perim= 3.9' r= 0.31' n= 0.013 Corrugated PE, smooth interior
4.0					**Direct Entry,**
6.0	775	Total			

Subcatchment 1S: Parking Lot



Summary for Subcatchment 2S: Plaza

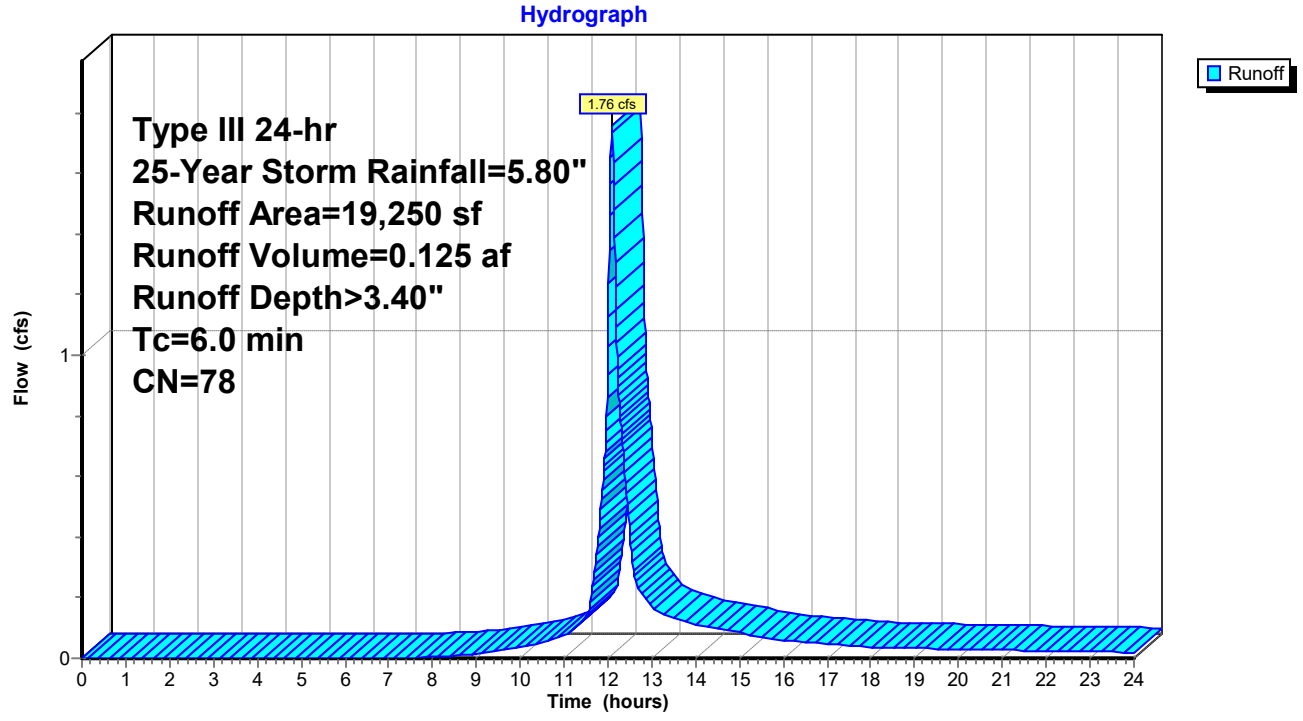
Runoff = 1.76 cfs @ 12.09 hrs, Volume= 0.125 af, Depth> 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=5.80"

	Area (sf)	CN	Description
	7,752	49	50-75% Grass cover, Fair, HSG A
*	11,498	98	Impervious
	19,250	78	Weighted Average
	7,752		40.27% Pervious Area
	11,498		59.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S: Plaza

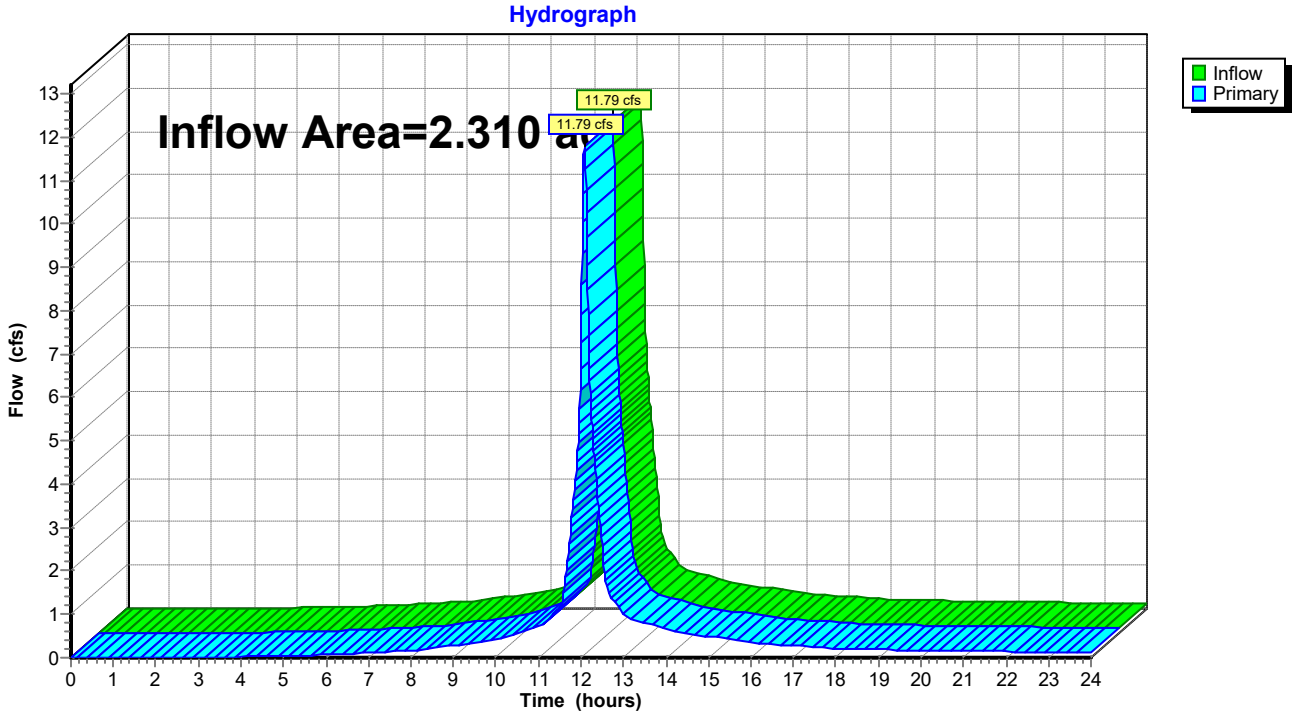


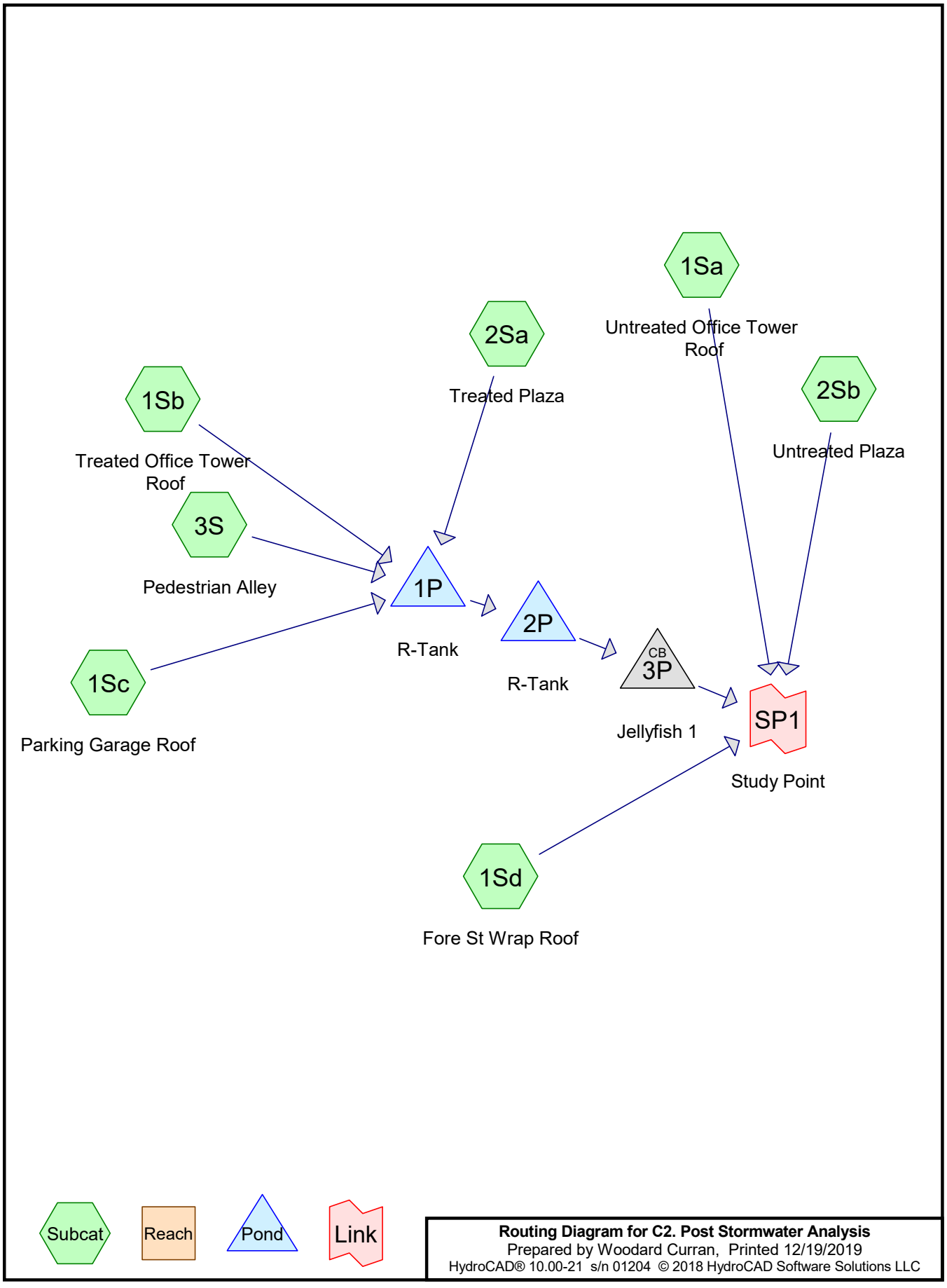
Summary for Link SP1: Study Point

Inflow Area = 2.310 ac, 82.13% Impervious, Inflow Depth > 4.59" for 25-Year Storm event
Inflow = 11.79 cfs @ 12.08 hrs, Volume= 0.883 af
Primary = 11.79 cfs @ 12.08 hrs, Volume= 0.883 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link SP1: Study Point





Routing Diagram for C2. Post Stormwater Analysis
Prepared by Woodard Curran, Printed 12/19/2019
HydroCAD® 10.00-21 s/n 01204 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.161	49	50-75% Grass cover, Fair, HSG A (2Sa, 2Sb)
2.149	98	Impervious (1Sa, 1Sb, 1Sc, 1Sd, 2Sa, 2Sb, 3S)

Summary for Subcatchment 1Sa: Untreated Office Tower Roof

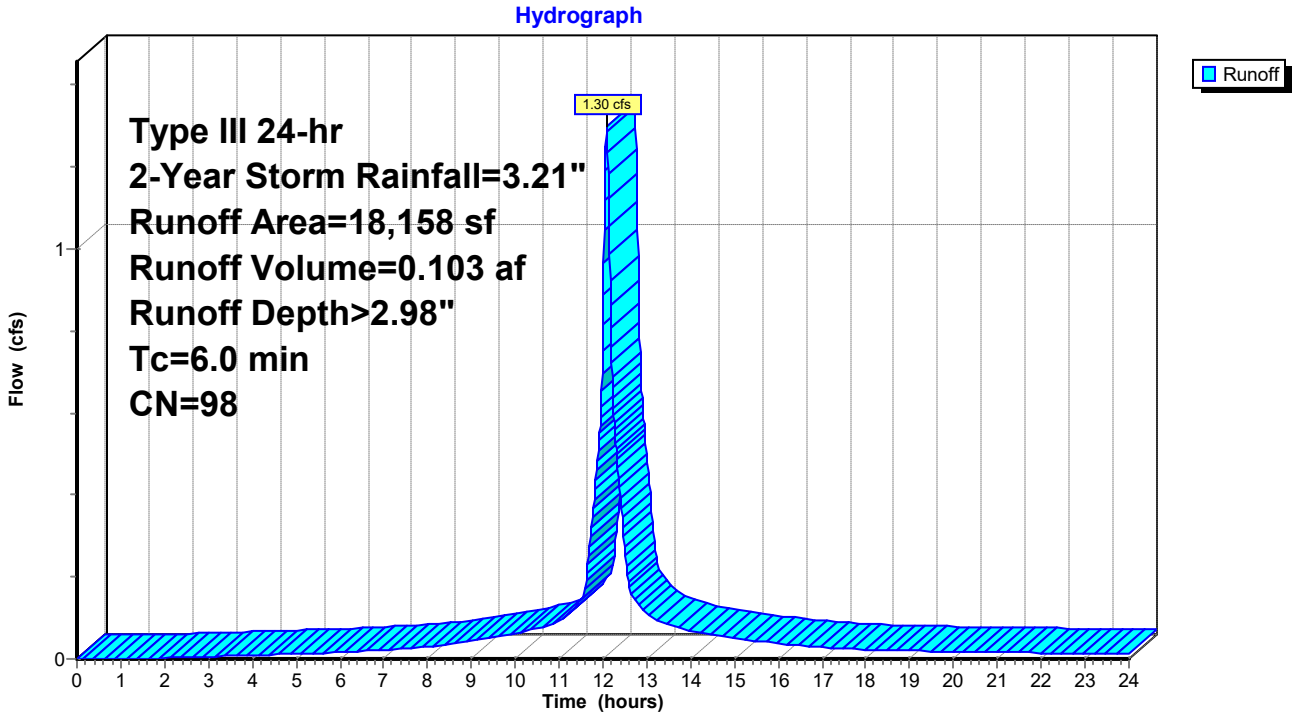
Runoff = 1.30 cfs @ 12.08 hrs, Volume= 0.103 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
*	18,158	98	Impervious
	18,158		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sa: Untreated Office Tower Roof



Summary for Subcatchment 1Sb: Treated Office Tower Roof

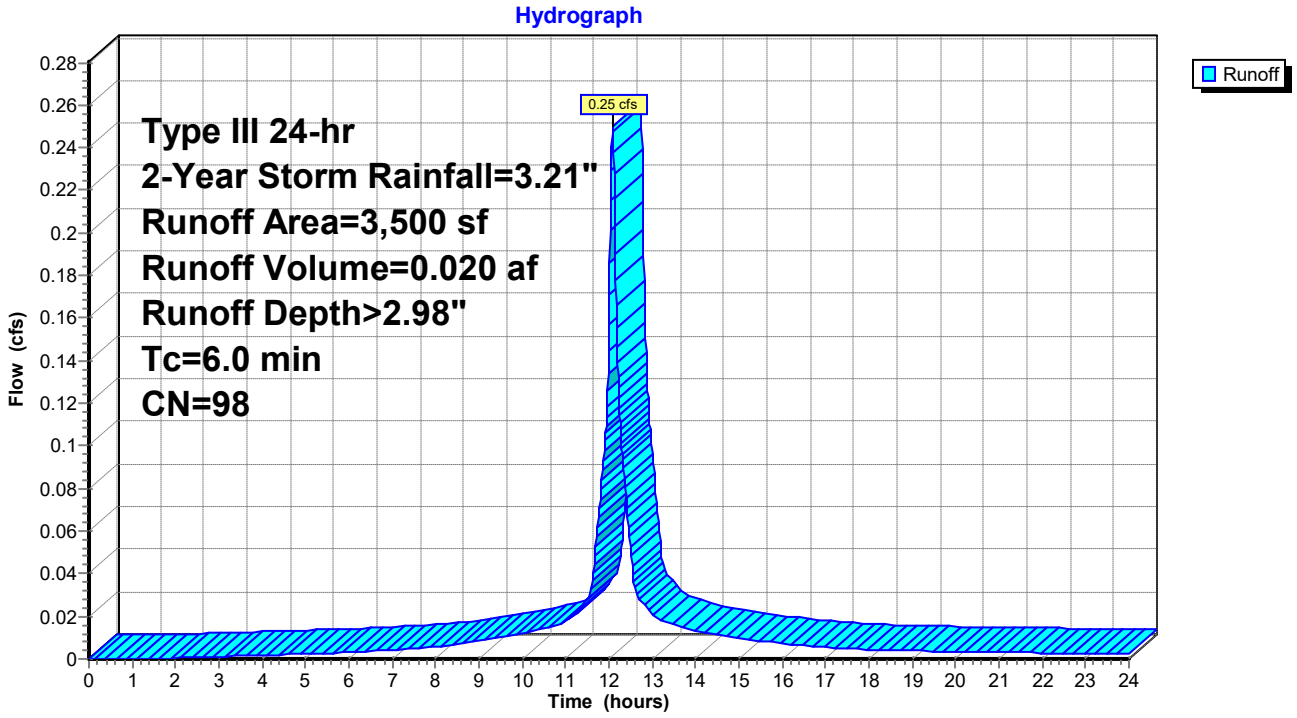
Runoff = 0.25 cfs @ 12.08 hrs, Volume= 0.020 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
*	3,500	98	Impervious
	3,500		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sb: Treated Office Tower Roof



Summary for Subcatchment 1Sc: Parking Garage Roof

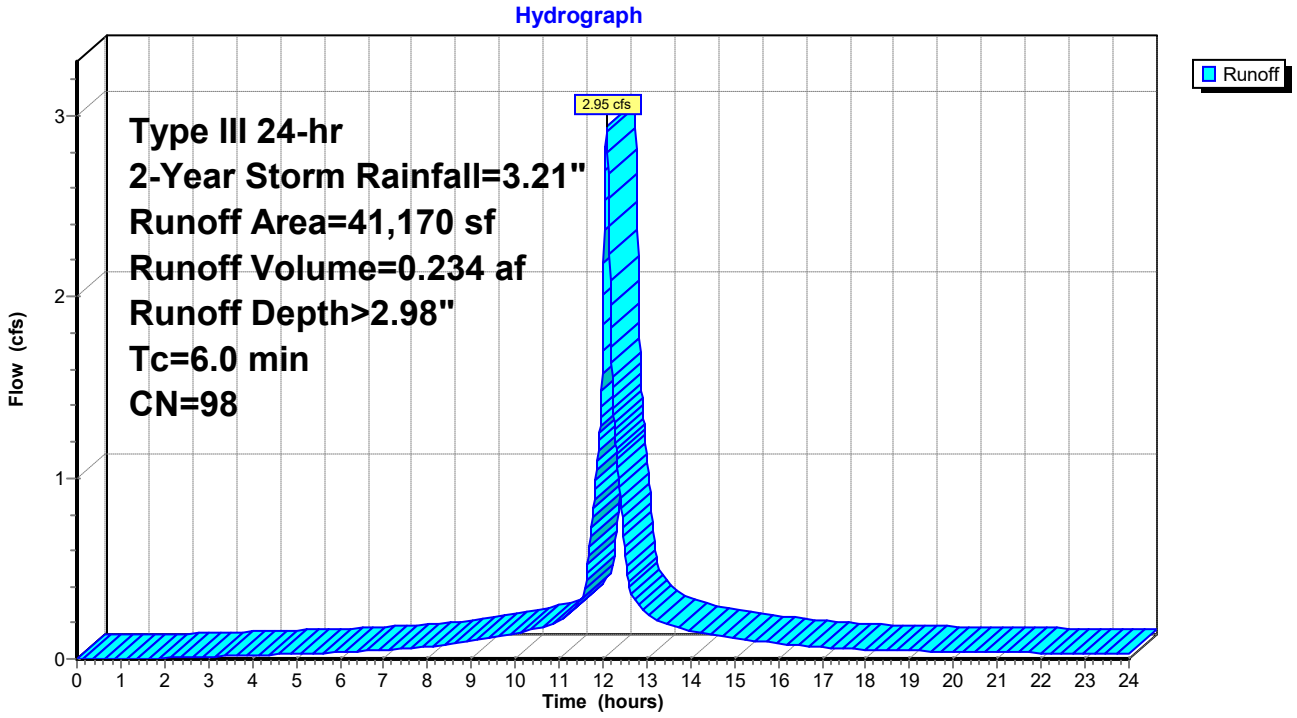
Runoff = 2.95 cfs @ 12.08 hrs, Volume= 0.234 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
*	41,170	98	Impervious
	41,170		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sc: Parking Garage Roof



Summary for Subcatchment 1Sd: Fore St Wrap Roof

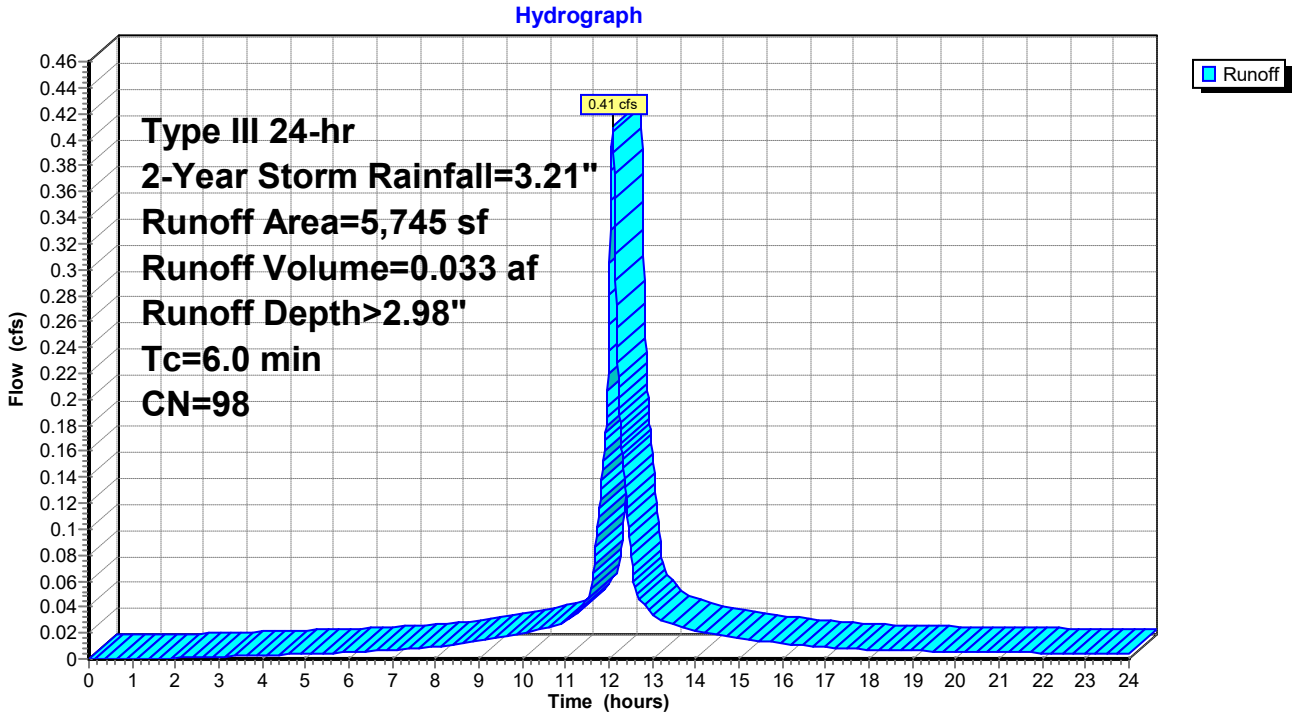
Runoff = 0.41 cfs @ 12.08 hrs, Volume= 0.033 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
*	5,745	98	Impervious
	5,745		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sd: Fore St Wrap Roof



Summary for Subcatchment 2Sa: Treated Plaza

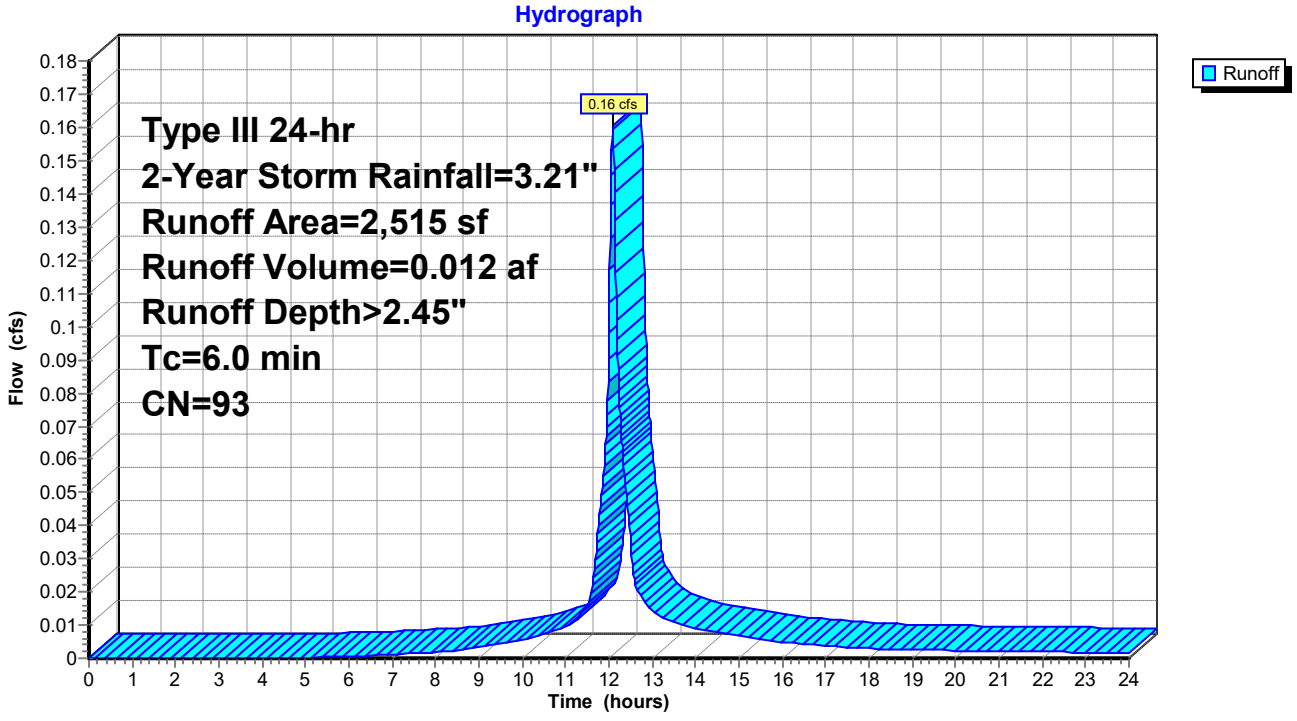
Runoff = 0.16 cfs @ 12.09 hrs, Volume= 0.012 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
	233	49	50-75% Grass cover, Fair, HSG A
*	2,282	98	Impervious
	2,515	93	Weighted Average
	233		9.26% Pervious Area
	2,282		90.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2Sa: Treated Plaza



Summary for Subcatchment 2Sb: Untreated Plaza

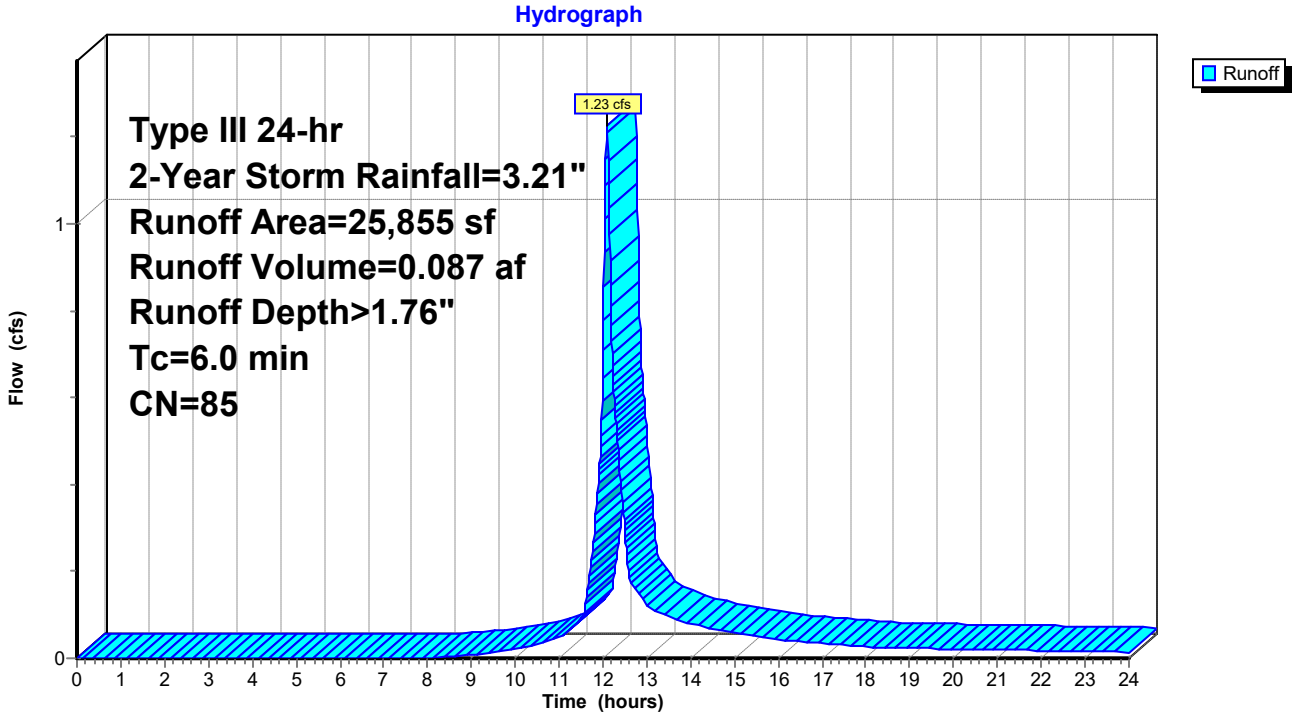
Runoff = 1.23 cfs @ 12.09 hrs, Volume= 0.087 af, Depth> 1.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
	6,787	49	50-75% Grass cover, Fair, HSG A
*	19,068	98	Impervious
	25,855	85	Weighted Average
	6,787		26.25% Pervious Area
	19,068		73.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2Sb: Untreated Plaza



Summary for Subcatchment 3S: Pedestrian Alley

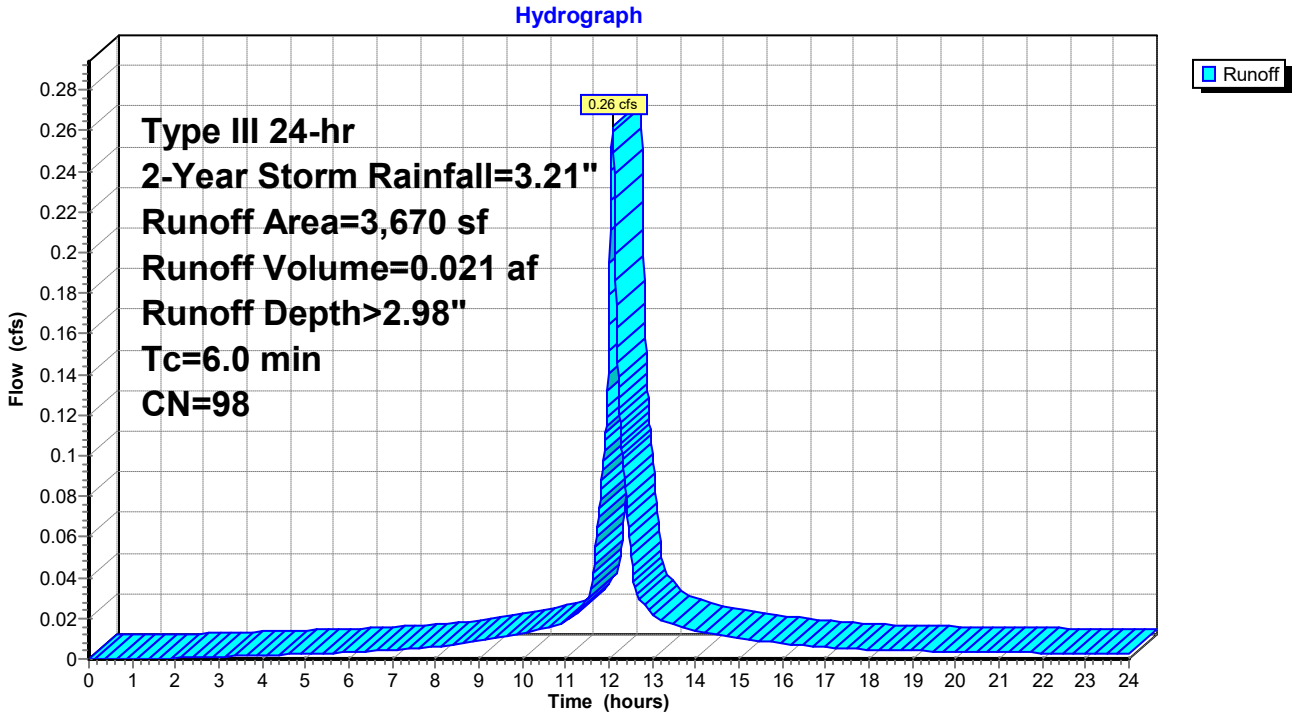
Runoff = 0.26 cfs @ 12.08 hrs, Volume= 0.021 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
*	3,670	98	Impervious
	3,670		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Pedestrian Alley



Summary for Pond 1P: R-Tank

Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 2.95" for 2-Year Storm event
Inflow = 3.62 cfs @ 12.08 hrs, Volume= 0.287 af
Outflow = 2.75 cfs @ 12.15 hrs, Volume= 0.284 af, Atten= 24%, Lag= 4.0 min
Primary = 2.75 cfs @ 12.15 hrs, Volume= 0.284 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 34.92' @ 12.15 hrs Surf.Area= 610 sf Storage= 1,054 cf
Flood Elev= 37.08' Surf.Area= 610 sf Storage= 2,042 cf

Plug-Flow detention time= 18.5 min calculated for 0.284 af (99% of inflow)
Center-of-Mass det. time= 11.7 min (768.9 - 757.3)

Volume	Invert	Avail.Storage	Storage Description
#1	32.50'	801 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,166 cf Overall - 2,165 cf Embedded = 2,001 cf x 40.0% Voids
#2	32.75'	2,057 cf	**R-Tank Quad Modules (Prismatic)** Listed below (Recalc) Inside #1 2,165 cf Overall x 95.0% Voids
		2,857 cf	Total Available Storage

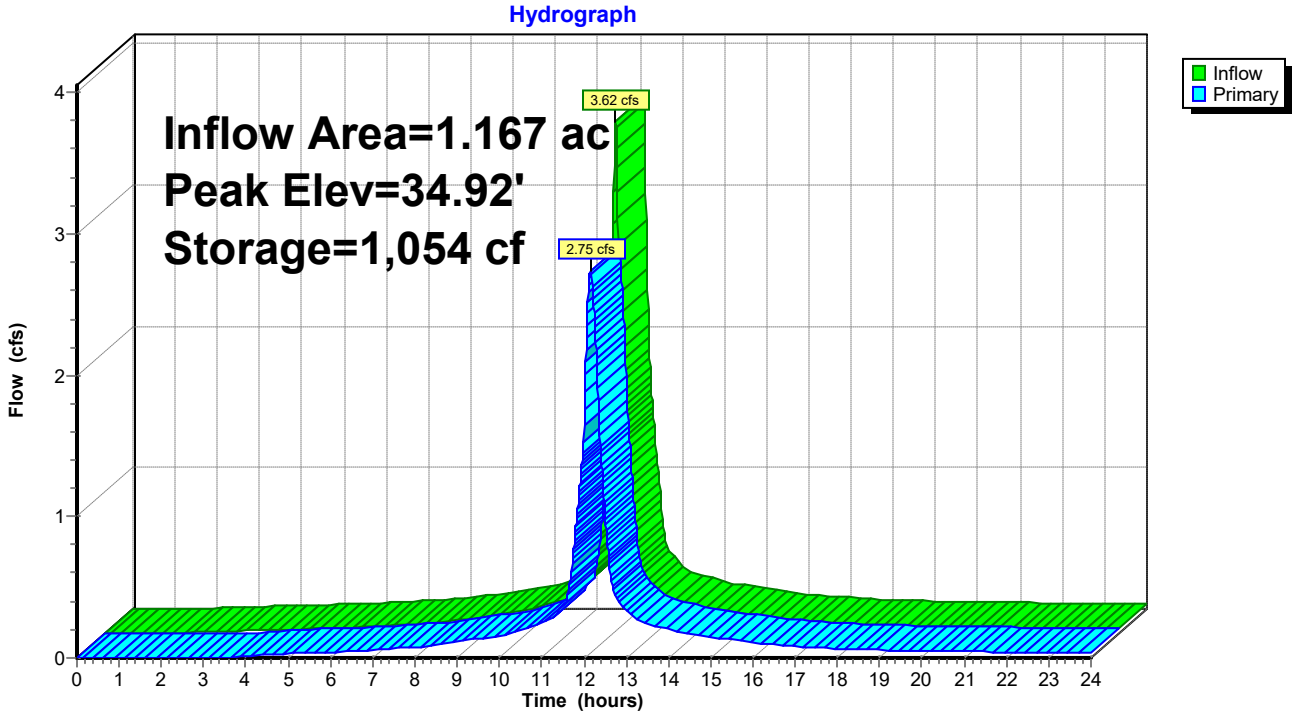
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.50	610	0	0
39.33	610	4,166	4,166

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.75	388	0	0
38.33	388	2,165	2,165

Device	Routing	Invert	Outlet Devices
#1	Primary	32.75'	**10.0" Round Culvert** L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.75' / 32.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Primary	36.08'	**15.0" Round Culvert** L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.08' / 36.08' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.75 cfs @ 12.15 hrs HW=34.92' (Free Discharge)
└─**1=Culvert** (Inlet Controls 2.75 cfs @ 5.03 fps)
└─**2=Culvert** (Controls 0.00 cfs)

Pond 1P: R-Tank



Summary for Pond 2P: R-Tank

Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 2.92" for 2-Year Storm event
Inflow = 2.75 cfs @ 12.15 hrs, Volume= 0.284 af
Outflow = 2.69 cfs @ 12.19 hrs, Volume= 0.281 af, Atten= 2%, Lag= 2.1 min
Primary = 2.69 cfs @ 12.19 hrs, Volume= 0.281 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 33.88' @ 12.19 hrs Surf.Area= 610 sf Storage= 578 cf
Flood Elev= 37.08' Surf.Area= 610 sf Storage= 2,042 cf

Plug-Flow detention time= 15.2 min calculated for 0.281 af (99% of inflow)
Center-of-Mass det. time= 9.2 min (778.1 - 768.9)

Volume	Invert	Avail.Storage	Storage Description
#1	32.50'	801 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,166 cf Overall - 2,165 cf Embedded = 2,001 cf x 40.0% Voids
#2	32.75'	2,057 cf	**R-Tank Quad Modules (Prismatic)** Listed below (Recalc) Inside #1 2,165 cf Overall x 95.0% Voids
		2,857 cf	Total Available Storage

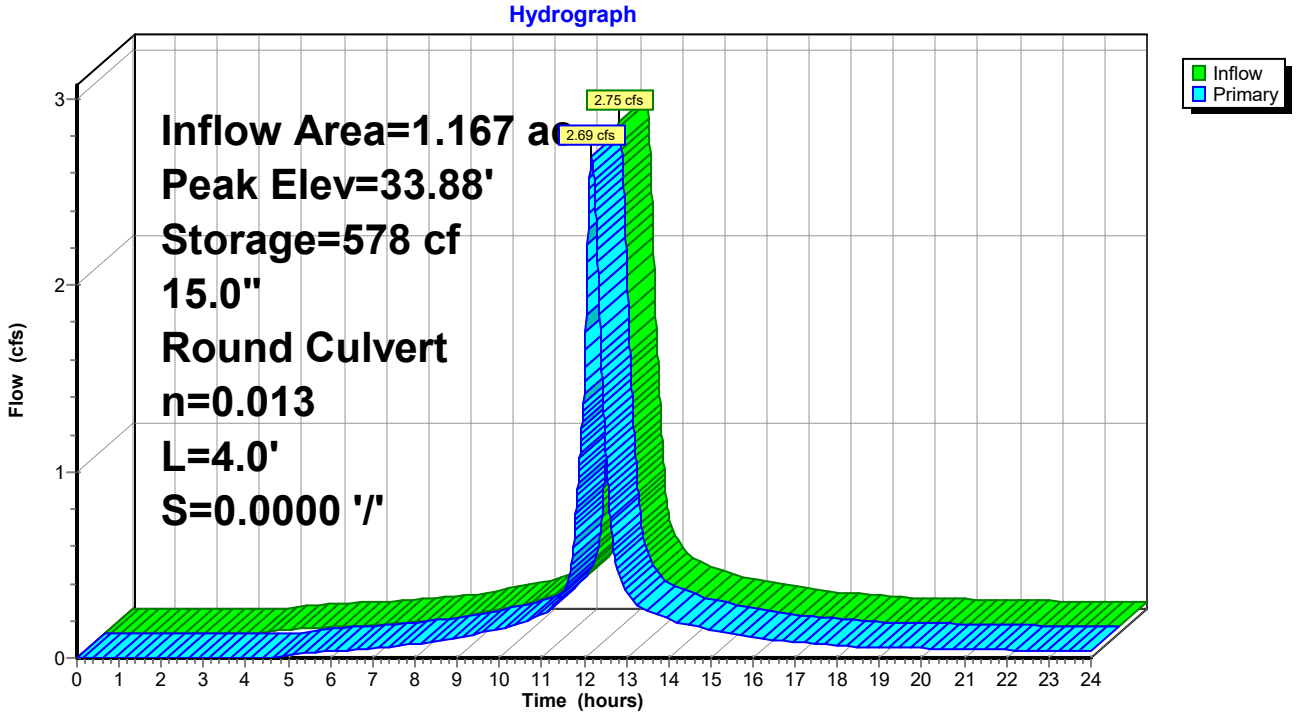
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.50	610	0	0
39.33	610	4,166	4,166

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.75	388	0	0
38.33	388	2,165	2,165

Device	Routing	Invert	Outlet Devices
#1	Primary	32.75'	**15.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.75' / 32.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.68 cfs @ 12.19 hrs HW=33.88' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 2.68 cfs @ 3.03 fps)

Pond 2P: R-Tank



Summary for Pond 3P: Jellyfish 1

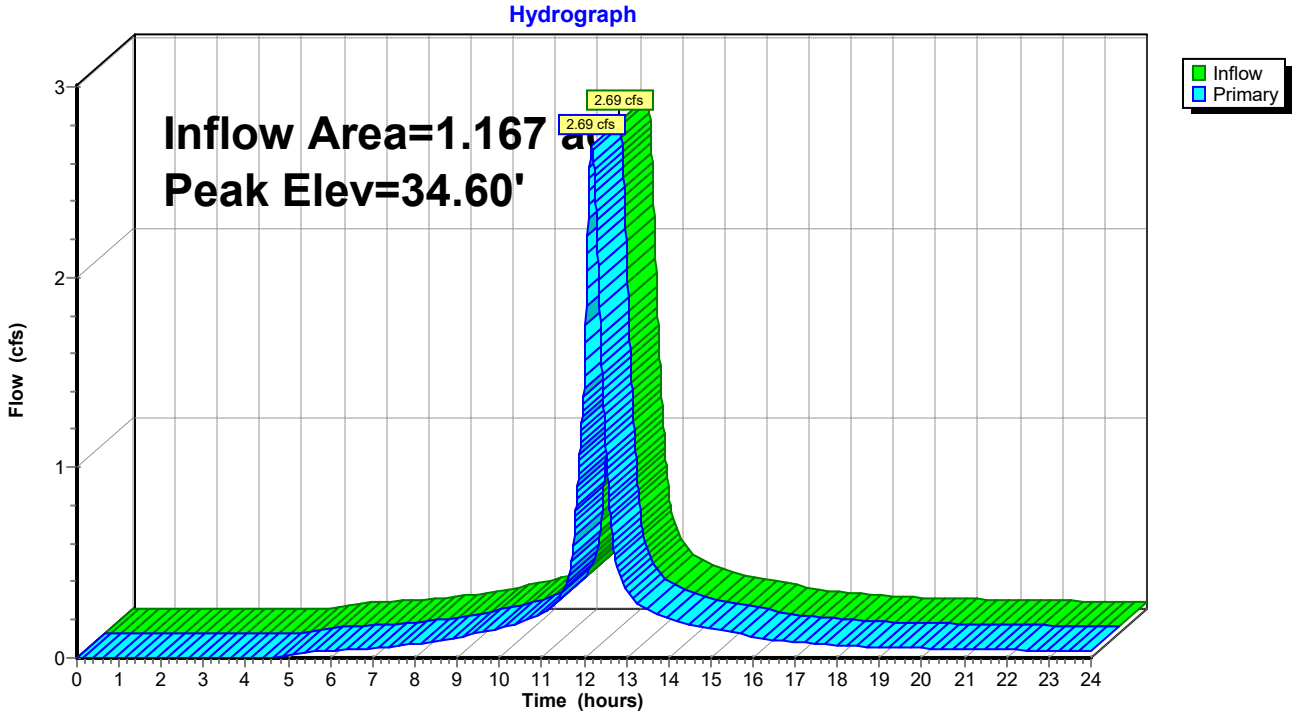
Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 2.89" for 2-Year Storm event
Inflow = 2.69 cfs @ 12.19 hrs, Volume= 0.281 af
Outflow = 2.69 cfs @ 12.19 hrs, Volume= 0.281 af, Atten= 0%, Lag= 0.0 min
Primary = 2.69 cfs @ 12.19 hrs, Volume= 0.281 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 34.60' @ 12.19 hrs
Flood Elev= 40.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.25'	**15.0" Round Filter Culvert Out** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.25' / 32.00' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	32.25'	**JF Filter-1 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.129 0.198 0.267 0.337 0.406 0.475 0.545 0.614 0.683 0.753 0.822 0.891
#3	Device 1	34.24'	**2.8' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=2.67 cfs @ 12.19 hrs HW=34.60' (Free Discharge)
↑**1=Filter Culvert Out** (Passes 2.67 cfs of 6.13 cfs potential flow)
↑**2=JF Filter-1 CSV File** (Custom Controls 0.89 cfs)
3=Broad-Crested Rectangular Weir (Weir Controls 1.78 cfs @ 1.75 fps)

Pond 3P: Jellyfish 1

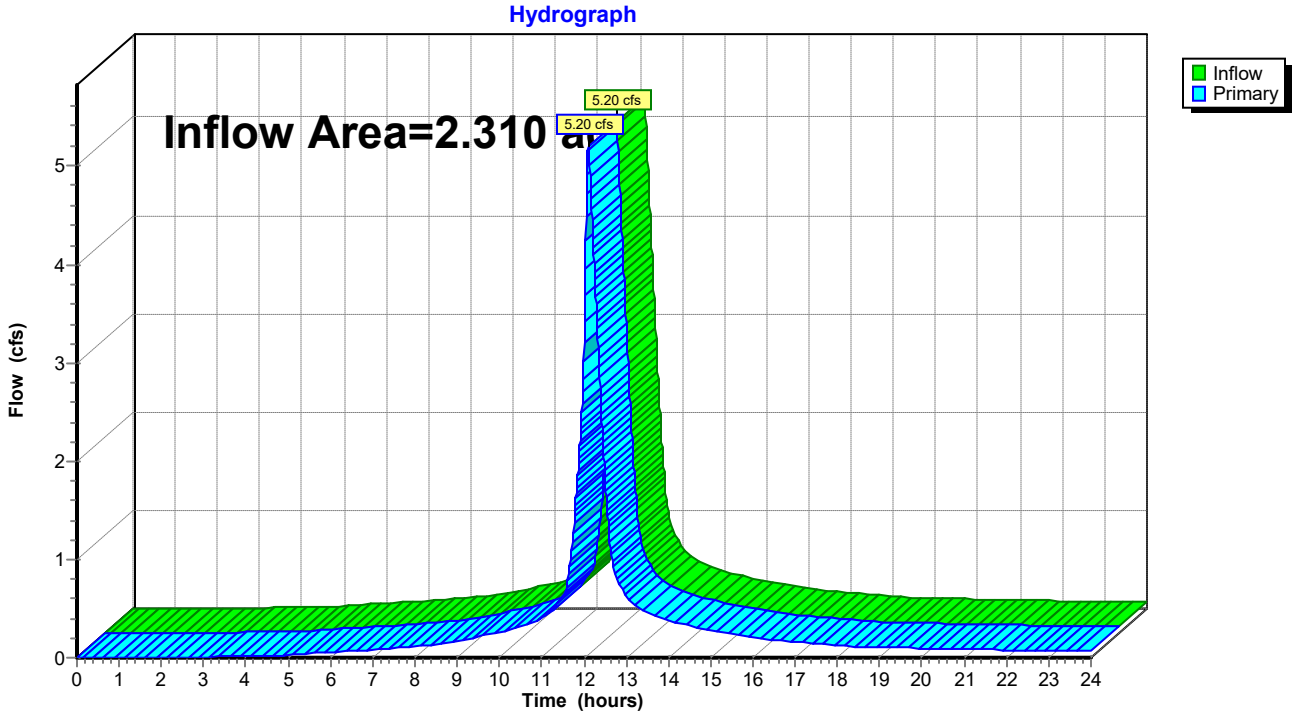


Summary for Link SP1: Study Point

Inflow Area = 2.310 ac, 93.02% Impervious, Inflow Depth > 2.62" for 2-Year Storm event
Inflow = 5.20 cfs @ 12.11 hrs, Volume= 0.505 af
Primary = 5.20 cfs @ 12.11 hrs, Volume= 0.505 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link SP1: Study Point



Summary for Subcatchment 1Sa: Untreated Office Tower Roof

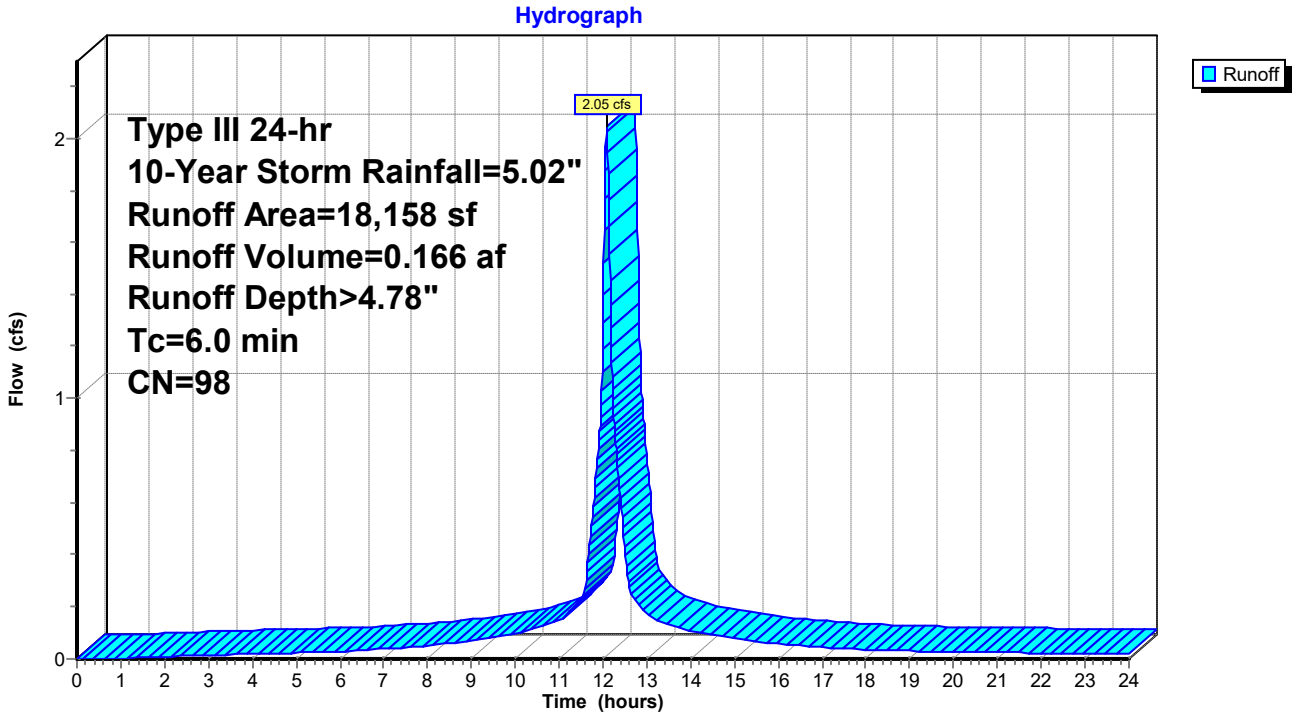
Runoff = 2.05 cfs @ 12.08 hrs, Volume= 0.166 af, Depth> 4.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
*	18,158	98	Impervious
	18,158		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sa: Untreated Office Tower Roof



Summary for Subcatchment 1Sb: Treated Office Tower Roof

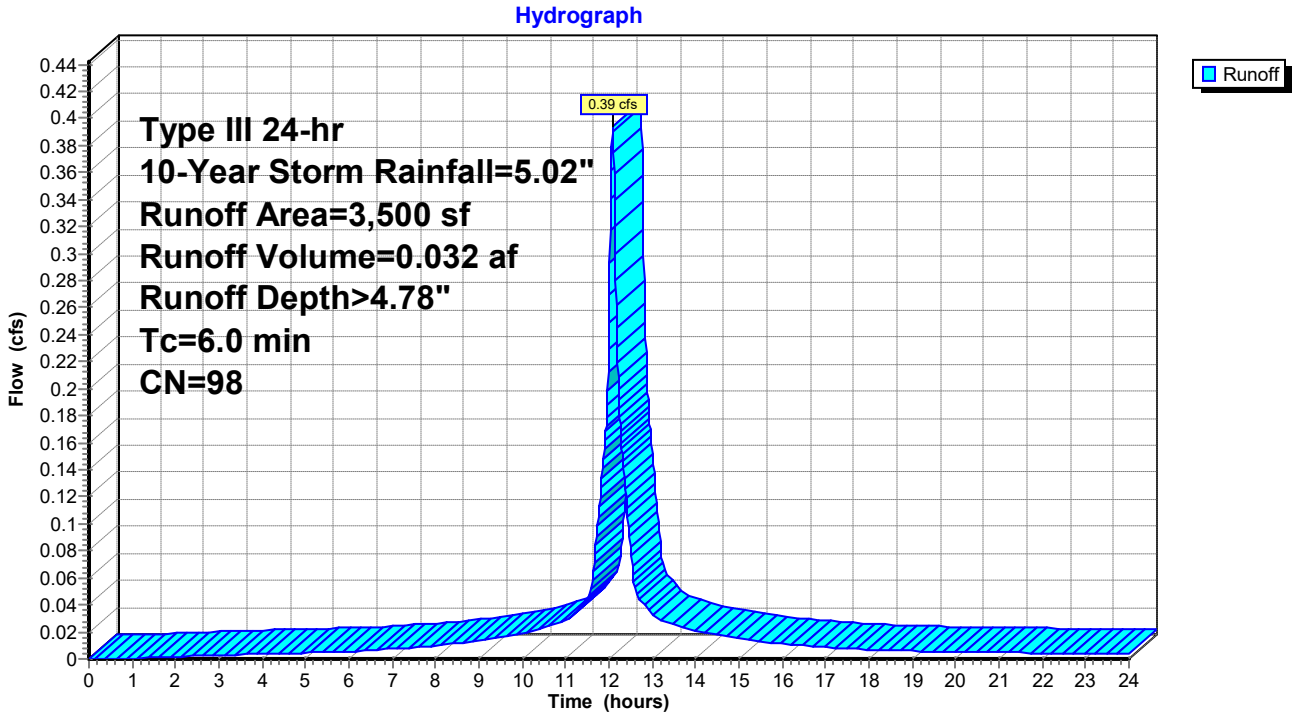
Runoff = 0.39 cfs @ 12.08 hrs, Volume= 0.032 af, Depth> 4.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
*	3,500	98	Impervious
	3,500		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sb: Treated Office Tower Roof



Summary for Subcatchment 1Sc: Parking Garage Roof

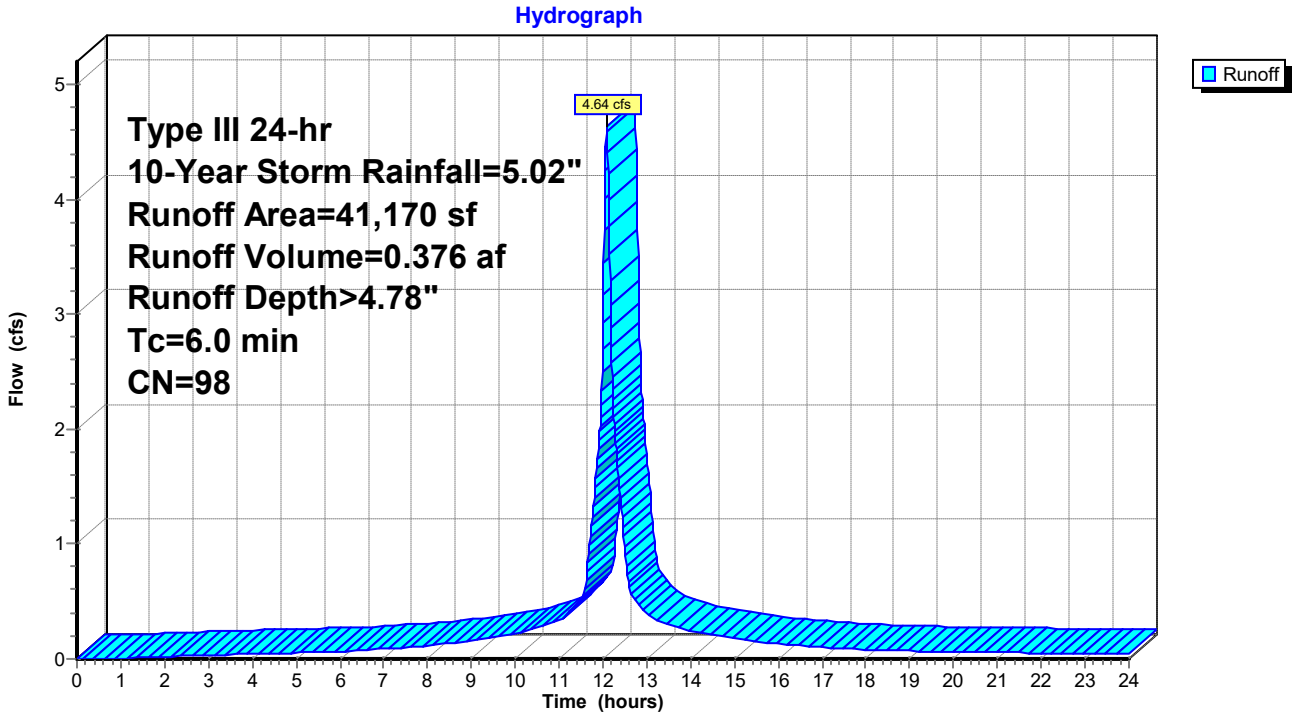
Runoff = 4.64 cfs @ 12.08 hrs, Volume= 0.376 af, Depth> 4.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
*	41,170	98	Impervious
	41,170		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sc: Parking Garage Roof



Summary for Subcatchment 1Sd: Fore St Wrap Roof

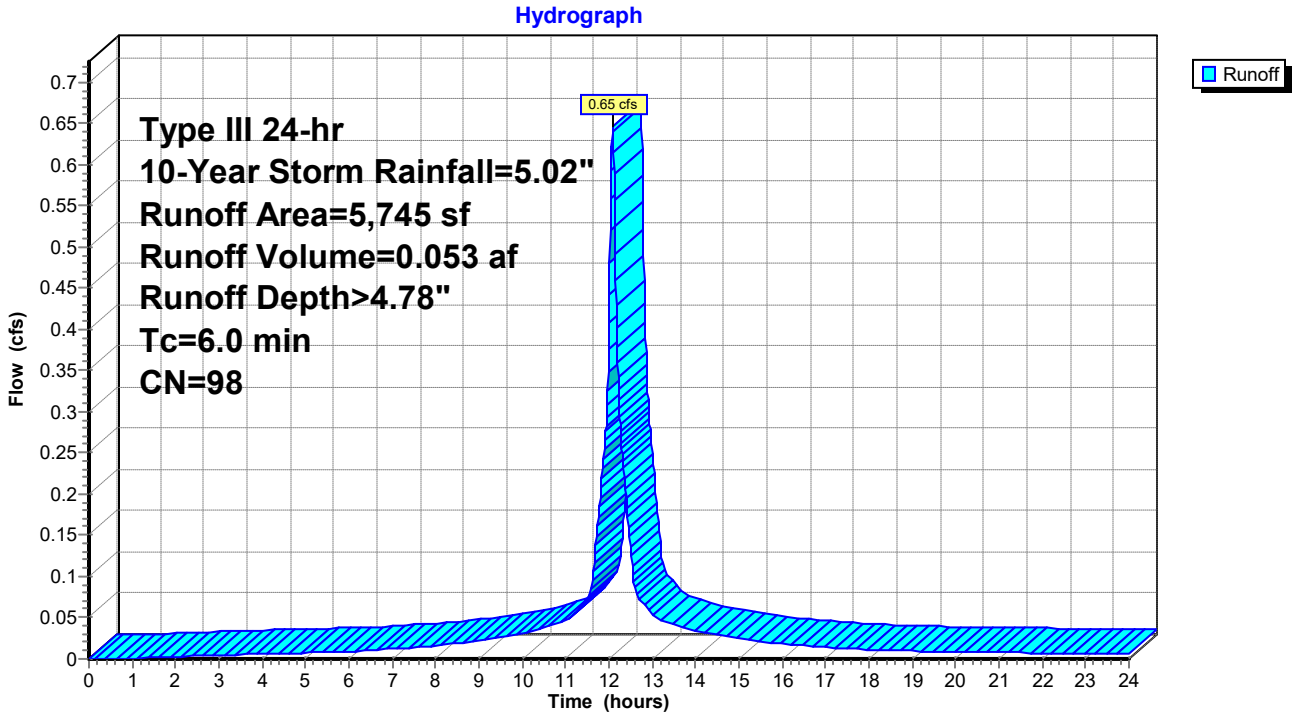
Runoff = 0.65 cfs @ 12.08 hrs, Volume= 0.053 af, Depth> 4.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
*	5,745	98	Impervious
	5,745		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sd: Fore St Wrap Roof



Summary for Subcatchment 2Sa: Treated Plaza

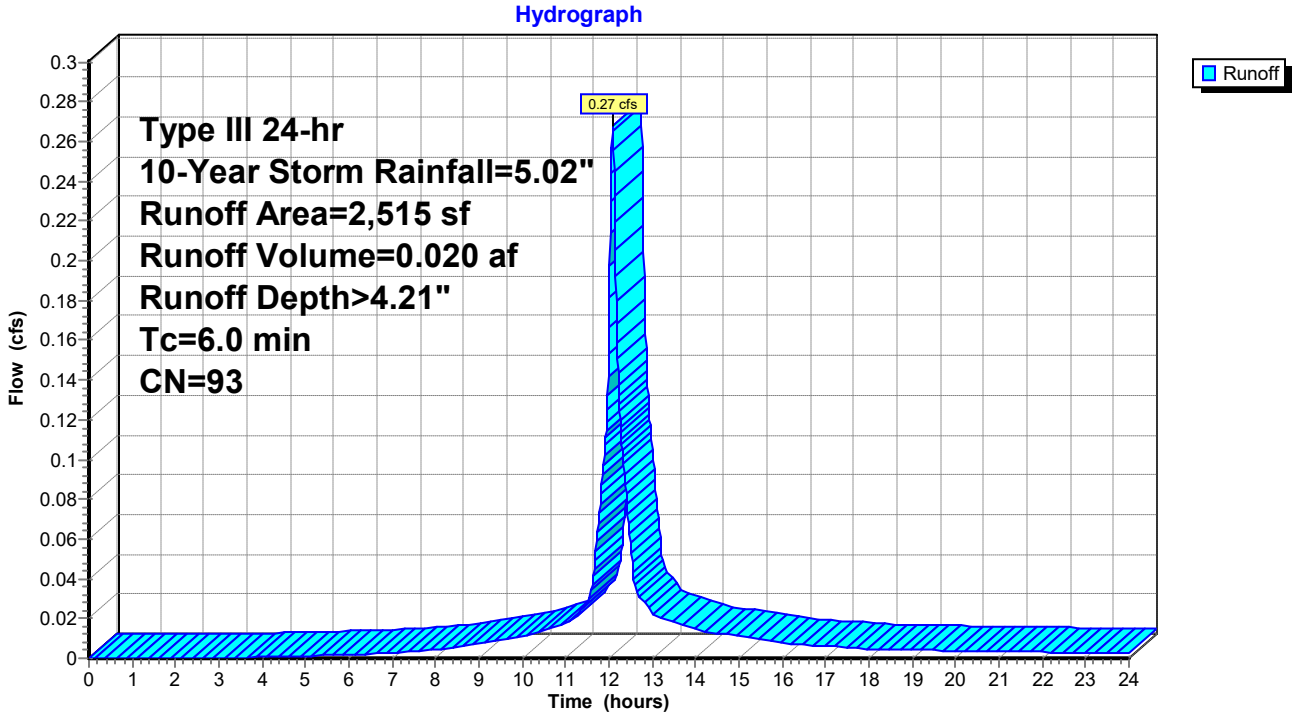
Runoff = 0.27 cfs @ 12.08 hrs, Volume= 0.020 af, Depth> 4.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
	233	49	50-75% Grass cover, Fair, HSG A
*	2,282	98	Impervious
	2,515	93	Weighted Average
	233		9.26% Pervious Area
	2,282		90.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2Sa: Treated Plaza



Summary for Subcatchment 2Sb: Untreated Plaza

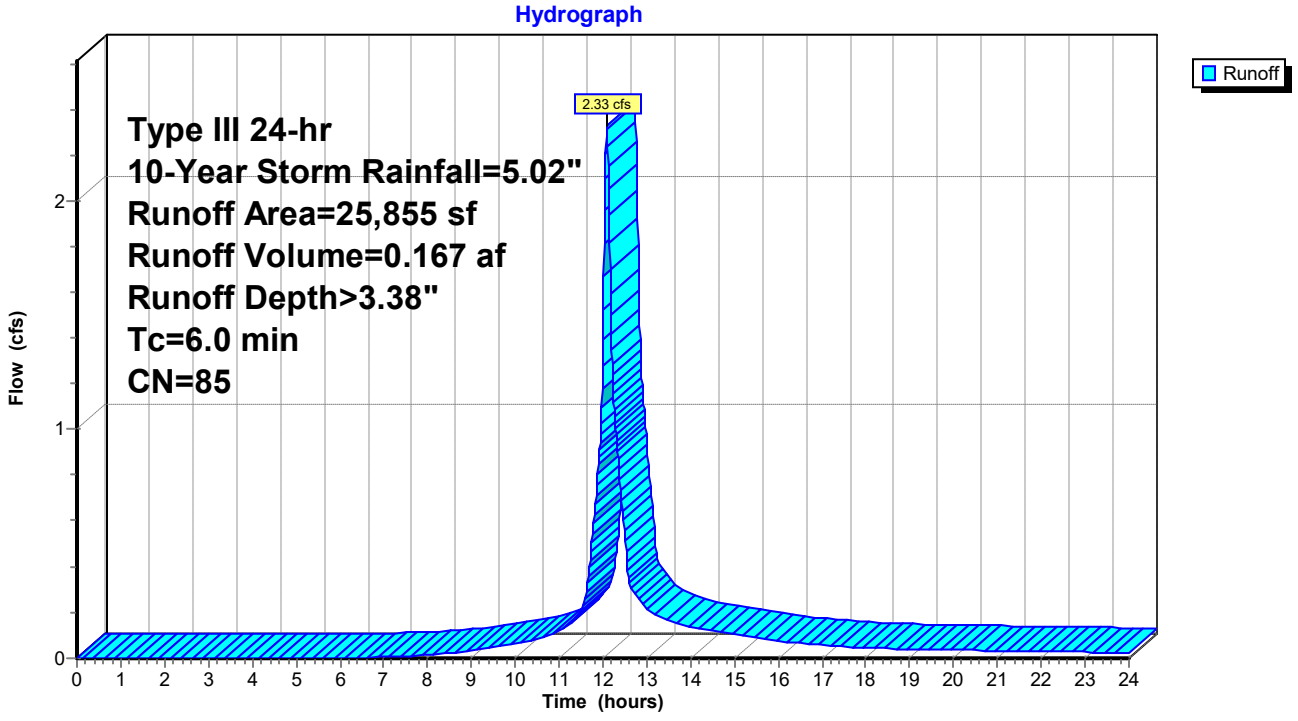
Runoff = 2.33 cfs @ 12.09 hrs, Volume= 0.167 af, Depth> 3.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
	6,787	49	50-75% Grass cover, Fair, HSG A
*	19,068	98	Impervious
	25,855	85	Weighted Average
	6,787		26.25% Pervious Area
	19,068		73.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2Sb: Untreated Plaza



Summary for Subcatchment 3S: Pedestrian Alley

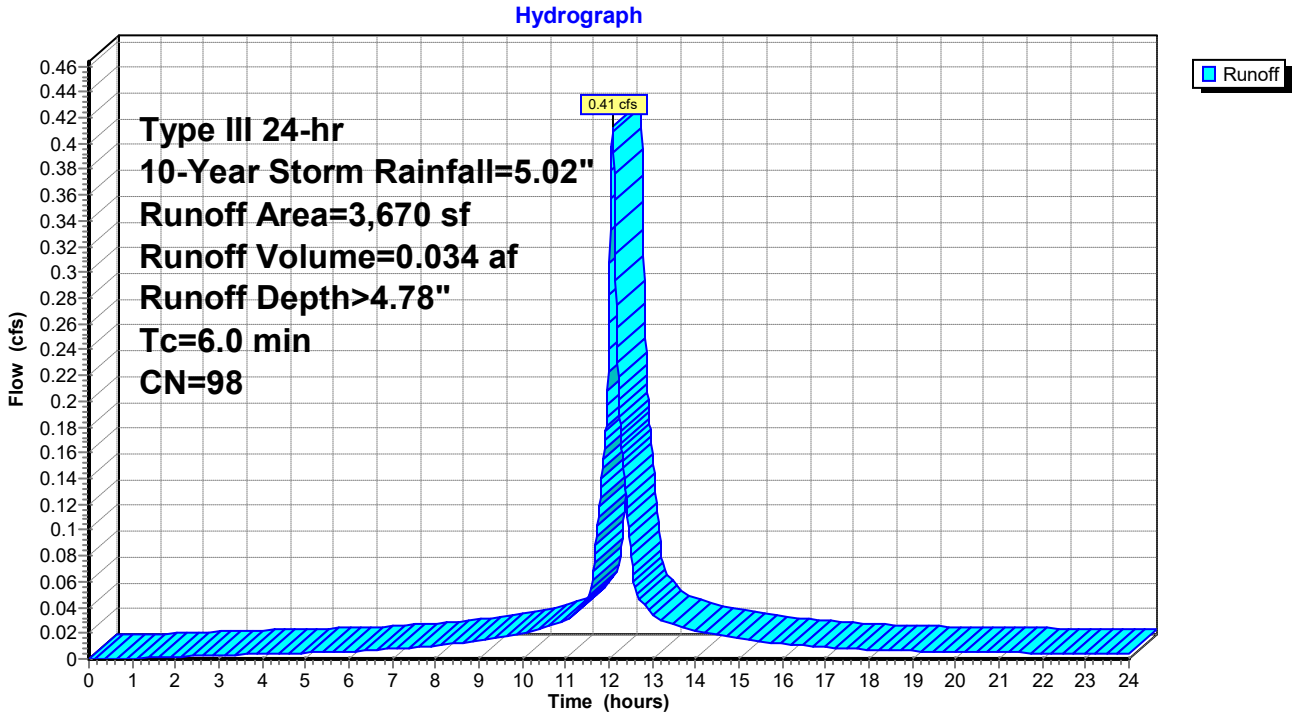
Runoff = 0.41 cfs @ 12.08 hrs, Volume= 0.034 af, Depth> 4.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
*	3,670	98	Impervious
	3,670		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Pedestrian Alley



Summary for Pond 1P: R-Tank

Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 4.75" for 10-Year Storm event
Inflow = 5.72 cfs @ 12.08 hrs, Volume= 0.462 af
Outflow = 4.27 cfs @ 12.15 hrs, Volume= 0.459 af, Atten= 25%, Lag= 4.2 min
Primary = 4.27 cfs @ 12.15 hrs, Volume= 0.459 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 36.54' @ 12.15 hrs Surf.Area= 610 sf Storage= 1,794 cf
Flood Elev= 37.08' Surf.Area= 610 sf Storage= 2,042 cf

Plug-Flow detention time= 14.5 min calculated for 0.459 af (99% of inflow)
Center-of-Mass det. time= 9.8 min (758.5 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1	32.50'	801 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,166 cf Overall - 2,165 cf Embedded = 2,001 cf x 40.0% Voids
#2	32.75'	2,057 cf	**R-Tank Quad Modules (Prismatic)** Listed below (Recalc) Inside #1 2,165 cf Overall x 95.0% Voids
		2,857 cf	Total Available Storage

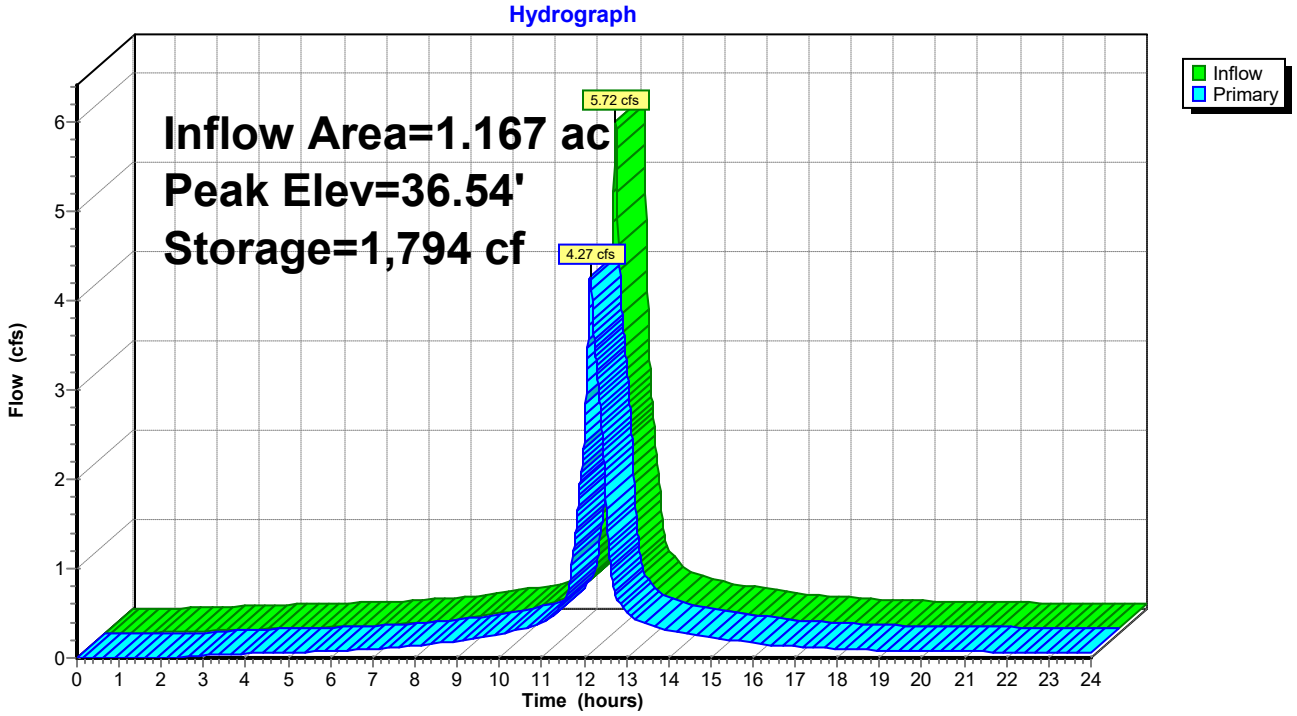
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.50	610	0	0
39.33	610	4,166	4,166

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.75	388	0	0
38.33	388	2,165	2,165

Device	Routing	Invert	Outlet Devices
#1	Primary	32.75'	**10.0" Round Culvert** L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.75' / 32.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Primary	36.08'	**15.0" Round Culvert** L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.08' / 36.08' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.27 cfs @ 12.15 hrs HW=36.54' (Free Discharge)
└─**1=Culvert** (Inlet Controls 3.81 cfs @ 6.98 fps)
└─**2=Culvert** (Barrel Controls 0.46 cfs @ 1.70 fps)

Pond 1P: R-Tank



Summary for Pond 2P: R-Tank

Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 4.72" for 10-Year Storm event
Inflow = 4.27 cfs @ 12.15 hrs, Volume= 0.459 af
Outflow = 4.05 cfs @ 12.19 hrs, Volume= 0.456 af, Atten= 5%, Lag= 1.9 min
Primary = 4.05 cfs @ 12.19 hrs, Volume= 0.456 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 34.25' @ 12.19 hrs Surf.Area= 610 sf Storage= 745 cf
Flood Elev= 37.08' Surf.Area= 610 sf Storage= 2,042 cf

Plug-Flow detention time= 11.6 min calculated for 0.456 af (99% of inflow)
Center-of-Mass det. time= 7.3 min (765.8 - 758.5)

Volume	Invert	Avail.Storage	Storage Description
#1	32.50'	801 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,166 cf Overall - 2,165 cf Embedded = 2,001 cf x 40.0% Voids
#2	32.75'	2,057 cf	**R-Tank Quad Modules (Prismatic)** Listed below (Recalc) Inside #1 2,165 cf Overall x 95.0% Voids
		2,857 cf	Total Available Storage

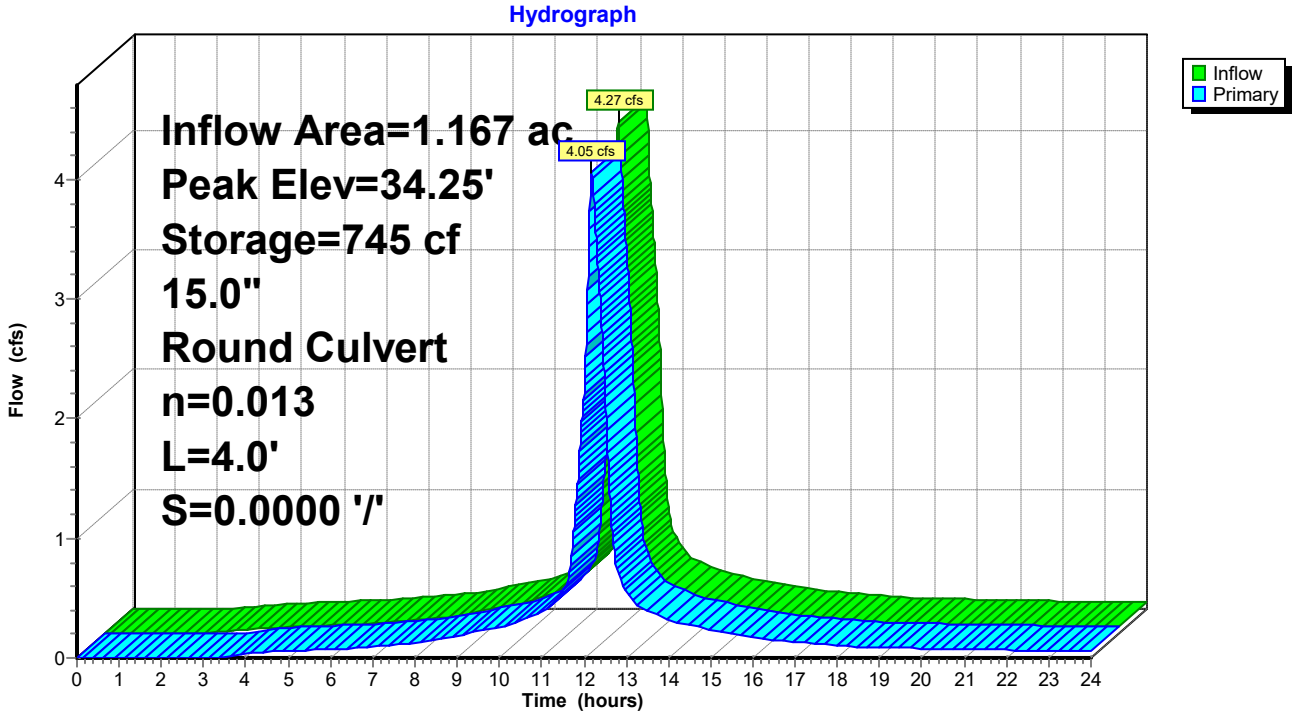
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.50	610	0	0
39.33	610	4,166	4,166

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.75	388	0	0
38.33	388	2,165	2,165

Device	Routing	Invert	Outlet Devices
#1	Primary	32.75'	**15.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.75' / 32.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.05 cfs @ 12.19 hrs HW=34.25' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 4.05 cfs @ 3.49 fps)

Pond 2P: R-Tank



Summary for Pond 3P: Jellyfish 1

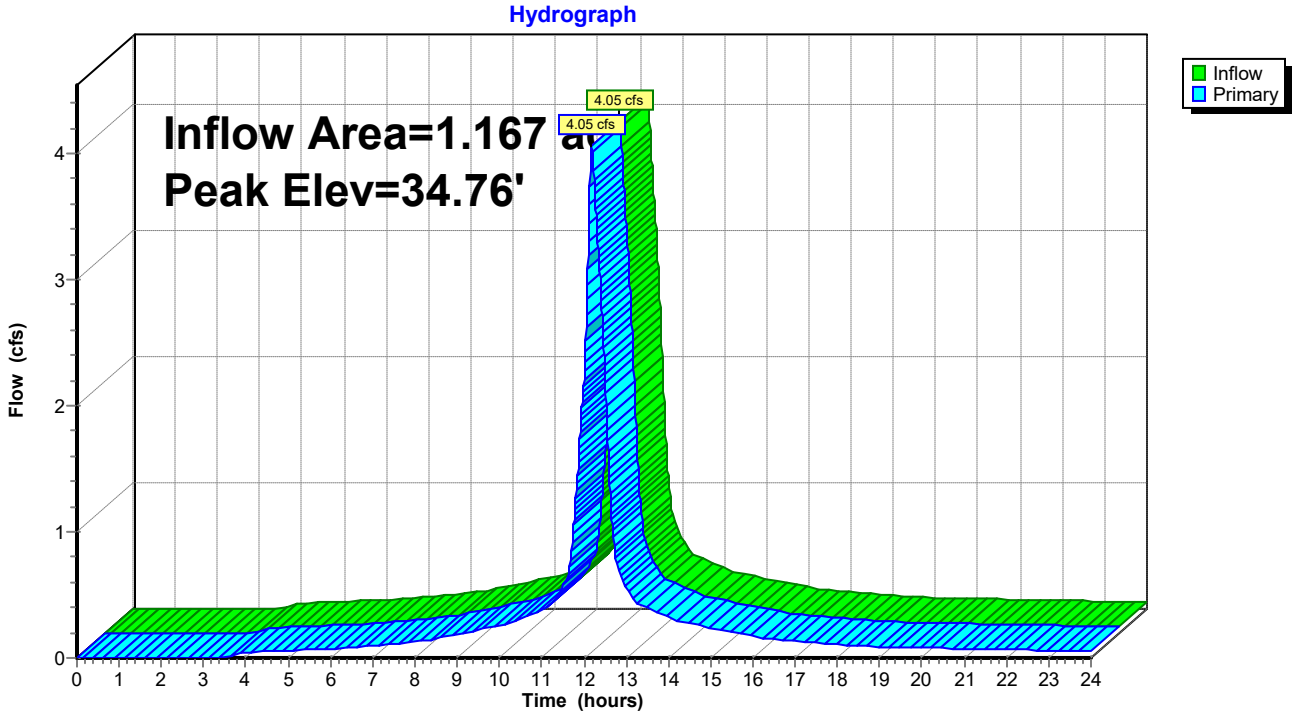
Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 4.69" for 10-Year Storm event
Inflow = 4.05 cfs @ 12.19 hrs, Volume= 0.456 af
Outflow = 4.05 cfs @ 12.19 hrs, Volume= 0.456 af, Atten= 0%, Lag= 0.0 min
Primary = 4.05 cfs @ 12.19 hrs, Volume= 0.456 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 34.76' @ 12.19 hrs
Flood Elev= 40.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.25'	**15.0" Round Filter Culvert Out** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.25' / 32.00' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	32.25'	**JF Filter-1 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.129 0.198 0.267 0.337 0.406 0.475 0.545 0.614 0.683 0.753 0.822 0.891
#3	Device 1	34.24'	**2.8' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=4.04 cfs @ 12.19 hrs HW=34.76' (Free Discharge)
└**1=Filter Culvert Out** (Passes 4.04 cfs of 6.40 cfs potential flow)
  ├**2=JF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 3.15 cfs @ 2.17 fps)

Pond 3P: Jellyfish 1

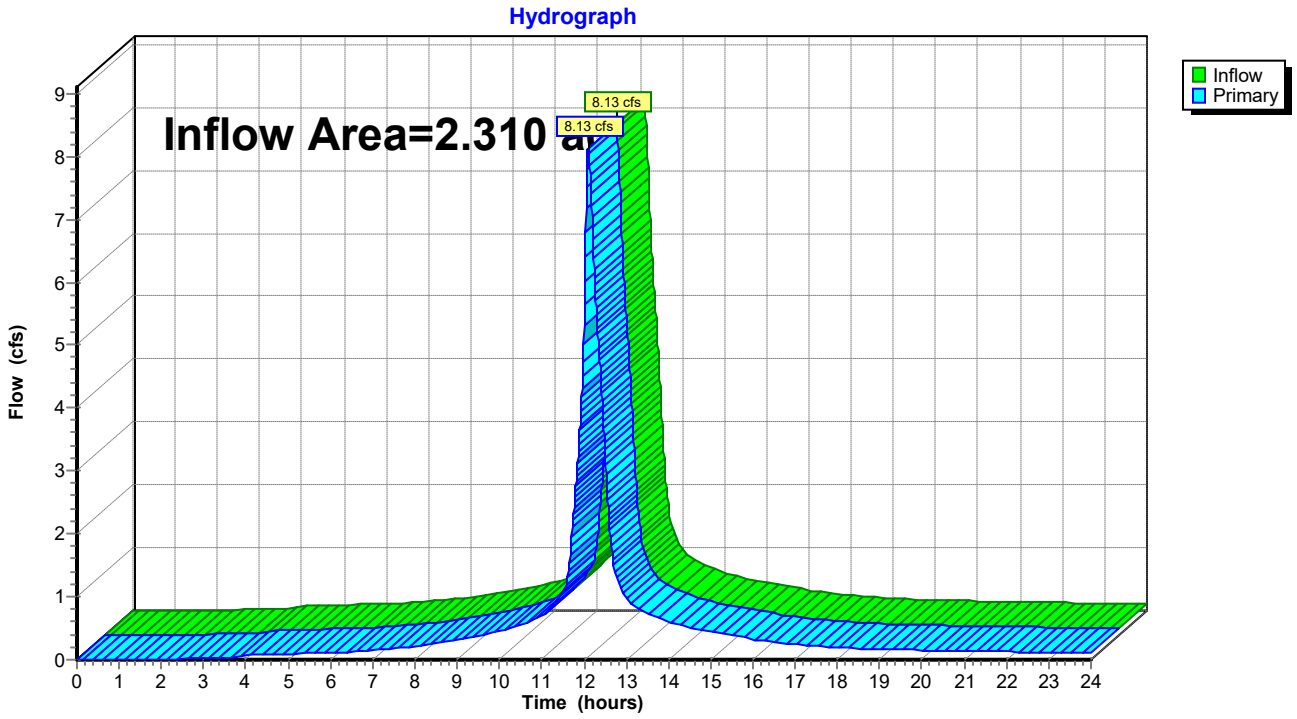


Summary for Link SP1: Study Point

Inflow Area = 2.310 ac, 93.02% Impervious, Inflow Depth > 4.37" for 10-Year Storm event
Inflow = 8.13 cfs @ 12.10 hrs, Volume= 0.842 af
Primary = 8.13 cfs @ 12.10 hrs, Volume= 0.842 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link SP1: Study Point



Summary for Subcatchment 1Sa: Untreated Office Tower Roof

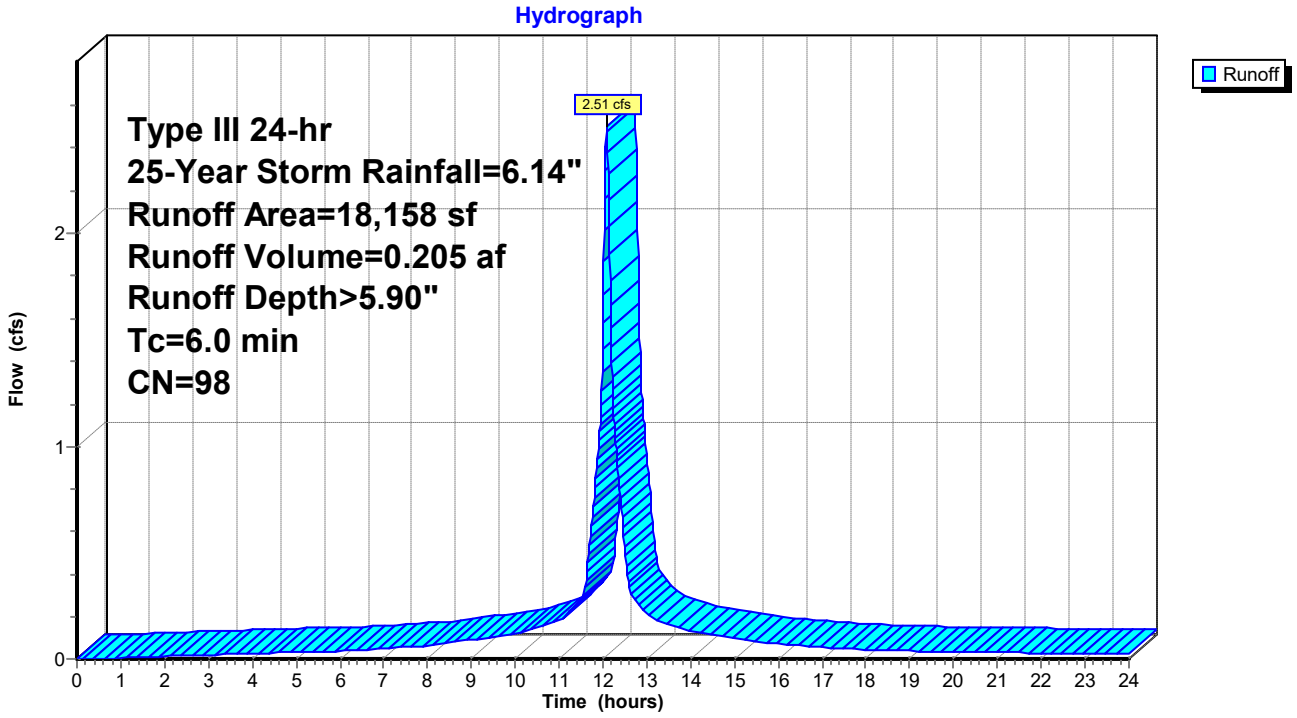
Runoff = 2.51 cfs @ 12.08 hrs, Volume= 0.205 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
*	18,158	98	Impervious
	18,158		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sa: Untreated Office Tower Roof



Summary for Subcatchment 1Sb: Treated Office Tower Roof

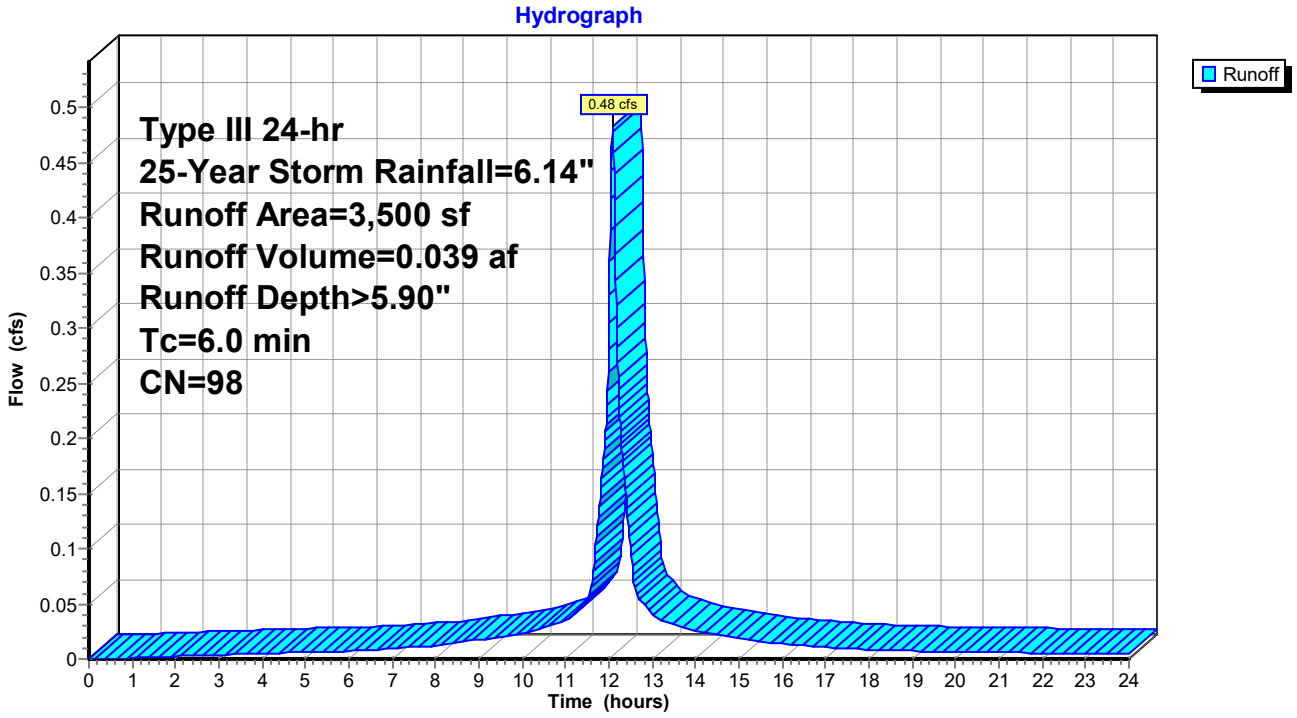
Runoff = 0.48 cfs @ 12.08 hrs, Volume= 0.039 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
*	3,500	98	Impervious
	3,500		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sb: Treated Office Tower Roof



Summary for Subcatchment 1Sc: Parking Garage Roof

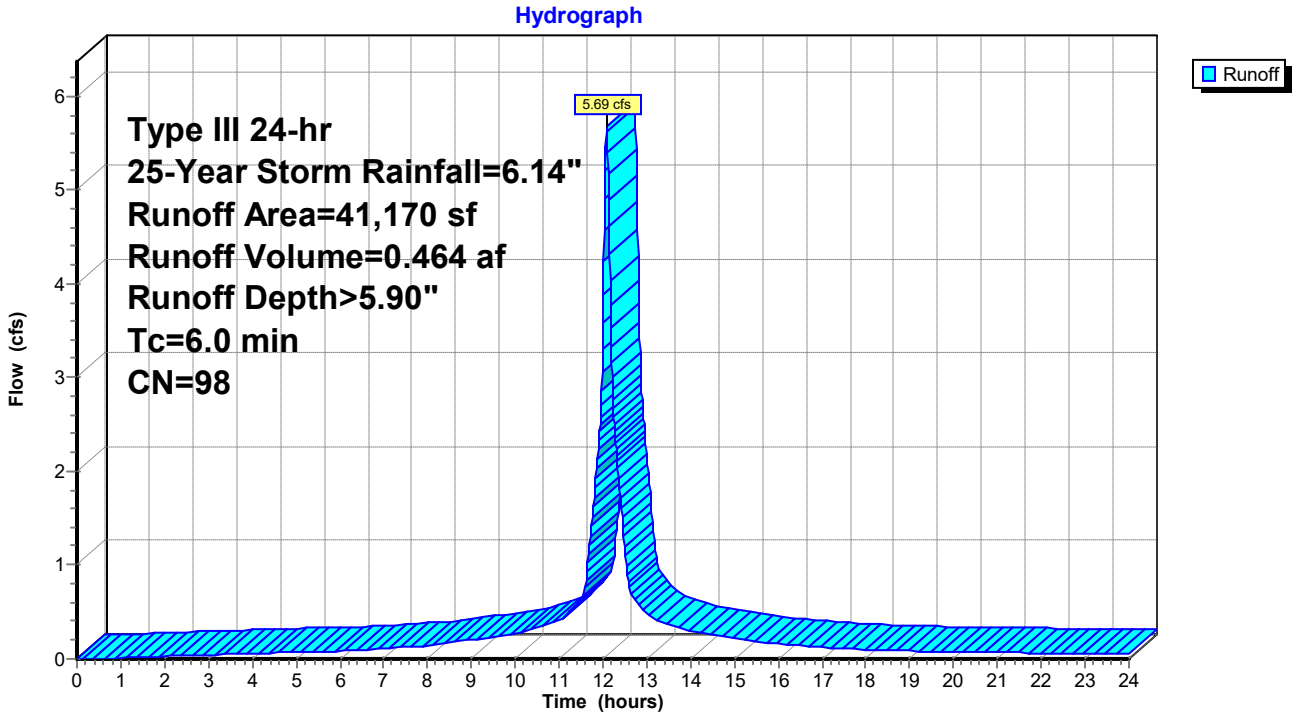
Runoff = 5.69 cfs @ 12.08 hrs, Volume= 0.464 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
*	41,170	98	Impervious
	41,170		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sc: Parking Garage Roof



Summary for Subcatchment 1Sd: Fore St Wrap Roof

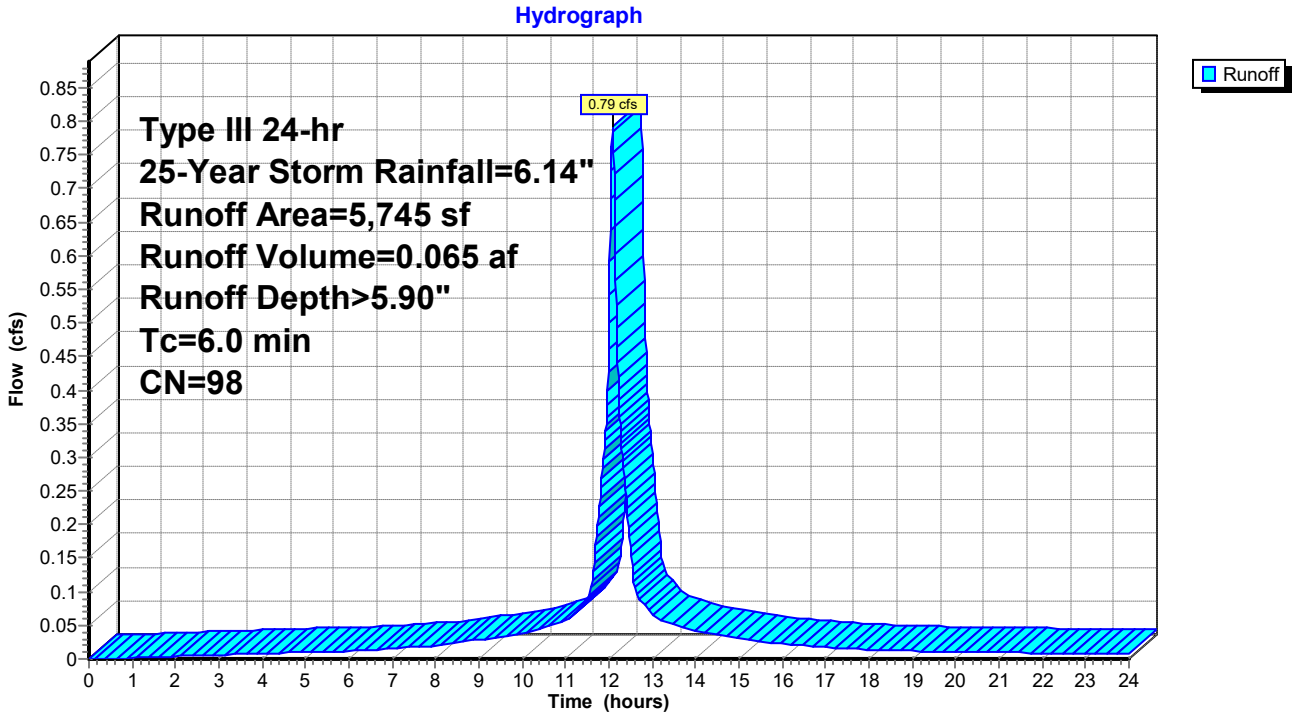
Runoff = 0.79 cfs @ 12.08 hrs, Volume= 0.065 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
*	5,745	98	Impervious
	5,745		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sd: Fore St Wrap Roof



Summary for Subcatchment 2Sa: Treated Plaza

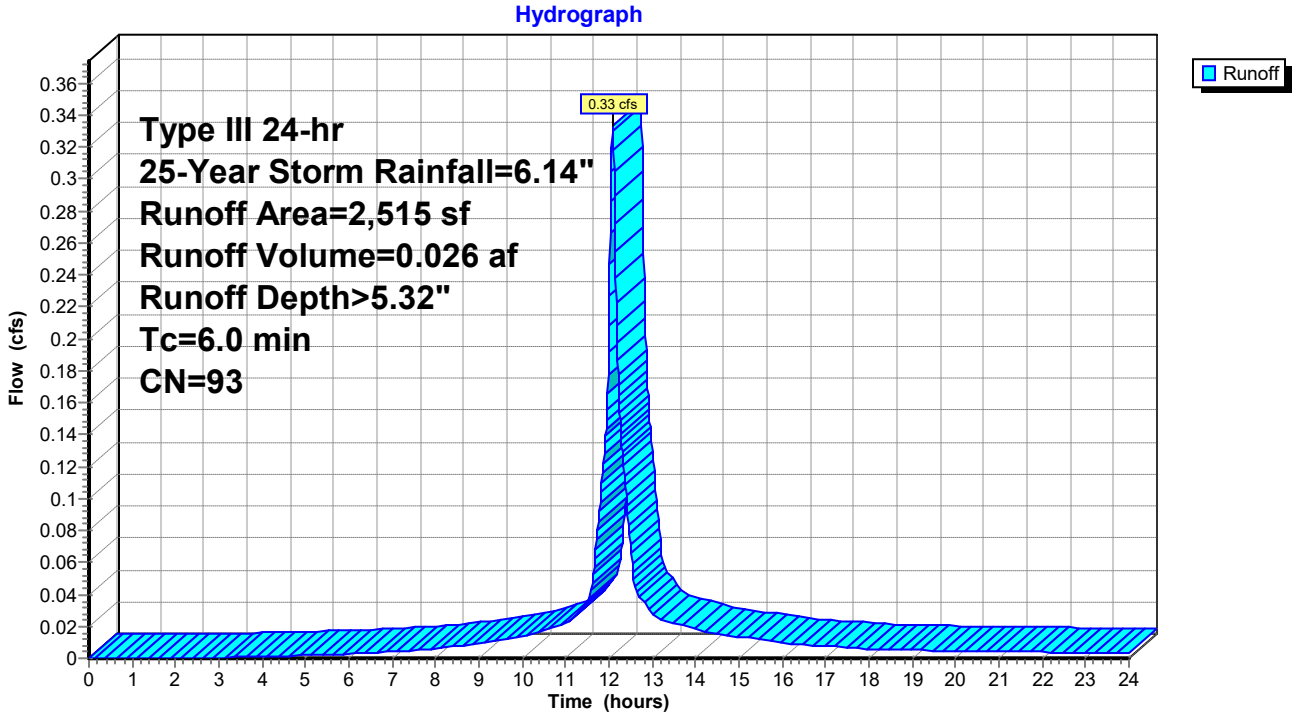
Runoff = 0.33 cfs @ 12.08 hrs, Volume= 0.026 af, Depth> 5.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
	233	49	50-75% Grass cover, Fair, HSG A
*	2,282	98	Impervious
	2,515	93	Weighted Average
	233		9.26% Pervious Area
	2,282		90.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2Sa: Treated Plaza



Summary for Subcatchment 2Sb: Untreated Plaza

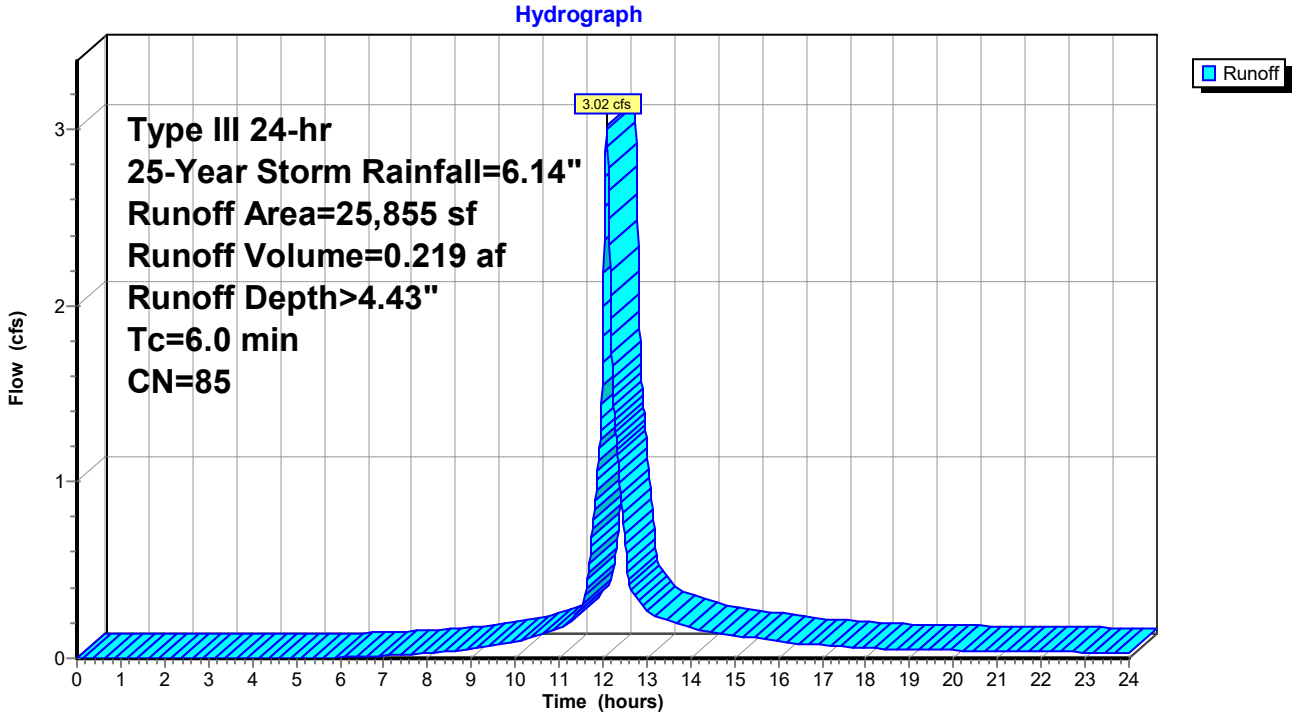
Runoff = 3.02 cfs @ 12.09 hrs, Volume= 0.219 af, Depth> 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
	6,787	49	50-75% Grass cover, Fair, HSG A
*	19,068	98	Impervious
	25,855	85	Weighted Average
	6,787		26.25% Pervious Area
	19,068		73.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2Sb: Untreated Plaza



Summary for Subcatchment 3S: Pedestrian Alley

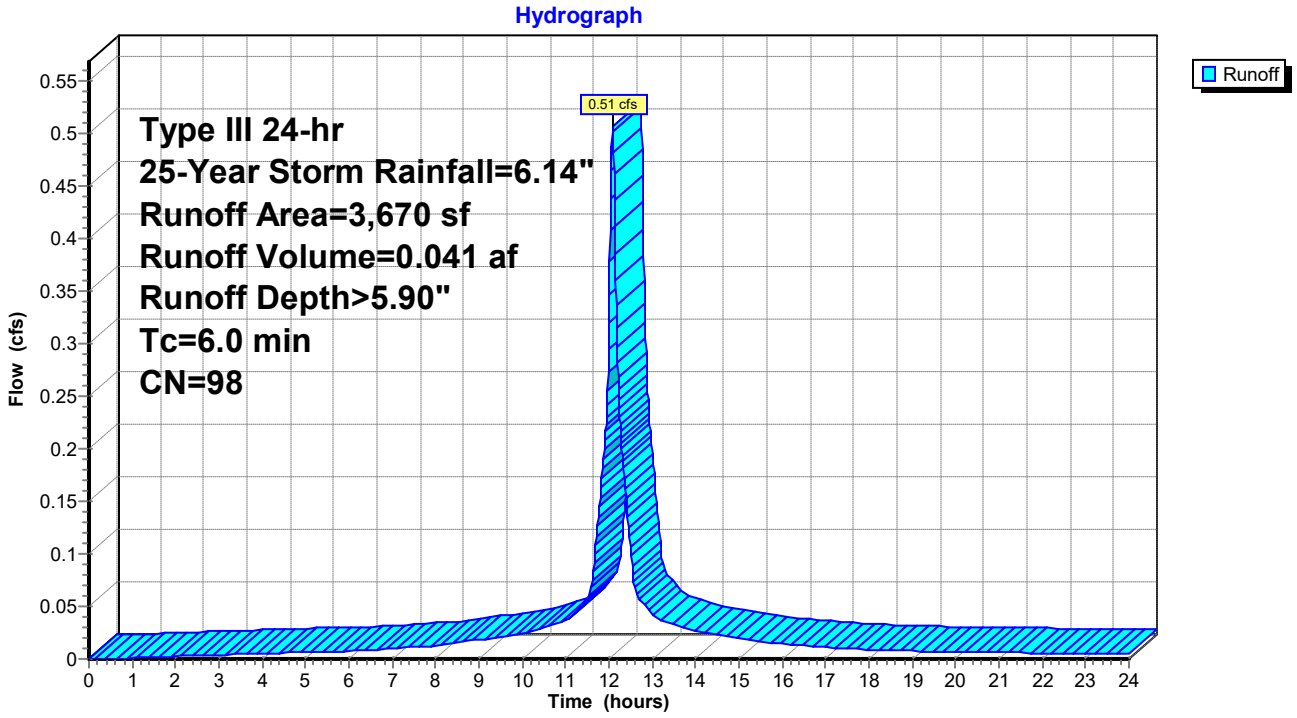
Runoff = 0.51 cfs @ 12.08 hrs, Volume= 0.041 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
*	3,670	98	Impervious
	3,670		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Pedestrian Alley



Summary for Pond 1P: R-Tank

Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 5.87" for 25-Year Storm event
Inflow = 7.01 cfs @ 12.08 hrs, Volume= 0.571 af
Outflow = 6.09 cfs @ 12.13 hrs, Volume= 0.567 af, Atten= 13%, Lag= 2.8 min
Primary = 6.09 cfs @ 12.13 hrs, Volume= 0.567 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 37.06' @ 12.13 hrs Surf.Area= 610 sf Storage= 2,031 cf
Flood Elev= 37.08' Surf.Area= 610 sf Storage= 2,042 cf

Plug-Flow detention time= 13.1 min calculated for 0.567 af (99% of inflow)
Center-of-Mass det. time= 8.9 min (754.4 - 745.5)

Volume	Invert	Avail.Storage	Storage Description
#1	32.50'	801 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,166 cf Overall - 2,165 cf Embedded = 2,001 cf x 40.0% Voids
#2	32.75'	2,057 cf	**R-Tank Quad Modules (Prismatic)** Listed below (Recalc) Inside #1 2,165 cf Overall x 95.0% Voids
		2,857 cf	Total Available Storage

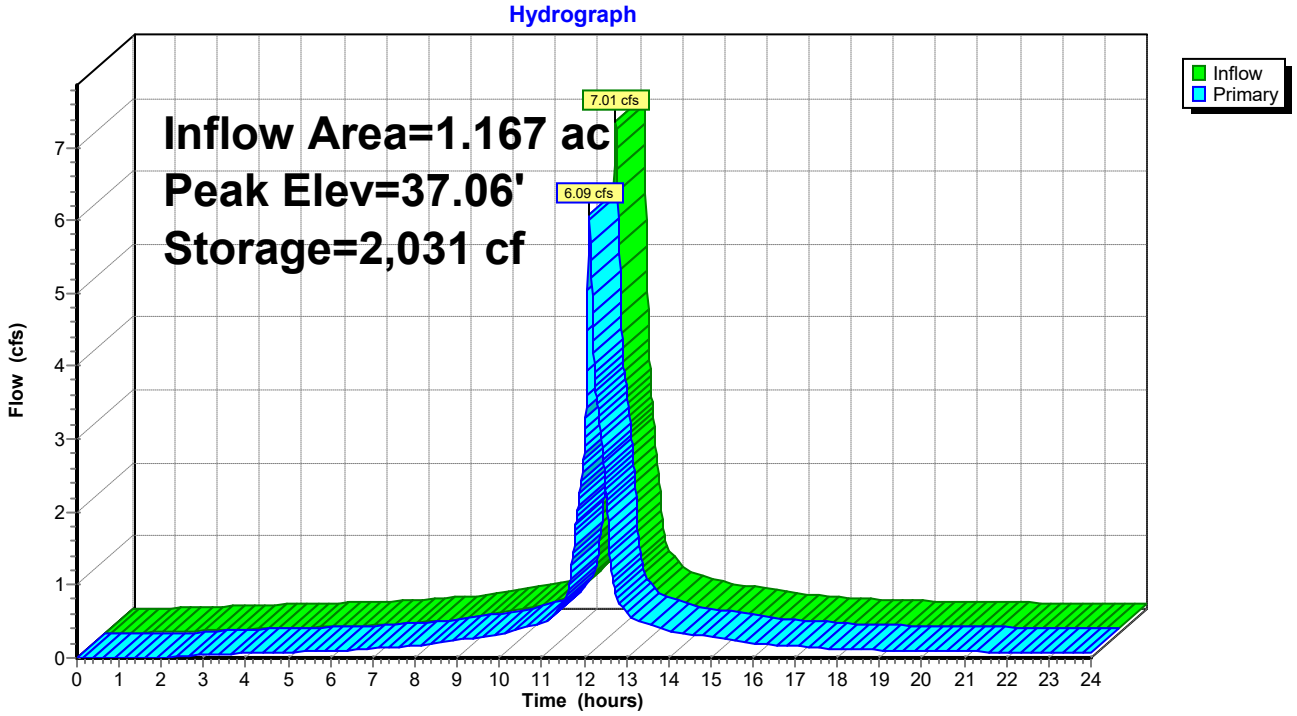
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.50	610	0	0
39.33	610	4,166	4,166

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.75	388	0	0
38.33	388	2,165	2,165

Device	Routing	Invert	Outlet Devices
#1	Primary	32.75'	**10.0" Round Culvert** L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.75' / 32.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Primary	36.08'	**15.0" Round Culvert** L= 15.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 36.08' / 36.08' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=6.08 cfs @ 12.13 hrs HW=37.06' (Free Discharge)
└─**1=Culvert** (Inlet Controls 4.09 cfs @ 7.50 fps)
└─**2=Culvert** (Barrel Controls 1.99 cfs @ 2.67 fps)

Pond 1P: R-Tank



Summary for Pond 2P: R-Tank

Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 5.83" for 25-Year Storm event
Inflow = 6.09 cfs @ 12.13 hrs, Volume= 0.567 af
Outflow = 5.45 cfs @ 12.17 hrs, Volume= 0.564 af, Atten= 10%, Lag= 2.5 min
Primary = 5.45 cfs @ 12.17 hrs, Volume= 0.564 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 34.74' @ 12.17 hrs Surf.Area= 610 sf Storage= 971 cf
Flood Elev= 37.08' Surf.Area= 610 sf Storage= 2,042 cf

Plug-Flow detention time= 10.3 min calculated for 0.564 af (99% of inflow)
Center-of-Mass det. time= 6.6 min (761.0 - 754.4)

Volume	Invert	Avail.Storage	Storage Description
#1	32.50'	801 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,166 cf Overall - 2,165 cf Embedded = 2,001 cf x 40.0% Voids
#2	32.75'	2,057 cf	**R-Tank Quad Modules (Prismatic)** Listed below (Recalc) Inside #1 2,165 cf Overall x 95.0% Voids
		2,857 cf	Total Available Storage

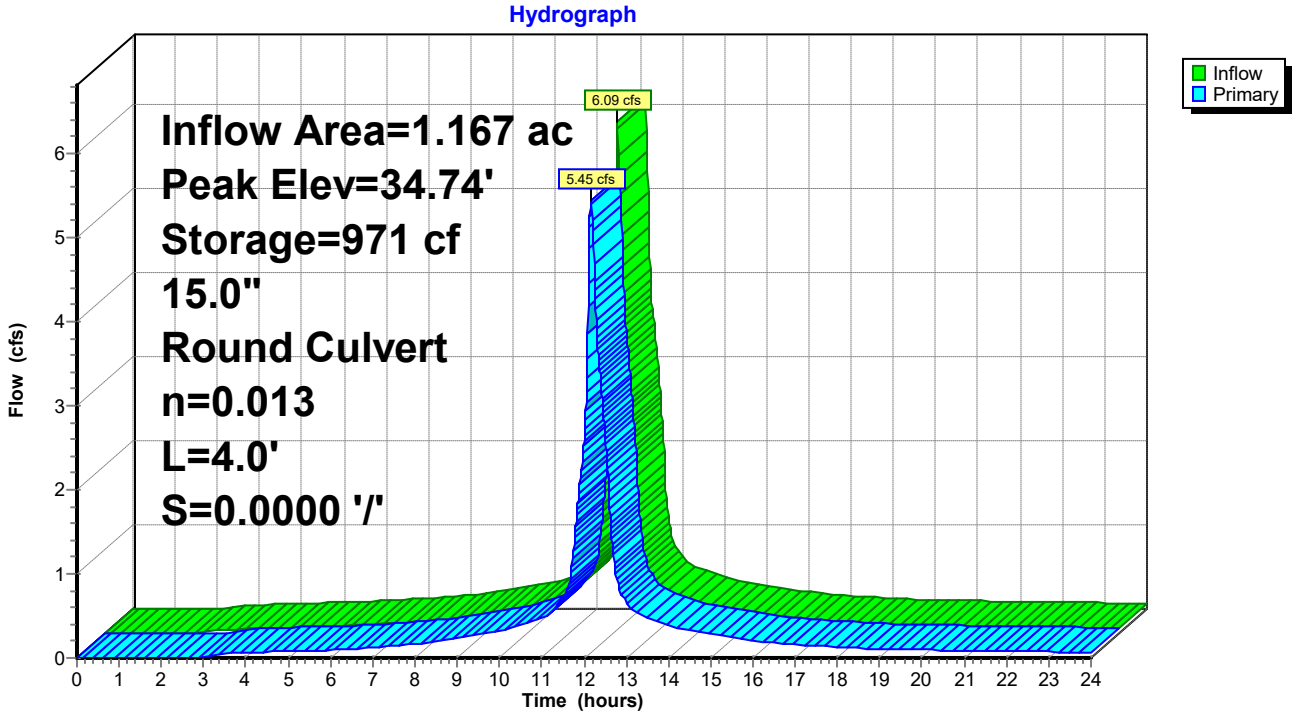
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.50	610	0	0
39.33	610	4,166	4,166

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
32.75	388	0	0
38.33	388	2,165	2,165

Device	Routing	Invert	Outlet Devices
#1	Primary	32.75'	**15.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.75' / 32.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.45 cfs @ 12.17 hrs HW=34.74' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 5.45 cfs @ 4.44 fps)

Pond 2P: R-Tank



Summary for Pond 3P: Jellyfish 1

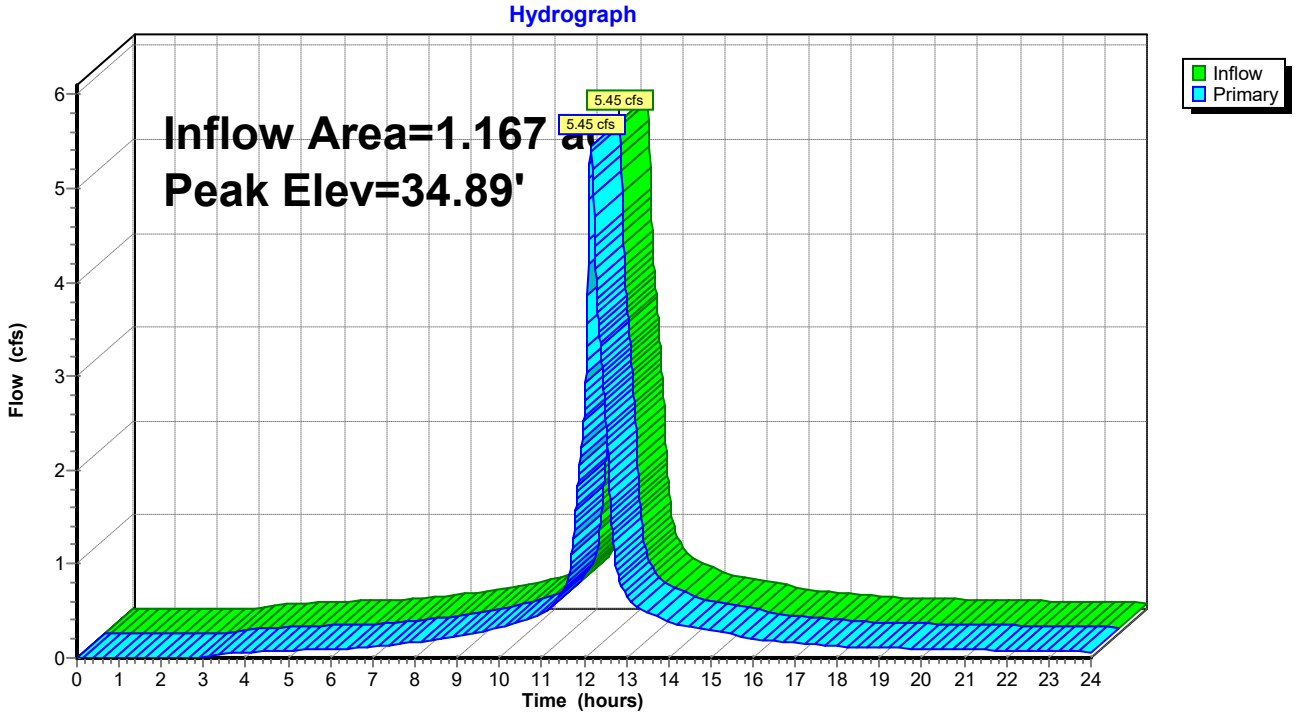
Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 5.80" for 25-Year Storm event
Inflow = 5.45 cfs @ 12.17 hrs, Volume= 0.564 af
Outflow = 5.45 cfs @ 12.17 hrs, Volume= 0.564 af, Atten= 0%, Lag= 0.0 min
Primary = 5.45 cfs @ 12.17 hrs, Volume= 0.564 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 34.89' @ 12.17 hrs
Flood Elev= 40.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.25'	**15.0" Round Filter Culvert Out** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.25' / 32.00' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	32.25'	**JF Filter-1 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.129 0.198 0.267 0.337 0.406 0.475 0.545 0.614 0.683 0.753 0.822 0.891
#3	Device 1	34.24'	**2.8' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=5.45 cfs @ 12.17 hrs HW=34.89' (Free Discharge)
└**1=Filter Culvert Out** (Passes 5.45 cfs of 6.62 cfs potential flow)
  ├**2=JF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 4.56 cfs @ 2.52 fps)

Pond 3P: Jellyfish 1

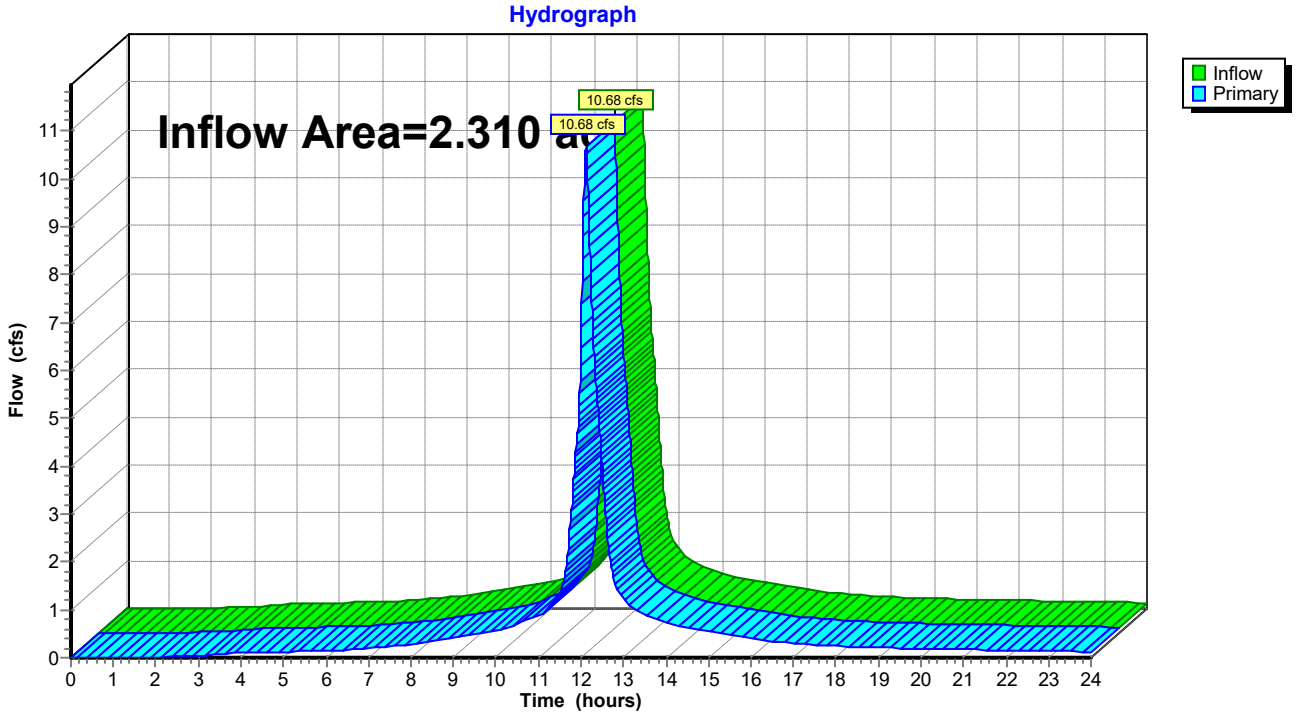


Summary for Link SP1: Study Point

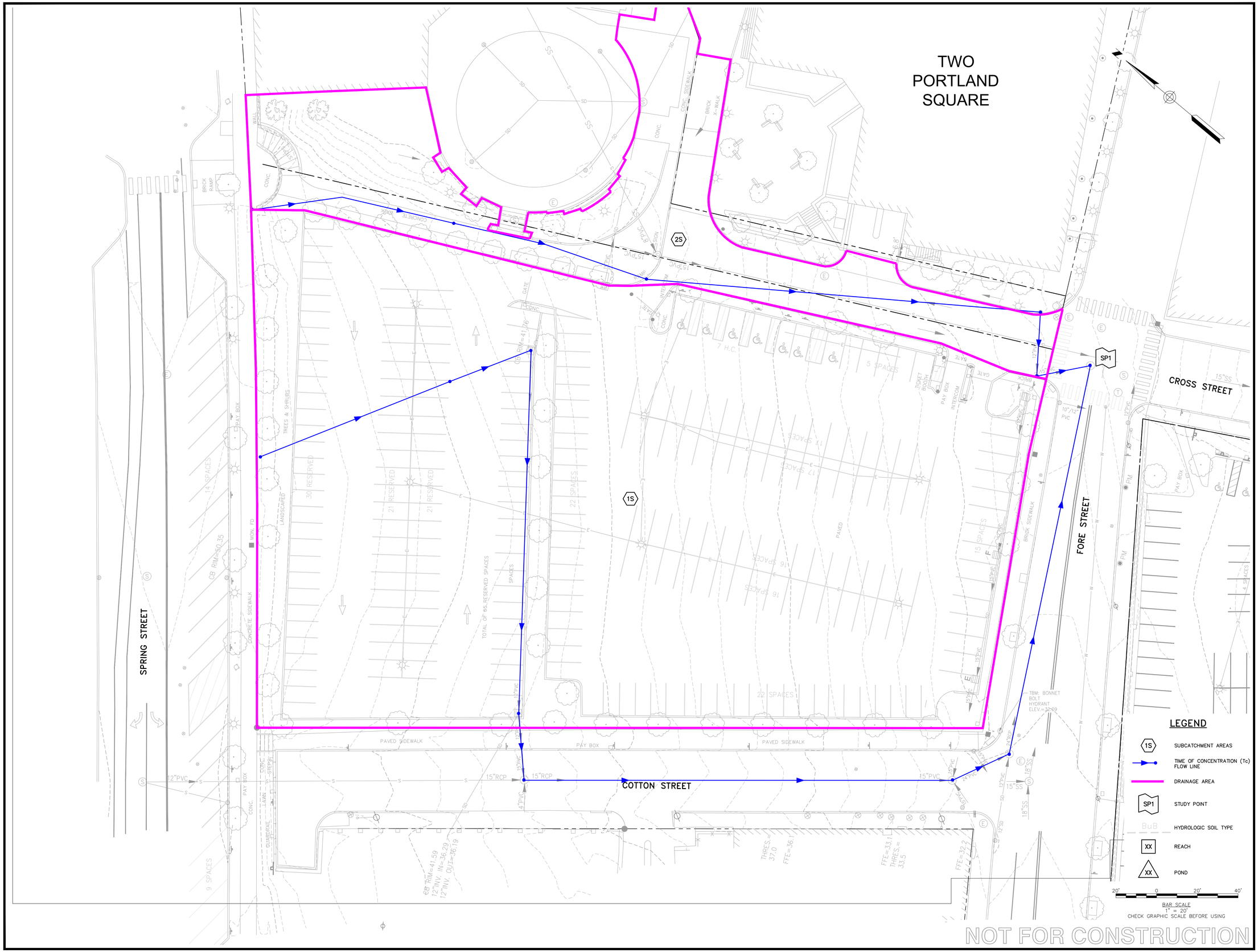
Inflow Area = 2.310 ac, 93.02% Impervious, Inflow Depth > 5.47" for 25-Year Storm event
Inflow = 10.68 cfs @ 12.12 hrs, Volume= 1.053 af
Primary = 10.68 cfs @ 12.12 hrs, Volume= 1.053 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link SP1: Study Point



APPENDIX D: FIGURES



Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

CARROLL ASSOCIATES LANDSCAPE ARCHITECTS
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Portland, ME 04101
207.772.1552
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www.wintonscott.com

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www.haleyaldrich.com

GORRILL PALMER
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South Portland, ME 04106
207.239.7470
www.gorrillpalmer.com

Revisions		
1	12.20.19	SITE PLAN APPLICATION REVISIONS

Drawing Title: **PRE-DEVELOPMENT STORWATER PLAN**

Scale: 1" = 20'

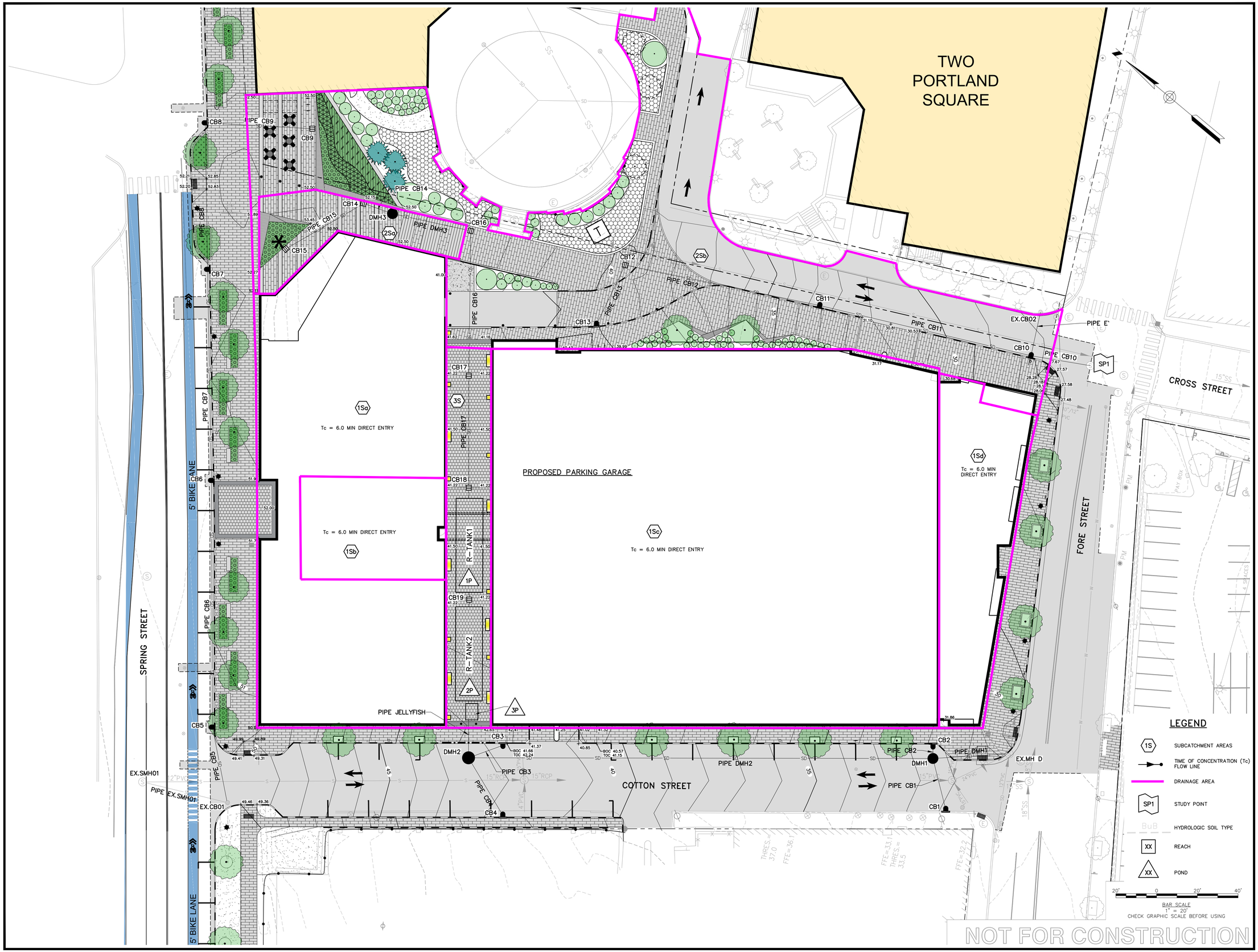
STATE OF MAINE
LAUREN JANE SWETT
12284
REGISTERED PROFESSIONAL ENGINEER

12/20/2019

Date: OCTOBER 2019

Phase: PERMITTING

PRE



Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

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Revisions		
1	12.20.19	SITE PLAN APPLICATION REVISIONS

Drawing Title: | Scale: 1" = 20'

POST-DEVELOPMENT STORWATER PLAN

STATE OF MAINE
LAUREN JANE SWETT
12284
LICENSED PROFESSIONAL ENGINEER

12/20/2019

Date: OCTOBER 2019
Phase: PERMITTING

POST

41 Hutchins Drive
Portland, Maine 04102
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T 800.426.4262
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Att. Q

MEMORANDUM

TO: Patrick Carroll, Carroll Associates Landscape Architects
FROM: Lauren Swett, PE & Amy LeBel, EIT
DATE: December 20, 2019
RE: Three Portland Square – Roadway & Site Design

The proposed project is bounded by three City of Portland public roadways: Spring Street, Cotton Street, and Fore Street. The eastern side of the project is bounded by a private driveway that was formerly an extension of Cross Street. This driveway is referred to as "Upper Cross Street", but is no longer a public roadway. The following sections describe the roadway and site design considered along each roadway.

UPPER CROSS STREET

Upper Cross Street was previously discontinued and is currently privately owned by the developer and used as a service driveway for the existing Portland Square buildings. The proposed design includes a back-in service and loading area located east of the alley between the office tower and parking structure. Access to this service and loading area will be provided via Upper Cross Street. Daily service will be scheduled to minimize impacts to business hours to the greatest extents practicable. Figure 1 below shows turning movements for the service entrance.

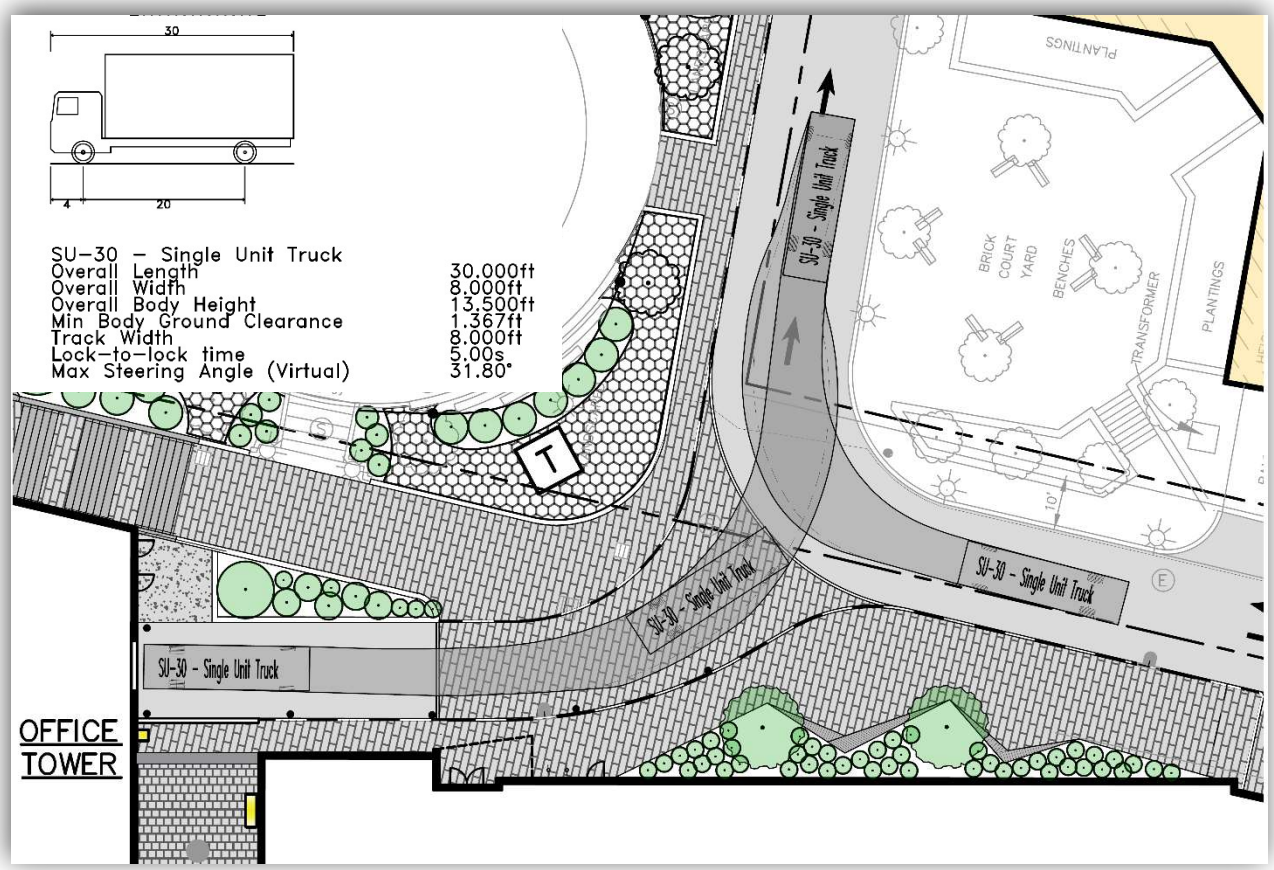


FIGURE 1 – THREE PORTLAND SQUARE SERVICE DRIVE TURNING MOVEMENTS

The brick sidewalk will be expanded along Upper Cross Street to provide a continuous 18-foot pedestrian corridor between Fore Street and Spring Street. Expansion of the sidewalk reduces the 2-way driveway width to a minimum width of 21 feet, which meets the City Standard for driveway width.

Additional improvements are proposed within the corridor between Fore Street and Spring Street to improve the pedestrian experience in this area. Expanded plaza spaces, stairways, and lighting will all be provided as shown on the site and landscaping plans.

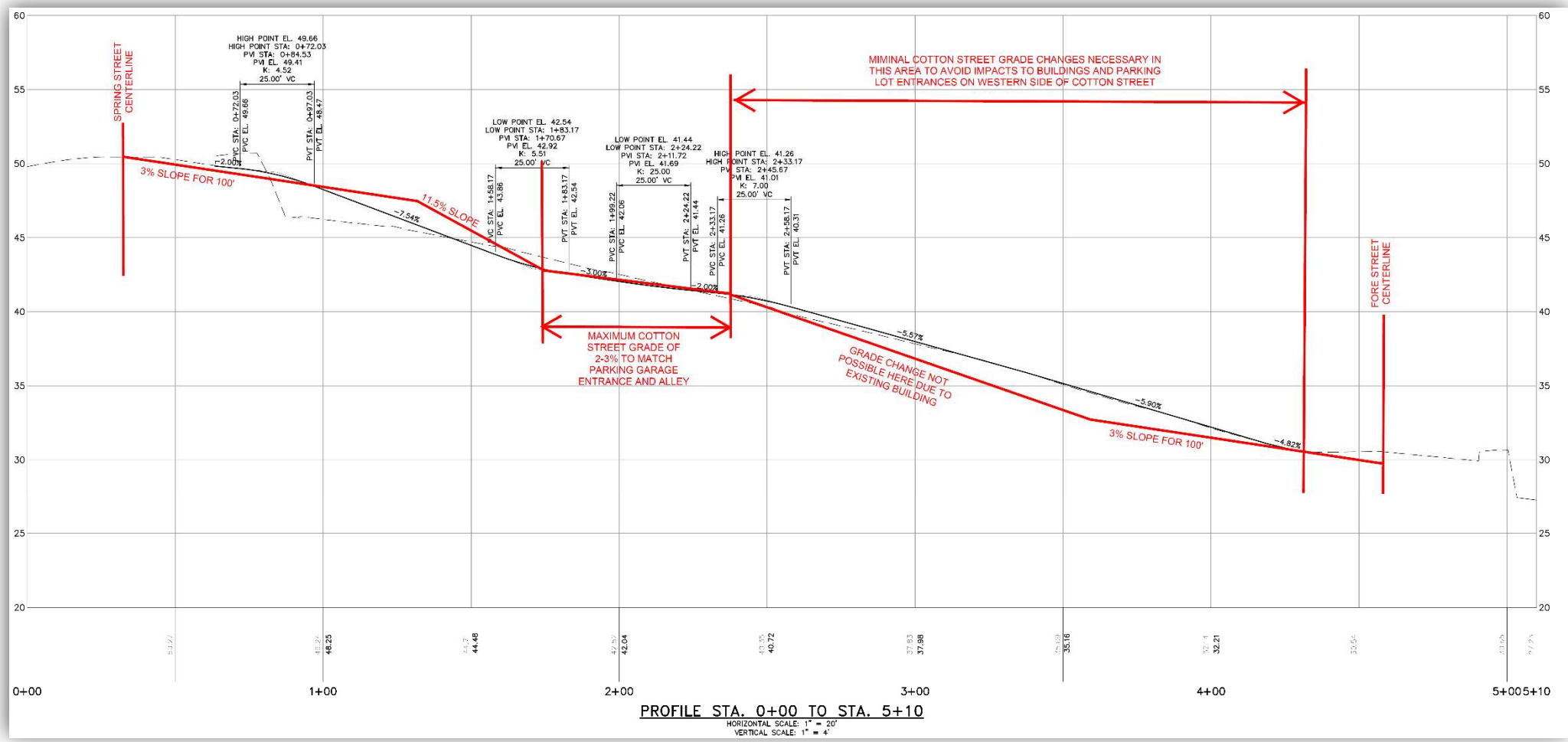
COTTON STREET

Cotton Street is currently a dead-end street with a turnaround and parallel on-street parking spaces. The existing street ends with a pedestrian staircase to Spring Street. The proposed project includes redesign of Cotton Street to connect Cotton Street to Spring Street. Cotton Street is anticipated to primarily be used for access to the parking garage on Level G. On-street parallel parking spaces are proposed along both sides of Cotton Street.

A mountable curb and sloped driveway apron will be provided at the alley entrance on Cotton Street to accommodate periodic or occasional access for building service vehicles. Removal bollards will be provided at this entrance to reinforce pedestrian engagement in the alley and to prevent vehicle traffic beyond the occasional scheduled service vehicles. The Cotton Street alley entrance will not be utilized as daily service access; daily access will be provided via the back-in service and loading area off of Upper Cross Street.

Cotton Street has been designed as a local street in accordance with Section 1 of the City of Portland Technical Manual; however, due to spatial constraints, some of the standards were not able to be met as described below:

- 14-foot Lane Width: *Per the Local Street Cross Section Figure I-1 in the City's Technical Manual, the minimum travel lane width is 14 feet.*
    - The proposed Cotton Street roadway is 36 feet wide, with two 10-foot lanes and two 8-foot parallel parking lane. Increasing the lane width to 14 feet would eliminate on-street parking.
- Street Grades at Intersections: *Per Section 1.4.1 in the Technical Manual, streets shall slope no more than three percent for the first 100 feet from the center of an intersection.*
    - We will not be able to achieve 100 feet at a maximum slope of 3% at either end of Cotton Street. The proposed grades were selected to balance existing grades, garage entrance requirements, and steepness of slopes. This is described below and represented in the figure on the following page.
        - In the existing condition, Cotton Street does not achieve this standard at the Fore Street end. We are not changing the grade at the Fore Street intersection, and much of Cotton Street grades must remain at the existing condition in order to minimize impacts to the existing buildings on Cotton Street.
        - In the existing condition, there is no connection between Cotton Street and Spring Street. To make this connection utilizing a 3% slope for 100 feet at Spring Street, maintaining grades at the Fore Street end of the street, and providing access to the garage entrance and alley, the remaining portion of Cotton Street would have a slope of 11.5%, as shown on the figure below.



PROFILE STA. 0+00 TO STA. 5+10

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

- K-values: As noted above, Cotton Street slopes from an elevation of 50' at Spring Street down to 31' at Fore Street and roadway grade is inflexible for the lower third of the roadway due to existing buildings. The relatively short length from Spring Street to Fore Street (400 feet) further constrains the vertical design of the roadway. Lastly, to provide entry to the parking garage and alley, the slope across the entrance must be no more than three percent. Given these constraints, the vertical curve design will not meet the design K-values for a local street as defined in the City's technical manual. The K-values proposed are 4.52 for crest and 5.51 for sag, compared to City Standards of 20 and 30, respectively. This is not anticipated to result in significant impacts on the traffic anticipated on Cotton Street.

We request waivers for these standards as reflected in the waiver table provided with the application.

SPRING STREET

Spring Street is under paving moratorium that expires in June 2021. It is anticipated that work within Spring Street will be phased to eliminate impacts to Spring Street while under moratorium. Per the City of Portland Sidewalk and Driveway apron policy, the Spring Street sidewalk will be converted from concrete to brick from Center Street to Union Street.

FORE STREET

The proposed parking structure features a retail/restaurant and office wrap along the Fore Street frontage. There are no garage entrances on Fore Street. The Fore Street paving moratorium expired in July 2019.

The sidewalk design along Fore Street includes the addition of a bump-out at the Cotton/Fore Street intersection to accommodate pedestrian crossing and the variable width sidewalk. A continuous 14' driving lane is provided on the northern side of Fore Street.

SITE IMPROVEMENTS

There is minimal site work proposed beyond the building footprints and roadway work. All alley and plaza site improvements are shown on the Landscaping and Site figures. Site grading and drainage has been designed to provide for pedestrian movements around the garage. Bicycle racks are provided around the site as shown on the Landscaping and Site figures. Site lighting has been proposed around the development to provide adequate light levels in accordance with the City standards. This has been shown on the proposed lighting plans.

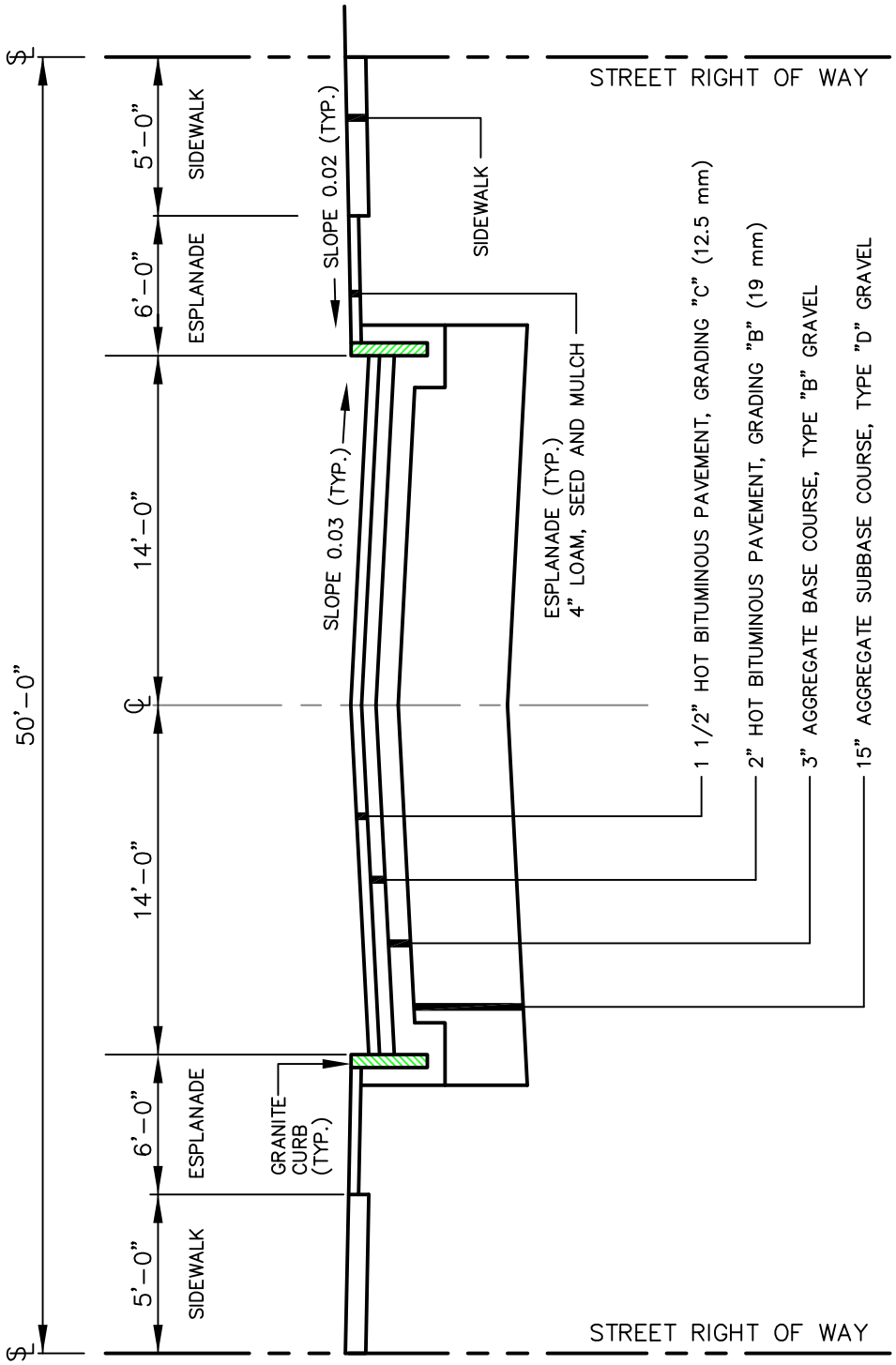
SNOW MANAGEMENT

There is minimal on-site space available for snow storage. Snow removal will be managed on all site surfaces, and the Applicant will contract with a removal company as required.

ATTACHMENTS

- Waiver Table

Standard to be Waived: Cite Ordinance or Technical Manual Standard	Cite Standard Language: Cite specific language of applicable Ordinance or Technical Manual Standard	Waiver Being Sought: Describe waiver being sought. Ex. – We are requesting a two-way parking lot drive aisle width of 20' feet.	Justification for Waiver: Address specific waiver criteria, if applicable, and document reasons for the waiver request.
Local Street Lane Width & Esplanade Technical Manual Section 1 Figure I-1 Local Street Cross Section	Refer to attached Figure I-1.	The proposed Cotton St ROW includes two 11-foot lanes, an 8-foot parallel parking lane, an existing 8-foot sidewalk and a proposed 12-foot sidewalk. Sidewalk on the western side of Cotton St will not be extended to Spring Street.	Increasing the lane width to 14-feet and adding esplanades would eliminate 13 proposed on-street parking spaces. Extending sidewalk on the western edge of Cotton St. would require extensive grading on private property not owned by the developer
Street Grades at Intersections Technical Manual Section 1.4.1	"Street grades at intersections shall not be more than three (3) percent for a distance of one hundred (100) feet from the center of the intersection."	Cotton St is proposed to slope at max. 2 percent for the first 44 feet from the Spring St centerline, and max. 3.89 percent for the first 48 feet from the Fore St centerline.	Meeting this standard would cause the road grade to exceed the maximum slope of 8 percent. The intersection of Cotton St and Fore St is proposed to remain the same due to adjacent buildings
K-Values Technical Manual Section 1.5	"The K values corresponding to the minimum vertical curve lengths for the above street classifications and vertical curve types(sag curve or crest curve) are as follows: Local Streets Crest Vertical Curves: K = 20	Cotton Street Crest Vertical Curves: K = 4.80 Sag Vertical Curves: K = 4.80	Setting vertical curves that meet the standard is impossible since there is not enough road length for the change in elevation (50' at Spring St to 31' at Fore St).



LOCAL STREET CROSS SECTION
NOT TO SCALE

DATE: AUGUST 2009 REVISED:	CITY OF PORTLAND, MAINE TECHNICAL STANDARDS MANUAL	**TRANSPORTATION SYSTEMS AND STREET DESIGN** SECTION I	FIGURE: **I-1**
	LOCAL STREET CROSS SECTION		

Bartlett Design
LIGHTING & ELECTRICAL ENGINEERING
5 PALMER STREET BATH, MAINE 04530
TEL (207) 443-5447

3 Portland Square
Portland, Maine

December 20, 2019
Revised January 30, 2020

PROPOSED SITE LIGHTING

Requirements for site lighting are addressed by the City of Portland in two documents: The City of Portland, Maine - Code of Ordinances, and the City of Portland - Technical Manual. Listed below are the issues pertaining to the proposed site lighting as relates to the two city documents.

The City of Portland - Maine Code of Ordinances
Chapter 14 – Land Use
Article V Site Plan
14-526.6 Exterior Lighting
a. Site Lighting
(i) All exterior site lighting, including lighting of building entrances, shall be full cut-off with no light emitted above the horizontal plane or spilled onto adjacent properties and streets. Illumination levels shall be adequate but not excessive for safety, comfort and convenience of occupants and users of the site and shall conform to applicable standards of Section 12 of the Technical Manual.

RESPONSE: The *Illuminating Engineering Society of North America* (*IESNA*) classifies exterior luminaires in the publication *IESNA* TM-15-11 according to their potential for producing uplight. The rating system is a numeric index that ranges from zero (no uplight) to five (greater than 1000 lumens uplight. The proposed building mounted lighting luminaires are classified as having the following uplight ratings:

- Type S2 (U0) Zero Uplight Component
- Type S3a (U0) Zero Uplight Component
- Type S3b (U0) Zero Uplight Component
- Type S4 (U0) Zero Uplight Component
- Type 6 (U0) Zero Uplight Component
- Type S8 (U1) 0.4 Uplight Lumens (*less than 1/100% of the luminaire total*)

Three new low-level bollard lights are proposed with the following uplight classification ratings:

- Type S5 (U1) 2.6 Uplight Lumens (*less than 1% of the luminaire total*)

The roof deck parking level includes pole mounted, and building mounted light fixtures.

- Type S9 (U0) Zero Uplight Component
- Type S11 (U0) Zero Uplight Component

14-526.6 Exterior Lighting
a. Site Lighting
(ii) For major or minor site plans within or abutting a residential use or zone where light from the proposed development may adversely impact adjacent residential properties, exterior lighting shall employ house-side shielding.

RESPONSE: Not applicable (project does not abut a residential zone.

14-526.6 Exterior Lighting

c. Street Lighting

(i) Municipal street lighting shall be adequate for the safety and comfort of pedestrians and motorists and, where applicable, shall conform to specific lighting district requirements, as specified in Section 10 of the Technical Manual.

RESPONSE: The proposed new street lighting along the section of Spring Street that faces the project site are provided according to the City of Portland - Technical Manual as Designation X-5F. The proposed new street lighting along Cotton Street and Fore Street that faces the project site are provided according to the City of Portland - Technical Manual as Designation X-6B.

IESNA publishes lighting recommendations for street lighting in *IESNA* RP-8-14 Roadway Lighting. For intersections that are classified as connecting Collector Streets (Spring Street and Fore Street) and Local Streets (Cotton Street), and that have a medium potential of pedestrian activity, the *IESNA* recommends an average of 1.6 footcandles and an average-to-minimum illuminance uniformity of 4-to-1, or less. The calculated illuminance at grade in the intersections that surround the project site are as follows:

- Spring Street/Cotton Street Intersection
  - Minimum: 0.9 footcandles — Maximum: 2.5 footcandles
  - Average: 1.8 footcandles — Average-to-Minimum Uniformity: 2.0-to-1
- Fore Street/Cotton Street Intersection
  - Minimum: 0.9 footcandles — Maximum: 2.7 footcandles
  - Average: 1.6 footcandles — Average-to-Minimum Uniformity: 1.8-to-1
- Fore Street/Cross Street Intersection
  - Minimum: 0.6 footcandles — Maximum: 2.9 footcandles
  - Average: 1.7 footcandles — Average-to-Minimum Uniformity: 4.8-to-1

The *American Association of State Highway and Transportation Officials* (*AASHTO*) recommends illuminance levels for streets in Roadway Lighting Guide-2005. The recommended standard for Cotton Street and Upper Cross Street, which are classified as Local/Commercial streets, is an average of 0.8 footcandles, and an average-to minimum uniformity of 6-to-1, or better. The recommended standard for Spring Street and Fore Street, which are classified as a Collector/Commercial street, is an average of 1.1 footcandles, and an average-to minimum uniformity of 4-to-1, or better.

The existing streetlights along Spring Street that are located between Cotton Street and Upper Cross Street are proposed to remain in use. Replacement 50-watt, LED streetlights on two existing utility poles are proposed to be provided along Cotton Street. Two new streetlights that match the existing streetlights on Spring Street are proposed along Fore Street along the sidewalk on the project side of the street. The extension of Cross Street is proposed to be lighted from the new building, along with the existing pole lights on the north side of the street.

- Spring Street
  - Minimum: 0.9 footcandles — Maximum: 2.3 footcandles
  - Average: 1.6 footcandles — Average-to-Minimum Uniformity: 1.7-to-1
- Fore Street
  - Minimum: 0.8 footcandles — Maximum: 3.8 footcandles
  - Average: 1.9 footcandles — Average-to-Minimum Uniformity: 2.7-to-1
- Cotton Street
  - Minimum: 0.3 footcandles — Maximum: 3.0 footcandles
  - Average: 1.3 footcandles — Average-to-Minimum Uniformity: 4.2-to-1

The City of Portland Technical Manual
Section 10 Municipal Street Lighting Standards
10.2 General Standards
10.2.1. Lighting Design – Standard street lighting design shall conform to the following table:

STREET CLASSIFICATION	COMMERCIAL/INDUSTRIAL	
	Min. Avg. Foot Candles	Maximum Pole Spacing
Collector	1.2	130' (30'pole)
Local/Minor	0.9	130' (30'pole)

RESPONSE: The proposed street lighting illuminance levels meet the City standards for average illuminance.

Section 10 Municipal Street Lighting Standards
10.2 General Standards
10.2.2. New Metered Services for Light Fixtures
- *New Light Fixtures shall:*
  - *a) Not to be tied to the existing power utility leased lighting system.*
  - *b) Be provided with a NEMA 7-pin receptacle for future connection to the City of Portland lighting control system. Coordinate with the City of Portland for final connection and control testing.*
  - *c) Be specified with a color temperature of 3000K.*

RESPONSE: The proposed new streetlights will be specified according to the City of Portland - Technical Manual Type X-5F along Spring Street, and Type X-6B along both Cotton and Fore Streets. They will be specified with a 3000K color temperature. New streetlights will be designed to be direct connected to existing CMP secondary service conductors in an unmetered service.

Section 10 Municipal Street Lighting Standards
10.3 Accessories & Bollards
10.3.2. Wiring & Electrical
- *2" conduit (minimum) underground in light pole bases and cabinet base.*
- *Each light fused individually at base. Fuse holder type is a (Buchanan 65 kit Cat # 65U)*
- *Regular outlet on each pole just below the fixture to be fused at the bottom of the pole base with the same fuse kit as listed above.*
- *Any single photocell control for all lights shall be in the cabinet, rated for the circuit. This may require an all-purpose contactor.*
- *Wire size and circuit size shall be calculated by the design engineer and inspected by the city inspector to make sure it is correct. This would be done on a case by case basis because not all circuits, lights and systems are the same.*

RESPONSE: Conduits serving proposed streetlight poles will be 1-1/4" because two 2" conduits will not fit in the base of the streetlight pole bases. The proposed new streetlights will be specified with fusing at the pole base. The proposed streetlight poles are being specified to include a receptacle outlet. The proposed new streetlights will be specified with an integral photocell control. The wiring conductors for the proposed streetlights has been calculated and is noted on the Electrical Site Plan, Drawing E1.1.

Section 12 Site Lighting Standards
12.3 General Standards
Outdoor lighting standards listed below apply to all new developments.12.3.
1. *Uniformity: As measured in foot candles at grade, maximum-to-minimum illumination levels shall not exceed a ratio of twenty (20) to one (1.).*

RESPONSE: The maximum-to-minimum illumination ratio for the proposed street lighting is:

- Cotton Street 10.0-to-1
- Fore Street 5.4-to-1
- Spring Street 2.6-to-1

---

2. *Illumination Levels: Minimum, Maximum, and Average illumination levels for areas intended to be lighted, as measured at grade, shall be:*

Minimum	*0.2 footcandles (fc*
Maximum	*5.0 footcandles (fc)*
Average	*1.25 footcandles (fc)*

RESPONSE: The illumination levels for the proposed street lighting and lighting of intersections are listed above on Pages 2 and 3 of this report. The proposed minimum and maximum illuminance levels conform to the 12.3.2 standard.

The maximum illuminance at vehicular garage entrances exceed the 12.3.2 standard, however, it is suggested that this is appropriate considering the potential for vehicle/pedestrian conflict at these areas.

---

3. *Lumens: No fixture shall exceed 20,000 lumens (+/- 3%)*

Types of Lighting	Maximum Lumens Allowed
Building Entrance	3,500 lumens

RESPONSE: No proposed light fixtures has a lumen rating exceeding 20,000 lumens. The combined lumen rating for multiple light fixtures at vehicular garage entrances exceeds the 12.3.3 standard, however as stated regarding illuminance levels at garage entrances, it is suggested that this is appropriate considering the potential for vehicle/pedestrian conflict at these areas.

The combined lumen rating for multiple light fixtures at the pedestrian building entrance at Fore Street is 4,798.0 lumens. The combined lumen rating for multiple light fixtures at the pedestrian building entrance at Spring Street is 14,394.0 lumens. Although this exceeds the 12.3.3 standard it is suggested that this is appropriate considering that these light fixtures illuminate the main entrances to the facility and have shielding to prevent glare from being seen off-site.

- Fixture Type S2 21.0 lumens
- Fixture Type 3a 3,047.3 lumens
- Fixture Type S3b 1,524.2 lumens
- Fixture Type S4 2,005.3 lumens
- Fixture Type S5 336.0 lumens
- Fixture Type S6 2,399.0 lumens
- Fixture Type S8 2,117.0 lumens
- Fixture Type S9 5,492.0 lumens
- Fixture Type S11 31.0 lumens

4. *Light Trespass: The maximum illumination level at a property line shall not exceed 0.1-foot candle, as measured at grade, except where abutting industrial, or other non-sensitive uses. When a commercial or industrial use abuts a public right-of-way, or another commercial or industrial use, lighting must be designed so that the illumination at the property boundary line does not exceed 1.0 foot-candles.*

RESPONSE: Lighting is provided to illuminate the abutting sidewalks and streets. Street lighting within these sidewalks and streets exceed 1.0 footcandle but have been provided in conformance with recommended safety standards.

---

5. *Luminaire Types: All fixtures must be LED and shall not exceed 3000K Correlated Color Temperature (CCT). Screw in light fixtures must have LED lamp specified to be maximum of 3000K CCT.*

RESPONSE: All proposed light fixtures will be specified to utilize LED lamps with 3000K CCT.

---

6. *Full Cut-off Fixtures and Shielding Required: All outdoor lighting fixtures, including pole mounted and wall mounted luminaires, shall be constructed Full "cut-off" or with full shielding, type where lenses, refractors or lamp sources do not extend below the surface of the fixture housing and no direct light shall be directed at or above the horizontal plane.*

   Where the light source from an outdoor light fixture is visible beyond the property line, shielding shall be required to reduce glare so that the light source is not visible from within any residential dwelling unit.

   Light fixtures mounted under a canopy shall be recessed to that the lens cover is recessed into, or flush with, the underside (ceiling) of the canopy.

RESPONSE: All proposed light fixtures have full shielding. No light fixtures are visible from adjacent residential dwelling units. The construction of the proposed canopies does not allow for recessed light fixtures. The proposed light fixtures to be surface mounted on the underside of entrance canopies (Type S6) include recessed lenses that do not project below the fixture housing.

---

7. *Pedestrian Walkway Lighting: Pedestrian walkway light fixtures can be a combination of freestanding pole, bollard, in-place step or building mounted fixtures. For building mounted fixtures, the proposed fixture type will be in scale with the building elevation on which it is to be installed and meet the fixture height provisions of 12.3.8. Pedestrian lighting (bollards) shall meet the technical manual standards for full cut-off or an exception may be considered under 12.2.11.*

RESPONSE: All proposed light fixtures meet the 12.3.7 requirements.

8. *Fixture Height: Fixtures shall be mounted at the lowest height necessary to meet city standards and the height is measured from grade to the bottom of the light fixture.*

Type of Lighting	Maximum Fixture Height
Commercial/Office Uses	20 feet
Building Mounted/Entrances	below the roof eave and not to exceed 20 feet, whichever is lower
Bollard Fixtures	42 inches (3.5 ft)

RESPONSE: All proposed light fixtures meet the 12.3.8 requirements. The maximum height of proposed building mounted lights is 20 feet (within the alley). The height of proposed bollard lights is 38-1/4 inches.

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9. *Lighting Curfew: For surface and structured parking, lighting in vehicle parking areas containing twenty (20) or more parking spaces shall be reduced to 50% of permitted levels from one hour after business closing to one hour before business opening. If lighting levels are already below 50% of permitted levels, no curfew adjustment is required. Motion sensor activated lighting shall be permitted during closing hours to activate additional lighting above the 50% permitted, for the purposes of public safety.*

RESPONSE: Interior lights within the parking garage, and roof deck garage parking lights, will be controlled by integral motion sensors to have their lighting level held at 50% of light output until motion is detected, whereupon the lighting shall automatically increase to 100% output. After 30 minutes without motion being detected, the lights shall automatically revert to 50% light output.

---

10. *Continued Maintenance: Lighting installations must be maintained in good repair to meet the provisions of this ordinance on an on-going basis.*

RESPONSE: All proposed lighting will be maintained in full working order.

---

11. *General Exceptions: proposed uses that demonstrate a need to exceed the specific site lighting limits shown below for safe and reasonable exercise of the proposed use must provide a professionally produced lighting plan which adheres to the current Illuminating Engineering Society of North America (IESNA) recommendations for the proposed use. The planning Authority may grant exceptions to the lighting standards with the finding that the light impacts do not create a public nuisance for abutting residential property. Unless otherwise specified below, exterior lighting shall conform to the recommendations put forth in Lighting for Exterior Environments RP-33-14, or its successor, published by the Illuminating Engineering Society of North America (IESNA). Lighting fixtures other than full cut-off fixtures may be allowed only if acceptable luminaires shall include internal and/or external glare control louvers and installed so as to minimize uplight and offsite light trespass.*

RESPONSE: The proposed lighting conforms to the recommendations published in Lighting for Exterior Environments RP-33-14

The following exceptions to the City of Portland – Maine Code of Ordinances are requested:

- Paragraph 14-526.6a(i)
  Proposed steplight Type S2 includes 0.4 lumens of uplight.
  Proposed bollard light Type S5 includes 2.6 lumens of uplight.

The following exceptions to the City of Portland Technical Manual are requested:

- Paragraph 10.3.2
  Proposed 1-1/4" conduit for street lighting circuits
- Paragraph 12.3.2
  Proposed maximum illuminance at garage vehicle entrances to be 10.6 footcandles (maximum)
- Paragraph 12.3.3
  Proposed combined lumens at the garage entrances: 6,094 lumens (maximum)
  Proposed combined lumens at the building entrance at Fore Street: 4,798.0 Lumens (maximum)
  Proposed combined lumens at the building entrance at Spring Street to be 14,394.0 Lumens (maximum)
- Paragraph 12.3.4
  Proposed illuminance greater than 1.0 footcandles at property lines as indicated on abutting sidewalks.

---

12. *Historic District, Architectural and Pedestrian Walkway Exception: Sites which are part of an historic district or require specific decorative lighting fixtures as means to achieve compatibility within an existing architectural context must meet the following standards:*
    a. *Lighting fixtures other than full cut-off fixtures may be allowed only if acceptable luminaires shall include internal and/or external glare control louvers and installed so as to minimize uplight and offsite light trespass.*
    b. *Low pressure sodium and metal halide lamps are prohibited.*

RESPONSE: The proposed building mounted lights above vehicle garage entrances (Type S3a) are specified to have a simple, rectangular profile that do not stand out as a style element. The proposed building mounted lights along the north, east and south facades (Type S4) are specified to be compatible with the building's architectural style. All proposed building mounted lights utilize LED lamps and have zero uplight component.

Section 12 Site Lighting Standards
12.5 Architectural and Specialty Lighting and Uplighting
RESPONSE: There is no architectural accent lighting, specialty lighting, or uplighting proposed.

Bartlett Design
LIGHTING & ELECTRICAL ENGINEERING
5 PALMER STREET BATH, MAINE 04530
TEL (207) 443-5447

3 Portland Square
Portland, Maine

December 20, 2019
Revised January 30, 2020

PROPOSED SITE LIGHTING LUMINAIRES AND STREET LIGHTING POLES

TYPE S1: NEW STREET LIGHT POLE AND LUMINAIRES MATCHING TYPE X-5F AS DESCRIBED IN THE CITY OF PORTLAND TECHNICAL MANUAL.

TYPE S1a: EXISTING STREET LIGHT TO REMAIN.

TYPE S1b: EXISTING POST LIGHT POLE AND LUMINAIRE MATCHING TYPE X-1 AS DESCRIBED IN THE CITY OF PORTLAND TECHNICAL MANUAL TO BE RELOCATED.

TYPE S2: RECESSED STEP LIGHT TO BE INSTALLED IN SEATING WALL WITH TOP OF LIGHT FIXTURE 4 INCHES BELOW WALL CAP.

TYPE S3a: 6'-0" LONG, LINEAR DOWNLIGHT TO BE MOUNTED ABOVE GARAGE VEHICLE ENTRANCES.

TYPE S3b: 3'-0" LONG, LINEAR DOWNLIGHT TO BE MOUNTED ABOVE GARAGE ELECTRICAL ROOM DOOR.

TYPE S4: WALL MOUNTED LIGHTS TO BE INSTALLED AROUND THE SPRING STREET, COTTON STREET, FORE STREET AND UPPER CROSS STREET BUILDING FACADES.

TYPE S5: 38-1/2" TALL BOLLARD LIGHT WITH SYMETRICAL OPTICAL DISTRIBUTION.

TYPE S6: DOWNLIGHT MOUNTED ON UNDERSIDE OF ENTRANCE CANOPY.

TYPE S7: EXISTING POST LIGHT ON ADJACENT PROPERTY OWNED AND OPERATED BY OTHERS.

TYPE S8: WALL MOUNTED AREA DOWNLIGHT TO BE INSTALLED ALONG THE SERVICE ALLEY. THE LIGHTS WILL BE INSTALLED 20'-0" ABOVE GRADE.

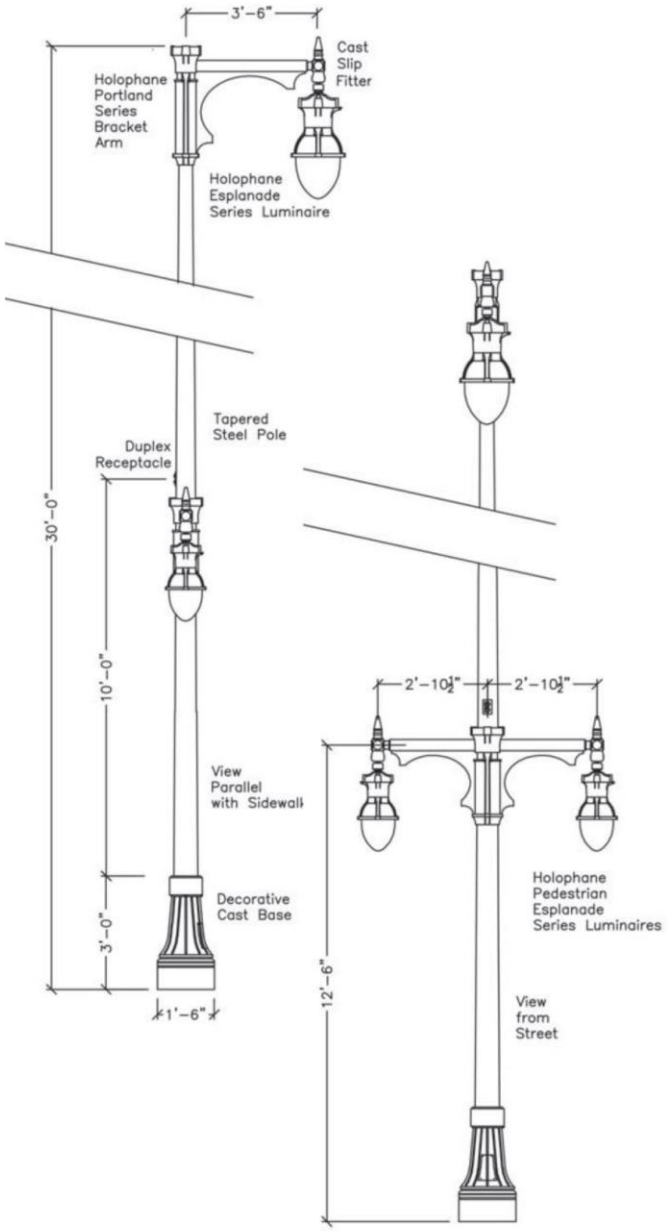
TYPE S9: NEW PARKING DECK LIGHT POLE AND LUMINAIRES TO INCLUDE A 16’-0” TALL POLE MOUNTED ON A 30-INCH RACHED CONCRETE FOUNDATION BASE.

TYPE S10: NEW STREET LIGHT POLE AND LUMINAIRES MATCHING TYPE X-6B AS DESCRIBED IN THE CITY OF PORTLAND TECHNICAL MANUAL.

TYPE S11: WALL MOUNTED LIGHT TO BE INSTALLED ON THE OUTSIDE WALL OF THE ELEVATOR LOBBY AT THE PARKING DECK LEVEL. THE LIGHT WILL BE INSTALLED 8’-0” ABOVE THE PARKING DECK.

PORTLAND | me

Street & Sidewalk Lighting
DECORATIVE LIGHT - DOWNTOWN



LUMINAIRE
Holophane Esplanade LED II
Model:
ESL2-P20S-30K-AS-CMC-TG3-S-P7-NL2X2-BHDF13-200CMC

Cast aluminum housing with stainless steel hardware. Dropped refractor shall be thermal resistant borosilicate glass. Internal reflector and prismatic diffuser shall provide an IES Type IV distribution pattern. Luminaire shall include an integral ballast with modular wiring connectors and multi-volatage taps. Provide an internal receptacle type photocell control. LED 3000K color temperature

BRACKET ARM
Holophane Portland Series steel (custom)
Top Bracket Arm: Steel crossarm with a post-top fitting for a 3 1/2" by 8" tenon
Model: PD42-CA-RAL6012
Lower Bracket Arm: Steel dual crossarm
Model: PD69-CA-RAL6012

SLIP FITTER
Holophane
Model: WLLF200S-CA-RAL6012
2-3/8" O.D. with swivel cast fitter.

LIGHTING POLE
Holophane
Model: PM-18-CSB-CA-RAL6012

Tapered steel pole smooth shaft rated for a 90mph wind load with a 1.3 gust factor. Provide four hot-dipped galvanized steel L-type anchor bolts. Lighting pole shall be hot dip galvanized prior to powder coat paint.

DECORATIVE BASE
Holophane
Model: PM18CSB-CA-RAL6012
Decorative clamshell cast aluminum base. Hardware shall be stainless steel.

DIMENSIONS
Overall Height = 30' 0"
Upper Bracket Arm Length = 3' 6"
Lower Bracket Arm Length = 2' 10 1/2"
Base Diameter = 18"

FINISH
Dark Green: RAL-6012 (custom)

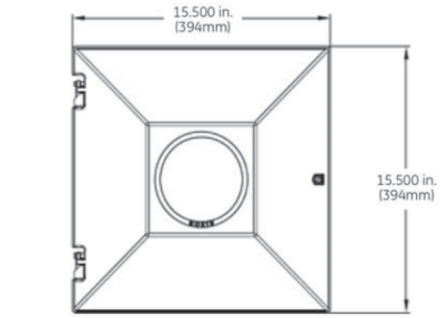
APPLICATION
Street/pedestrian lighting combination.
Spacing:
One side: 90' - 100' on center
Alternating sides: 175' - 225' on center
Double-arm bracket arms parallel to sidewalk.

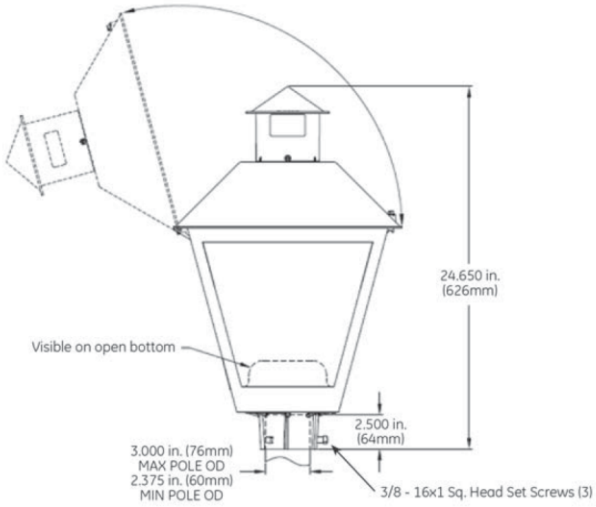
Date: **March, 2019**	**CITY OF PORTLAND, MAINE** TECHNICAL MANUAL	**MUNICIPAL STREET LIGHTING STANDARDS** SECTION 10	Figure: **X-5F**
Revised Date:	**DOWNTOWN COMBO**		

PORTLAND | me

Street & Sidewalk Lighting
STANDARD - RESIDENTIAL

Town & Country Post Top (EPTT)





LUMINAIRE
GE Evolve LED Post Top Town & Country (EPTT)
Model: EPTT-01-0-06-D-A-30-A-P-BLCKR-R

Die-case aluminum housing with acrylic refractor in white opal.

Pole-mounted, secondary surge protection
Voltage (120 through 277V)
Asymmetric HO, 56 watt
LED 3000K color temperature

LIGHTING POLE
Aluminum, smooth tapered pole with 5/32" thickness (.156").

EPA rating from 4.6 to 6.9 (using 110mph wind speed ratings from AAHTO).

Maximum weight capacity = 75-100 lbs.

Base bolt pattern: 10" diagonal.

DIMENSIONS
Pole Height = 15' max.
Pole Diameter = 6" base tapered to 3"

FINISH
Black (standard)

APPLICATION
Standard sidewalk lighting for residential streets not specified for decorative lighting.

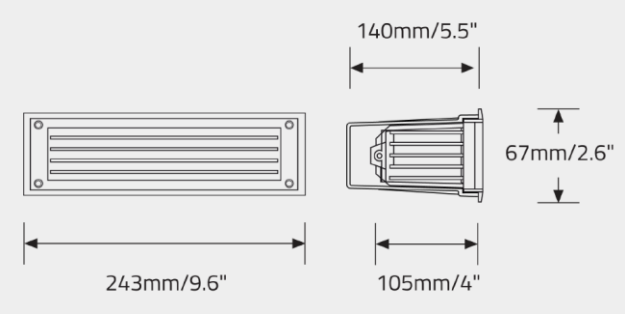
Spacing: According to Section 10.2.1

Fixture placed in furnishing zone unless space is limited. Placement on back of sidewalk or private property near sidewalk may be accommodated where space is a constraint.

Date: **March, 2019**	**CITY OF PORTLAND, MAINE** TECHNICAL MANUAL	**MUNICIPAL STREET LIGHTING STANDARDS** SECTION 10	Figure: **X-1**
Revised Date:	**RESIDENTIAL**		

TYPE S1a: Existing to remain





Housing: Low copper, die-cast aluminum highly resistant to oxidation.
Diffuser: 4mm/0.2" tempered glass.
Gasket: Silicone.
Finish: Powder coated.
Reflectors: High purity aluminum.
External screws: A4 stainless steel treated with highly antioxidant water-repellent lubricating solution to ensure easy opening.
Cable entry: Double silicon gland for DIA 10-14mm/0.4-0.5" cables.
Drivers: HPF, electronic 120-277V.
Rough-in housing: Thermoplastic.
Mechanical: For wall installation in poured concrete/brick.
Delivered Lumens: Delivered lumens & LPW based on 3000K (min 80 CRI).

Code	Power (LED)	Delivered lms
820 7610	6W	21

30	3000K (min 80 CRI)
40	4000K (min 80 CRI)
TF	Amber LED (Turtle Friendly)

BL	Black
AG	Anthracite Gray
GR	Light Gray

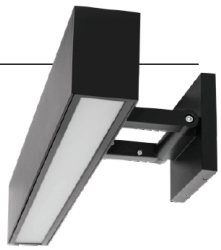
DB	Dimming (0-10V, 10%)

RIH6503	Rough-In Housing

BETA-CALCO INC.

Pursuit™ – Direct (Down)

TYPE



FEATURES

- 2', 3', 4', 6' & 8' housing lengths
- Sections can be joined for runs up to 150' with seamless lens
- IP66 Rated
- Light engine is independently rated IP67
- Electrical connections IP68 rated
- Symmetric, asymmetric, wall graze & wall wash distributions
- "L", "T" & "X" illuminated connectors for custom shapes
- NX Distributed Intelligence & SiteSync enabled for wireless control
- Output up to 1,500 lm/ft
- Surface, fixed arm, adjustable arm, pendant, mullion & wall mounting options

NX DISTRIBUTED INTELLIGENCE™ SiteSync LIGHTING CONTROL c UL us IK08 DLC DLC PLUS LISTED

1	2	3	4	5	6	7	8	9	10	11	12
RN	D										
Model	Light Engine	Row Length	Max Section Length	Output	Color Temp	Down Distribution	Shielding	Voltage	Mounting	Options	Finish

1. MODEL

RN	Pursuit

2. LIGHT ENGINE

D	Direct (Down)

3. ROW LENGTH

Manual input (150' Max length. round up to nearest whole foot)

4. MAXIMUM FIXTURE SECTION LENGTH

2	2' Fixture
3	3' Fixture
4	4' Fixture
6	6' Fixture
8	8' Fixture

5. OUTPUT

5	500 lumens/ft
7	750 lumens/ft
10	1000 lumens/ft
15	1500 lumens/ft

6. COLOR TEMPERATURE

3K8	3000K, 80 CRI
3K9	3000K, 90 CRI
4K8	4000K, 80 CRI
4K9	4000K, 90 CRI
5K8	5000K, 80 CRI

Consult factory for additional CCT options.

7. DISTRIBUTIONS

SM	Symmetrical
AS	Asymmetrical
WG	Wall graze
WW	Wall wash

8. SHIELDING

DL	Diffuse lens
CL	Clear lens

9. VOLTAGE

UNV	120-277V
347	347V
480	480V

10. MOUNTING

W	Wall
A3	3" Adjustable arm
A6	6" Adjustable arm
A12	12" Adjustable arm
F3	3" Fixed arm
F6	6" Fixed arm
F12	12" Fixed arm
M	Mullion
S	Surface
PSW12	12" Pendant
PSW24	24" Pendant
PSW36	36" Pendant

11. OPTIONS

EMF1	End Power Feed at one end
EMF2	End Power Feed at both ends

Photocell Options

PC	Button photocell (1)

Control Options - Not available with PC (1)

SCP	Dimming Occupancy Sensor
SWP	SiteSync Wireless
SWPM	SiteSync Wireless with SCP
NXWE	NX Wireless Enabled
NXOSW	NX Wireless, PIR Occupancy Sensor, Dimming Daylight Harvesting

Emergency Battery Option

EM	Battery Backup Unit (-20°C) (2)

12. FIXTURE FINISH

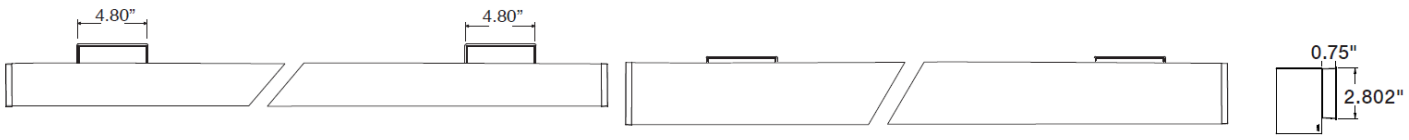
Standard Color

BL	Black
BLT	Matte Black
DB	Dark Bronze
GT	Graphite
MG	Medium Grey
TT	Titanium
WH	White
CUSTOM	Custom Color

Note:

(1) Requires auxiliary housing. Fixture length will increase.

(2) Integral battery backup for 3, 4, 6 and 8 foot versions only. Not available on 2' housing.



architectural arealighting
ARCHITECTURAL AREA LIGHTING
17760 Rowland Street | City of Industry | CA 91748
P 626.968.5666 | F 626.369.2695 | www.aal.net
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Section Length	Lumens/ft	Nominal Lumen Package	System Watts	Distributions Type	Shielding	5K8 (5000K nominal, 80CRI)		4K9 (4000K nominal, 90CRI)		4K8 (4000K nominal, 80CRI)		3K9 (3000K nominal, 90CRI)		3K8 (3000K nominal, 80CRI)	
						Lumens	LPW[1]	Lumens	LPW[1]	Lumens	LPW[1]	Lumens	LPW[1]	Lumens	LPW[1]
3FT	500	1,500	19	SM	Diffuse	1838	97	1435	76	1772	94	1383	73	1708	90
					Clear	2058	109	1607	85	1984	105	1549	82	1912	101
				AS	Diffuse	1640	87	1280	68	1581	84	1234	65	1524	81
					Clear	1851	98	1445	76	1785	94	1393	74	1720	91
				WG	Diffuse	1934	102	1510	80	1864	99	1455	77	1797	95
					Clear	2145	113	1675	89	2068	109	1615	85	1993	105
				WW	Diffuse	1640	87	1280	68	1581	84	1234	65	1524	81
					Clear	1851	98	1445	76	1785	94	1393	74	1720	91
	750	2,250	28	SM	Diffuse	2657	94	2075	73	2561	90	2000	70	2469	87
					Clear	2955	104	2308	81	2849	100	2224	78	2746	97
				AS	Diffuse	2370	83	1851	65	2285	80	1784	63	2203	78
					Clear	2676	94	2090	74	2580	91	2014	71	2487	88
				WG	Diffuse	2795	98	2183	77	2695	95	2104	74	2598	91
					Clear	3101	109	2422	85	2990	105	2334	82	2882	101
				WW	Diffuse	2370	83	1851	65	2285	80	1784	63	2203	78
					Clear	2676	94	2090	74	2580	91	2014	71	2487	88
	1,000	3,000	38	SM	Diffuse	3398	89	2654	69	3276	86	2558	67	3158	83
					Clear	3785	99	2955	77	3649	96	2849	75	3517	92
				AS	Diffuse	3032	79	2368	62	2923	77	2282	60	2817	74
					Clear	3423	90	2673	70	3300	86	2577	67	3181	83
				WG	Diffuse	3576	94	2792	73	3447	90	2691	70	3323	87
					Clear	3967	104	3098	81	3824	100	2986	78	3686	96
				WW	Diffuse	3032	79	2368	62	2923	77	2282	60	2817	74
					Clear	3423	90	2673	70	3300	86	2577	67	3181	83
6FT	500	3,000	37	SM	Diffuse	3675	100	2870	78	3543	96	2766	75	3415	93
					Clear	4116	112	3214	87	3968	108	3098	84	3825	104
				AS	Diffuse	3279	89	2561	69	3161	86	2468	67	3047	83
					Clear	3702	100	2891	78	3569	97	2787	76	3440	93
				WG	Diffuse	3867	105	3020	82	3728	101	2911	79	3594	97
					Clear	4290	116	3350	91	4136	112	3229	88	3987	108
				WW	Diffuse	3279	89	2561	69	3161	86	2468	67	3047	83
					Clear	3702	100	2891	78	3569	97	2787	76	3440	93
	750	4,500	56	SM	Diffuse	5313	95	4149	74	5123	91	3999	71	4938	88
					Clear	5910	105	4615	82	5698	101	4449	79	5492	98
				AS	Diffuse	4741	84	3702	66	4571	81	3569	63	4406	78
					Clear	5352	95	4180	74	5160	92	4029	72	4974	89
				WG	Diffuse	5591	99	4366	78	5390	96	4208	75	5196	92
					Clear	6202	110	4844	86	5980	106	4669	83	5764	103
				WW	Diffuse	4741	84	3702	66	4571	81	3569	63	4406	78
					Clear	5352	95	4180	74	5160	92	4029	72	4974	89
	1,000	6,000	76	SM	Diffuse	6796	89	5307	70	6552	86	5116	67	6316	83
					Clear	7569	99	5911	77	7297	96	5697	75	7034	92
				AS	Diffuse	6064	79	4735	62	5846	77	4564	60	5635	74
					Clear	6846	90	5346	70	6600	87	5153	68	6362	83
				WG	Diffuse	7151	94	5584	73	6894	90	5383	71	6645	87
					Clear	7933	104	6195	81	7649	100	5972	78	7372	97
				WW	Diffuse	6064	79	4735	62	5846	77	4564	60	5635	74
					Clear	6846	90	5346	70	6600	87	5153	68	6362	83

TYPE S3a: 6-ftoot length; **TYPE S3b:** 3-foot length

architectural arealighting
ARCHITECTURAL AREA LIGHTING
17760 Rowland Street | City of Industry | CA 91748
P 626.968.5666 | F 626.369.2695 | www.aal.net
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TORRES WALL MOUNT



Torres lights are a beautiful complement to urban landscapes and traditional and contemporary architecture, improving, but not altering, the composition. Advanced LED and optic design provide directed warm white light with superior visibility to extend the safe use of outdoor spaces. Torres lights are cast aluminum and offered in a full color palette finished with Landscape Forms proprietary Pangard II® HAPS, VOC, and lead-free polyester powdercoat.

General Description

- Aluminum wall mount bracket included
- Cast aluminum luminaire ships prewired and fully assembled
- Zero up-light, International Dark-Sky approved
- UL Listed, suitable for wet locations

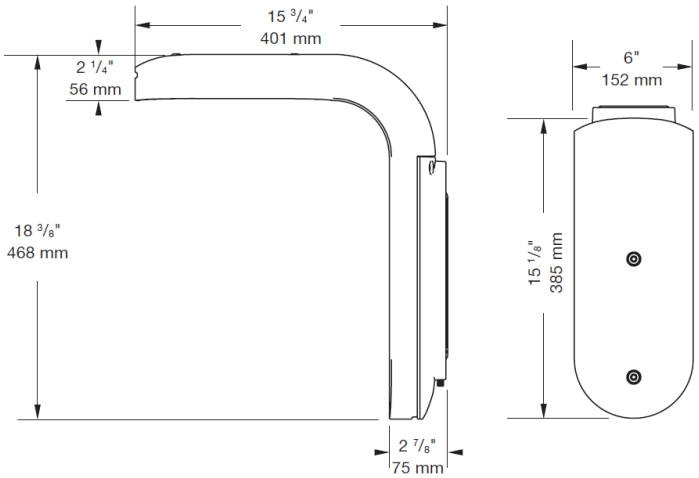
Electrical

Surge protected 100V-277V 50/60 Hz, Class 2 integrated dimmable driver. LED cartridge with weatherproof quick disconnect provides ease of installation and serviceability. Torres wall mount light ships prewired.

Torres Wall Mount Light i4

Type 3 Distribution
Lamp: 4 Cree XHP50 LEDs
CCT: 3000K, 3500K, 4000K
L70: >100,000 hrs
Drive Current: 1000mA
Optic: LEDiL
Lens: Diffused Acrylite®
Power Supply: 100V-277V
LED Driver: TRP LED50W-048-C1050-D
Dimmable: 0-10V
BUG Rating: B0 U0 G1
IP Rating: IP66 for LED Cartridge
Weight: 23 lbs

Product	Lamp	Drive Current	Color Temp.	Input Voltage	Mounting
AH TORRES	004L3 (i4, 4 LED Type 3)	100F (1000 mA)	40K (4000K) 35K (3500K) 30K (3000K)	UV1 (100-277VAC)	MW1 (Wall Mount)



landscapeforms®

FGP PATH LIGHT



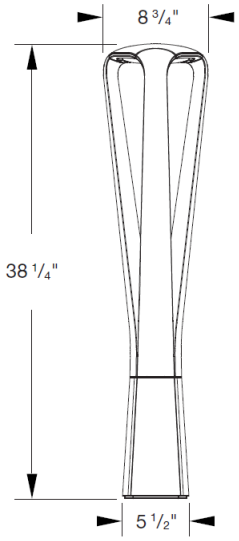
The FGP path light has a pleasing flower-like organic form created by three stems that rise from the connection with the base. The soft, triangular head holds LEDs in triangular arrays that cast illumination between the verticals in a clean footprint.

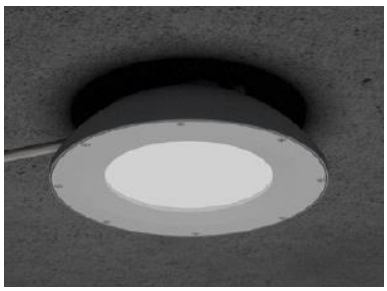
High-design surface mounted LED path light uses aiming angles, color rendering and glare reduction to shape and enhance lighting performance. Aluminum cartridge houses energy efficient LEDs and provides excellent thermal management. Fixture is made of durable cast aluminum with galvanized steel base plate. Mounting hardware and template included for ease of installation.

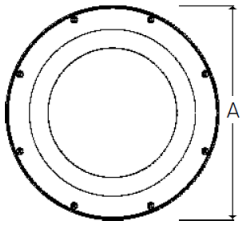
FGP Path Light Type 5

Type 5 Distribution
Lamp: 9 Cree XP-E2 LEDs
CCT: 3000K, 3500K, 4000K
Drive Current: 350mA
Optic: 9 Khatod Collimators
Lens: Diffused Acrylite®
Power Supply: 100V-277V
LED Driver: TRP LED12W-036
BUG Rating: B1 U1 G1
IP Rating: IP66 for LED Cartridge
Weight: 31lbs

Product	Lamp	Drive Current	Color Temp.	Input Voltage
AG FGP	400L4 (6 LED, Type 4) 400L5 (9 LED, Type 5)	035F (350 mA)	40K (4000K) 35K (3500K) 30K (3000K)	UV1 (100-277VAC)









A	B	Weight
12" (304mm)	3.1" (78mm)	8lbs (3.6kg)

SRT1 EDGE-LIT

- For ceiling mount and parking garage applications from an 8–15 foot mounting height
- Edge-lit flat lens for optimal visual comfort and uniformity across the lens
- Two optical distributions specifically design for parking garage and canopy applications are available making the Beacon Edge-Lit luminaire both versatile and functional
- UL/cUL listed for we locations, IP65 and 3G vibration rated
- Occupancy sensor available for complete on/off and dimming operation

HOUSING

- Die-cast aluminum housing ensures long electrical component life and luminaire performance
- Corrosion resistant powder coat finish both protects and provides architectural appearance
- One piece molded silicone gasket ensures weather proof seal
- Thermally isolated driver mounted to dedicated bracket reduces operating temperatures and increases driver life and reliability

Series	
SRT1	Edge-Lit Parking Garage Size 1

Engine	
20	20W Nominal 2500 lm
35	35W Nominal 4000 lm
55	55W Nominal 6000 lm

CCT	
3K7	3000K, 70 CRI
3K8	3000K, 80 CRI
35K7	3500K, 80 CRI
4K7	4000K, 70 CRI
4K8	4000K, 80 CRI
5K7	5000K, 70 CRI

Distribution	
5QW	Type 5 Square Wide
5C	Type 5 Concentrated

Voltage	
UNV	120V-277V
120	120V
208	208V
240	240V
277	277V

Color/Finish	
BL	Textured Black
DB	Textured Dark Bronze
GT	Graphite Textured
GYS	Smooth Gray
PS	Smooth Plat. Silver
WH	Textured White
CC	Custom Color

Nominal Watts	Nominal Lumens	Distribution	5K (5000K NOMINAL 70 CRI)					4K (4000K NOMINAL 70 CRI)					3K (3000K NOMINAL 70 CRI)				
			Lumens	LPW	B	U	G	Lumens	LPW	B	U	G	Lumens	LPW	B	U	G
20	2500	5QW	2446	113	1	0	1	2434	113	1	0	1	2312	107	1	0	1
		5C	2539	118	1	0	1	2527	117	1	0	1	2400	111	1	0	1

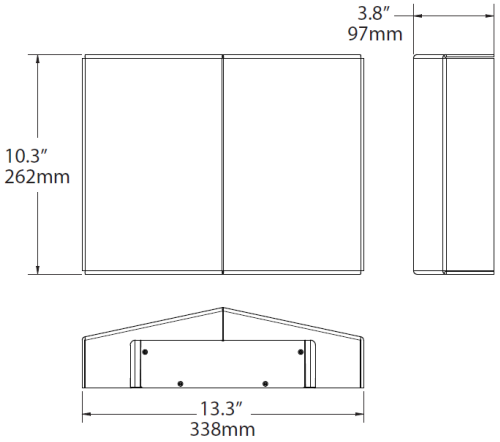


CAND2 Candela LED Post Top

TYPE S7: Existing post light on adjacent property north of the project site (no new lights proposed)

LUMEC





SERIES-OUTPUT (Base)

CY1-15	15w, 1500 nominal lumens
CY1-25	25w, 2500 nominal lumens

CCT-CRI

27K8	2700K, 80CRI
3K7	3000K, 70CRI
3K8	3000K, 80CRI
4K7	4000K, 70CRI
4K8	4000K, 80CRI
5K7	5000K, 70CRI

MODEL (Light Engine)

1	DownLight Only
2	50/50 Down/Up, **Down/Up distributions must match**
3	90/10 Down/Up
4	25/25/25/25 Split, **Down/Up/ Side distributions must match**
5	70/10/10/10 Split, **Top/Side distributions must match**

Contact factory for custom distributions,
See Distribution Matrix on page 2 for restrictions.

MAIN DISTRIBUTION (Down)

1	IES Type I
2	IES Type II
3	IES Type III
4	IES Type IV
SP	15° Spot/Column
WG	60° Wall Graze
1D	Type 1 Diffused
2D	Type 2 Diffused
3D	Type 3 Diffused
4D	Type 4 Diffused

VOLTAGE

UNV	120-277V

BASE HOUSING FINISH

Standard Colors

AGN	Antique Green
BL	Black
BLT	Matte Black
CRT	Corten
DB	Dark Bronze
DGN	Dark Green
GT	Graphite
LG	Light Grey
MAL	Matte Aluminum
MDB	Metallic Bronze
MG	Medium Grey
TT	Titanium
VBU	Verde Blue
WDB	Weathered Bronze
WH	Arctic White

FASCIA FORM

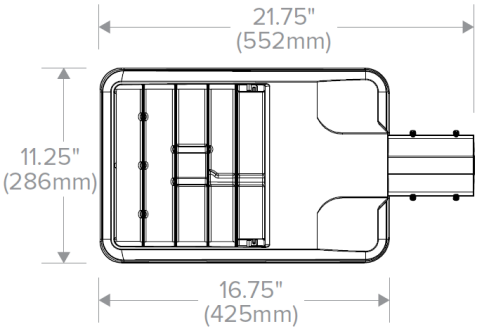
F	Flat
R	Radius/Curved
T	Triangle/Wedge
E	Rounded Edge
C	Circle/Curved
CB	Cylinder Balanced
CT	Cylinder Tall
CBM	Custom Building Material Mount Ghost Fascia

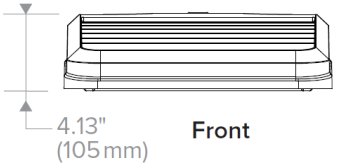
architectural arealighting
ARCHITECTURAL AREA LIGHTING
17760 Rowland Street | City of Industry | CA 91748
P 626.968.5666 | F 626.369.2695 | www.aal.net
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			5000K 70 CRI					4000K 70 CRI					3000K 70 CRI				
2,500	26	Type 1	2517	96	0	0	0	2524	97	0	0	0	2390	92	0	0	0
		Type 2	2233	85	1	0	1	2239	86	1	0	1	2120	82	1	0	1
		Type 3	2229	85	1	0	1	2236	85	1	0	1	2117	80	1	0	1
		Type 4	2319	88	1	0	1	2325	89	1	0	1	2201	85	1	0	1
		Wall Graze	2744	104	2	0	0	2752	106	2	0	0	2605	100	2	0	0
		Spot/Column	2471	94	2	0	0	2478	95	2	0	0	2346	90	2	0	0
		Type 1 Diffused	2344	89	1	0	1	2350	90	1	0	1	2225	86	1	0	1
		Type 2 Diffused	2062	79	1	0	1	2068	80	1	0	1	1958	75	1	0	1
		Type 3 Diffused	2050	78	1	0	1	2056	79	1	0	1	1946	75	1	0	1
		Type 4 Diffused	2123	80	1	0	1	2129	82	1	0	1	2016	78	1	0	1

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CONSTRUCTION

- Manufactured with die cast aluminum
- Coated with a polyester finish that meets ASTM B117 corrosion test requirements and ASTM D522 cracking and loss of adhesion test requirements
- IFS polyester powder-coat electrostatically applied and thermocured. IFS finish consists of a five stage pretreatment regimen with a polymer primer sealer and top coated with a thermoset super TGIC polyester powder coat finish
- The finish meets the AAMA 2604 performance specification which includes passing a 3,000-hour salt spray test for corrosion resistance and resists cracking or loss of adhesion per ASTM D522 and resists surface impacts of up to 160 inch-pounds
- External hardware is corrosion resistant

OPTICS

- Cartridge is held together with internal brass standoffs soldered to the board so that it can be field replaced as a one-piece optical system
- One-piece silicone gasket ensures a weatherproof seal around each individual optic
- One-piece optical cartridge system consisting of an LED engine, optics, gasket and stainless steel bezel

INSTALLATION

- Mounting options for horizontal arm, vertical tenon or traditional arm mounting available. Mounting hardware included

ELECTRICAL

- Luminaire accepts 100V through 277V, 347V or 480V input 50 Hz to 60 Hz (UNV)
- Power factor is ≥ .90 at full load
- Dimming drivers are standard, but must contact factory to request wiring leads for purpose of external dimming controls
- Component-to-component wiring within the luminaire may carry no more than 80% of rated load and is certified by UL for use at 600VAC at 90°C or higher
- Plug disconnects are certified by UL for use at 600 VAC, 13A or higher. 13A rating applies to primary (AC) side only
- Fixture electrical compartment contains all LED driver components and a push-button terminal block for AC power connections
- Optional 7-pin ANSI C136.41-2013 Twist-Lock® photo control receptacle available. Compatible with ANSI C136.41 external wireless control devices
- Ambient operating temperature -40°C to 25°C
- Surge protection: 20kA
- Lifeshield™ Circuit (see Electrical Data)

CONTROLS

- Available with an optional passive infrared (PIR) motion sensor capable of detecting motion 360° around the luminaire. When no motion is detected for the specified time, the motion response system reduces the wattage to factory preset level, reducing the light level accordingly. When motion is detected by the PIR sensor, the luminaire returns to full wattage and full light

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VPS –

Series	
VPS	Viper Small

–

LED Engine	
24L-55	55W, LED array
36L-65	65W, LED array
36L-80	80W, LED array
48L-110	110W, LED array
60L-136	136W, LED array

–

CCT/CRI[7]	
3K7	3000K, 70 CRI
4K7	4000K, 70 CRI
5K7	5000K, 70 CRI

–

Distribution	
FR	Type 1/Front Row
2	Type 2
3	Type 3
4	Type 4
4W	Type 4 Wide
5QM	Type 5QM
5R	Type 5R (rectangular)
5W	Type 5W (round wide)
TC	Tennis Court

–

Rotation	
Blank	No rotation
L	Optic rotation left[5]
R	Optic rotation right[5]

–

Voltage	
UNV	120–277V
347	347V
480	480V

–

Mounting	
A	Rectangular Arm (formerly RA) for square or round pole
MAF	Mast Arm Fitter (formerly SF2) for 2⅜" OD horizontal arm
K	Knuckle (formerly PK2) limit to 30° tilt or 2⅜" OD horizontal arm or vertical tenon
WB	Wall Bracket
AD	Universal Arm for square pole
AD3	Adapter for 2.4"–4.1" round pole
AD4	Adapter for 4.2"–5.3" round pole
AD5	Adapter for 5.5"–5.9" round pole
AD6	Adapter for 6.0"–6.5" round pole

–

Color	
BL	Black Textured
DB	Dark Bronze Textured
GYS	Light Gray Smooth
PS	Platinum Silver Smooth
WH	White Textured
CC	Custom Color

–

Control Options	
7PR	7-Pin Receptacle only (shorting cap, photo control, or wireless control provided by others)
7PR-SC	7-Pin Receptacle w/Shorting Cap
7PR-TL	7-Pin Receptacle w/Twist-Lock® photo control
SCP/_F	Programmable Occupancy Sensor w/ daylight control[1,2,6]
GENI-XX	ENERGENI[3]
SWP	SiteSync Pre-Commission[1,4]
SWPM_F	SiteSync Pre-Commission w/ Sensor[1,2,4]

–

Options	
F	Fusing
BSP	Bird Spikes
BC	Backshield (available for FR, 2, 3, 4, 4W Optics)

Accessories and Services (Ordered Separately)

☐ SCP-REMOTE	Remote Control for SCP/_F option. Order at least one per project to program and control the occupancy sensor
☐ SWUSB*	SiteSync interface software loaded on USB flash drive for use with owner supplied PC (Windows based only). Includes SiteSync license, software and USB radio bridge node
☐ SWTAB*	Windows tablet and SiteSync interface software. Includes tablet with preloaded software, SiteSync license and USB radio bridge node
☐ SWBRG	SiteSync USB radio bridge node only. Order if a replacement is required or if an extra bridge node is requested
☐ SW7PR+	SiteSync 7-Pin on fixture module On/Off/Dim, Daylight Sensor 120–480VAC

* When ordering SiteSync at least one of these two interface options must be ordered per project.
+ Available as a SiteSync retrofit solution for fixtures with an existing 7-pin receptacle.

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DELIVERED LUMENS

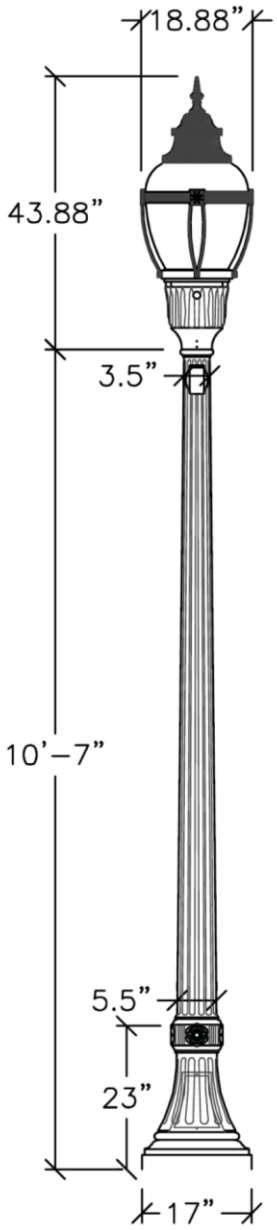
# of LEDs	DRIVE CURRENT (mA)	SYSTEM WATTS	DISTRIBUTION TYPE	5K (5000K nominal, 70 CRI)					4K (4000K nominal, 70 CRI)					3K (3000K nominal, 70 CRI)				
				LUMENS	LPW	B	U	G	LUMENS	LPW	B	U	G	LUMENS	LPW	B	U	G
24	700 mA	55W	FR	6357	118	1	0	1	6486	120	1	0	1	5804	107	1	0	1
			2	6132	114	1	0	1	6257	116	1	0	2	5599	104	1	0	1
			3	6015	111	1	0	2	6137	114	1	0	2	5492	102	1	0	2
			4	5921	110	1	0	2	6034	112	1	0	2	5400	100	1	0	2
			4W	5793	108	1	0	2	5909	110	1	0	2	5272	98	1	0	2
			5QM	6022	112	2	0	1	6145	114	2	0	1	5499	102	2	0	1
			5R	6063	112	3	0	3	6187	115	3	0	3	5536	103	3	0	3
			5W	5908	109	3	0	1	6028	112	3	0	1	5908	102	3	0	1
			TC	6183	113	1	0	1	6309	118	1	0	1	5645	105	1	0	1

PROVIDE A 16-FOOT TALL POLE TO BE INSTALLED ON A 30-INCH RASED CONCRETE FOUNDATION BASE.

LUMINAIRES TO BE PROVIDED WITH 0-10V DIMMING CONTROL.

PORTLAND | me

Street & Sidewalk Lighting
DECORATIVE LIGHT - OLD PORT



LUMINAIRE
Holophane Washington Postlite II LED - Acrylic

Model: WAUE2-P20-30K-AS-BK-3-BK-6-P7-F-PCLL

Cast aluminium housing with stainless steel hardware.

Thermal resistant acorn borosilicate glass refractor with IES Type asymmetric Type IV distribution.

Luminaire shall include decorative ribs, solid band, and spike finial, with internal twist-lock receptacle type photocell control. LED 3000K

LAMP
IES Type asymmetric Type IV distribution
LED 3000K color temperature

LIGHTING POLE
Holophane North Yorkshire - Aluminum pole and base

Model: NYA-11-FTJ-17-P07-ABG-BK-R126A

Tapered, fluted cast aluminum pole shaft rated for a 90mph wind load with a 1.3 gust factor.

Provide four hot-dipped galvanized steel L-type anchor bolts. Provide GFI rated duplex receptacle outlet.

Lighting pole shall be hot dipped galvanized prior powder coat paint.

DIMENSIONS
Overall Height = 14’ 3”
Pole Height = 10’ 7”
Taper = 5.5” to 3.5”
Base Diameter = 17”

FINISH
Black (standard)

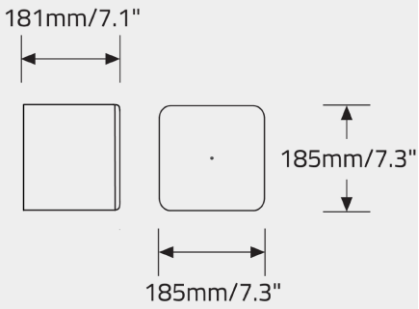
APPLICATION
Street/Sidewalk lighting for two-way streets with parking on both sides.

Spacing: 60’ - 80’ on center (staggered pattern both sides of street)

Date: **March, 2019**	**CITY OF PORTLAND, MAINE** TECHNICAL MANUAL	**MUNICIPAL STREET LIGHTING STANDARDS** SECTION 10	Figure: **X-6B**
Revised Date:	**OLD PORT**		



MASSIO



Body and trim: Low copper, die-cast aluminum highly resistant to oxidation.
Diffuser: 3mm/0.12" tempered glass/convex lens.
Gasket: Silicone.
Finish: Powder coated.
External screws: A4 stainless steel treated with highly antioxidant water-repellent lubricating solution to ensure easy opening.
Cable entry: M20 gland for DIA 8-12mm/0.2-0.47" cables.
Drivers: HPF, electronic for 120V/277V.
Mechanical: For surface mounting.
Delivered Lumens: Delivered lumens & LPW based on 3000K (min 80 CRI).

Code	Power (LED)	Distibution	Delivered lms
830 8140	6W	2° x 35° Asymmetrical Narrow	31
830 8130	26W	32° Medium Down	361
830 8132	26W	2° x 32° Medium Up/Down	898
830 8138	16W	4 x (2°x35°) Asymmetrical Narrow	118
830 8134	26W	4 x 32° Medium	449
830 8136	6W+18W	Spot Up/Flood Down	---

30	3000K (min 80 CRI)
40	4000K (min 80 CRI)

BL	Black
AG	Anthracite Gray
GR	Gray RAL 9006

BETA-CALCO INC.

September 25, 2019

CONSIGLI
Est. 1905

3 Portland Square
Construction Management Plan

Prepared For: Portland Department of Planning & Urban Development Department

Project Proponent: North River, LLC

Construction Manager: Consigli Construction

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CONSIGLI
Est. 1905

Construction Principles

The purpose of this Construction Management plan is to identify, mitigate and plan for all potential impacts throughout the duration of building the Mixed-Use Development at 3 Portland Square. Consigli Construction will be the contractor associated with the mixed-use parking garage, office and residential project. We committed to a seamless, incident free project by means of typical practices used to ensure that public safety and community are at the forefront of priorities.

Throughout this CM plan we will refer to specific examples of potential construction practices, traffic control scenarios, neighboring building considerations and public safety; as well as measures in which these items will be managed throughout the project to accommodate the community as much as possible. While we will take the necessary precautions to meet City and State requirements for traffic, noise, dust, vibration, etc., this project will be disruptive to adjacent properties compared to the current condition. Along with our subcontractor team members, it is imperative that we have complete participation from all parties affiliated with the project to maintain our strict safety requirements and ensure a quality building for DPD.

The Mixed-Use Development at 3 Portland Square includes the construction of a (6) story parking structured parking garage for (1000) cars, consisting of (24) Residential Units and (5) story office shell space starting a street level and (3) Retail Shell Spaces. The buildings total approximately 489,000 sf that will be primarily built out of precast, steel and concrete. The completion of the project is currently anticipated for February 2022.

Consigli has extensively planned the project's schedule, site logistics and safety protocols that will be thoroughly covered in this report with graphics and narratives. This CM plan will continually be updated to meet the needs of the project, community and the city as the project progresses. We aim to deliver a safe and quality project to DPD, their employees and the City of Portland by means of communication, teamwork and stewardship.

Construction Administration and Communication

Consigli Construction will be the Construction Manager on site throughout the duration of the project. As such, there will be a dedicated team of individuals tasked with managing quality, schedule, site logistics and safety. These personnel will manage and enforce the proposed CMP with all associated subcontractors and material vendors.

TBD – Senior Project Manager
207.XXX.XXXX, @consigli.com

TBD – Project Manager
207.XXX.XXXX, @consigli.com

TBD – Project Superintendent
207.XXX.XXXX, @consigli.com

Site Communication

With the proximity to occupied buildings, community outreach and communication will be imperative throughout construction to keep the public informed of the expected turbulence caused by the project. Site signage will be prominently displayed to show pedestrian access around the site and any updates to the proposed CMP.

Quarterly reporting and updating of the CMP will be required to update the City and community of the following activities:

1) Construction schedule updates
2) Material deliveries, including notice of any oversized loads that may impact public traffic
3) Requests for upcoming off-hours work including weekends and holidays
4) Notice of any upcoming activities that may produce strong noise, vibration or dust that could adversely affect the neighboring communities.
5) Requests for any street openings or public sidewalk work to be completed as part of the construction contract.

Construction Schedule

Project Work Hours

Construction work hours will be in accordance with section 17-18.

The project site is located within zoning group B2 – Business Community but is within proximity of buildings used for residential purposes. As such, work hours will be limited to Monday – Friday 7:00 am – 6:00 pm. Should work extend into Saturdays, the use of heavy equipment will be kept within the time constraints of 8:00 am – 4:00 pm.

Project Schedule/Logistics

The project is anticipated to be approximately 21 months in duration. Beginning in June 2020 the project will be turned over to NRC in February 2022.

Regarding scheduled work to take place within public streets and sidewalks, this work will comply with Section 25-129 – Noise, dust and debris. The installation and connection to public utilities, traffic lane reconfigurations, and sidewalk construction will require work to be executed within Spring Street, Fore Street and Cotton Street. This work will be scheduled and planned with the City of Portland prior to the execution. All logistical concerns will be addressed with the City prior to starting the work. The connection to public utilities is tentatively scheduled to happen in the Spring and Fall of 2021, with sidewalk construction tentatively scheduled to occur during the late Summer of 2021 and Fall of 2022. Temporary barricades, fencing, and signage will be required during the installation to control pedestrian/vehicle movements around the work.

Material Deliveries

The construction will require coordination of material deliveries throughout the duration of the project. The following Traffic Management Plans show the planned lay-down areas, truck routes and safety protocols that will be in place throughout the duration of construction. (See attached for anticipated construction traffic during the project)

1. During the site, concrete and structure erection work or other large deliveries, traffic turning off Commercial Street and Maple Street from the south into the project site will be necessary. A flagger will be employed as needed to assist in navigating loads off these streets to the project site.

Construction activities whether it be work going in place or material and equipment deliveries will create more activity along Spring Street, Fore Street, Cotton Street, and Cross Street.

Material Storage and Laydown Areas

The construction will require careful planning and management of the daily occurrences within the site limits. The Traffic Management Plans are currently outlined with designated fencing limits intend to keep all construction staging, lay down and temporary storage within the project limits and secured by temporary fencing. At certain times physical limits of the site will require usage of the adjacent streets, Spring Street, Fore Street, Cotton Street and Cross Street and will be closely coordinated with the City and abutters.

Specified areas will be granted to on-site subcontractors for staging materials managing their installation. With designated areas delegated to subcontractors, the site will remain accessible by incoming trucks without causing a queuing effect outside of the fence.

Contractor Parking

At the peak of construction, Consigli anticipates that up to 120 people will be on site working various trades associated with the buildings. All contractors, subcontractors and their employees will be prohibited from parking in on-street City spaces in the vicinity of the site and be required to park off-site in identified locations and private parking lots. Several off-site locations have been identified, and contractors, subcontractors and their employees will be encouraged to find their own private lots as well as encouraged to use shuttles, car pooling, taxis/drivers and public transportation. All subcontractors will be educated during the bidding process of this requirement. Language regarding off-street parking will be incorporated into the contract, and each employee will be informed of this requirement during their site safety orientation their first day on-site.

Consigli's on-site construction staff will monitor parking abutting the construction site on Spring Street, Fore Street and Cotton Street. Fines may be issued to construction workers associated with 3 Portland Square found parking outside designated areas.

Fire Protection for Construction Activities

The 2013 Standard for Safeguarding Construction, Alteration and Demolition Operations will be enforced on this project by utilizing best management practices to mitigate the fire risks associated with the construction. Consigli and its subcontractors will execute the following measures to provide a safe and secure work place:

1) PFD Fire Command Center: This centralized location will hold all current project information and will act as the first responders meeting point to obtain the most up to date information of construction. The following documents will be found at this location:
    a. Hot Work Permits: To be filled out daily by any person performing work that will generate a spark or create a potential fire risk on the job site. The permits are to be completed and approved by Consigli prior to work starting.
    b. Updated Construction Schedule
    c. Updated Construction Traffic Management Plan
    d. Pre-Incident Fire Plan

2) On-Site Fuel Storage: There will be a requirement for different flammable liquids throughout construction. A free-standing, 30-minute fire-rated enclosure will be built to safely and securely store all flammable liquids and gases. Fueling trucks will be used as needed but under no circumstances be allowed to be parked or stored on site for any extended period.

3) Means of Egress: The buildings will be permanently equipped with (8) 2-way stair assemblies for means of egress. During construction it is the intent to utilize these stairs to provide emergency egress throughout construction. If needed, we will provide temporary stair towers and these stairs will be identified with temporary signage throughout construction indicating the floor level and exit path direction.

4) Good Housekeeping: Consigli Construction will provide necessary dumpsters for the removal of debris from the site. All subcontractors are responsible for the daily clean-up of their work areas to ensure that no materials or tools are left out over night that could pose a hazard to the building. Daily safety walks by the Construction Superintendent will be utilized to ensure that all working floors are equipped with an inspected fire extinguisher and clear means of egress in the event of an emergency. Trash chutes and/or material hoisting equipment may be utilized to safely and efficiently remove all debris from the project.

5) On-site Security: The project site will be secured everyday by means of a temporary, construction fence and scrim. Lockable gates will be located at (6) locations for site access.

6) Rapid Communication: Evacuation notification will be provided by means of 2-way radios/cellular devices as well as strategically positioned air horns. Upon evacuation of the building all project personnel will report to the muster point location where the Construction Manager and all subcontractor foremen will perform accountability checks. The General Contractor field staff will then be dispatched to all project entry points and the PFD Command Center. Upon arrival of the first responders to the PFD Command Center the General Contractor will provide an accountability and incident briefing.

Public Safety

The construction will be near pedestrian right of ways and will interact with public traffic throughout the duration of the project. Material deliveries, the use of cranes, lifts and other heavy machinery all have the potential to impact typical public activity. As a member of the Portland community, Consigli will strive to limit, mitigate and avoid these potential impacts as much as possible by means of controlling noise, on-site dust, vibrations and traffic. By educating and informing the neighborhoods to the construction activities taking place we will aim to build a project that produces the minimal of impacts to the Spring Street, Fore Street, Cotton Street, and Cross Street communities.

Snow Removal

All contractors associated with the 3 Portland Square development will maintain access to sidewalks in front of their respected site throughout the winter.

Noise

Construction activities throughout the project will create noise that leaves the project site. It is the intent of the project team to limit the exposure to the noise by following section 17-18 of the City of Portland Code of Ordinances. This project site is located within proximity of buildings classified as residential. As such, the project hours will be limited the 7:00 am – 6:00 pm, Monday – Friday. Should any weekend or holiday work be required the use of heavy machinery will not commence before 8:00 am. When this work is required, no less than 2-week advanced notice will be provided to DPD and the neighboring communities.

Work related to the ground improvements, foundations, and the erecting of the structure will likely be the loudest activity experienced during construction. This work will take place from June 2020 – November 2021.

Dust Control/Air Quality

Maintaining an environmentally conscious project site will be a major priority for the project team to ensure safety not only for the neighboring communities but also for the construction workers on site day after day. All soils and debris will be kept within the project limits following the State of Maine Department of Environmental Protection erosion control Best Management Practices:

1) Erosion controlled construction entrances
2) Tarped dump trucks leaving the site with soil/debris
3) On-going sidewalk and street cleaning activities
4) The installation of temporary, compacted staging areas within the job site
5) Using wetting agents to control dust
6) Covering stock piles when material is to be piled for long periods of time
7) Smoking will not be allowed on the job site

Vibration Monitoring

Some of construction practices required for this project will result in ground vibration waves that may transmit to nearby buildings. Prior to any potential vibration causing activities taking place a pre-construction survey will be conducted to review and document existing conditions. The survey will encompass all properties abutting the proposed project to include the following addresses:

To Be Determined

Site demolition, site removals, vibratory compaction and ground improvements will be employed on this project and will be monitored by a third-party monitoring company. A pre-construction meeting will be planned with abutting property owners to discuss geological conditions, construction specifications and methods of installation that create vibration.

Dewatering

Some construction practices such as deep foundations will be required for this project and may require dewatering activities. *Final Plan and Locations To Be Determined.*

Traffic Control

Throughout the construction process Spring Street, Fore Street, Cotton Street, and Cross Street will experience increased traffic due to construction activities. Material deliveries, contractor access and public utility integration will be encountered and mitigated through coordinated Traffic Management Plans (provided within this CM Plan), on-site safety personnel, way-finding signage and well-organized traffic control devices. Consigli will strive to inform and direct the neighborhood to the activities taking place in public areas as they progress through completion. During the Spring and Fall of 2020 and 2021 public utility connections will be made in Spring Street, Fore Street Cotton Street and Cross Street. During the late Summer of 2021 and Spring of 2022, sidewalk improvements will be made adjacent to Spring Street, Fore Street, Cotton Street, and Cross Street.

The main access points to the construction project will be through the Cotton Street gates off Spring Street and Fore Street. To navigate tractor-trailers and other large vehicles to the project site a flagger will be stationed at Spring and Fore Street as needed to usher the trucks into the right of way. Due to the large turn radius of some of these trucks, it may be necessary to close parking spaces along Spring Street and Fore Street to establish the necessary entrance and exit gate. Secondary entrance and exit relief points will be created where Cross Street and Fore Street intersect. Work associated with foundations, utilities, sidewalk improvements and general site access will impact public parking spaces. Parking spaces adjacent to the site along Cotton Street are expected to be closed for most of the project. Periodic parking impacts will also occur adjacent to the site along Spring Street. Temporary lane closures will be required adjacent to the site along Spring Street and Fore Street for a variety of construction activities and will be closely coordinated with the City.

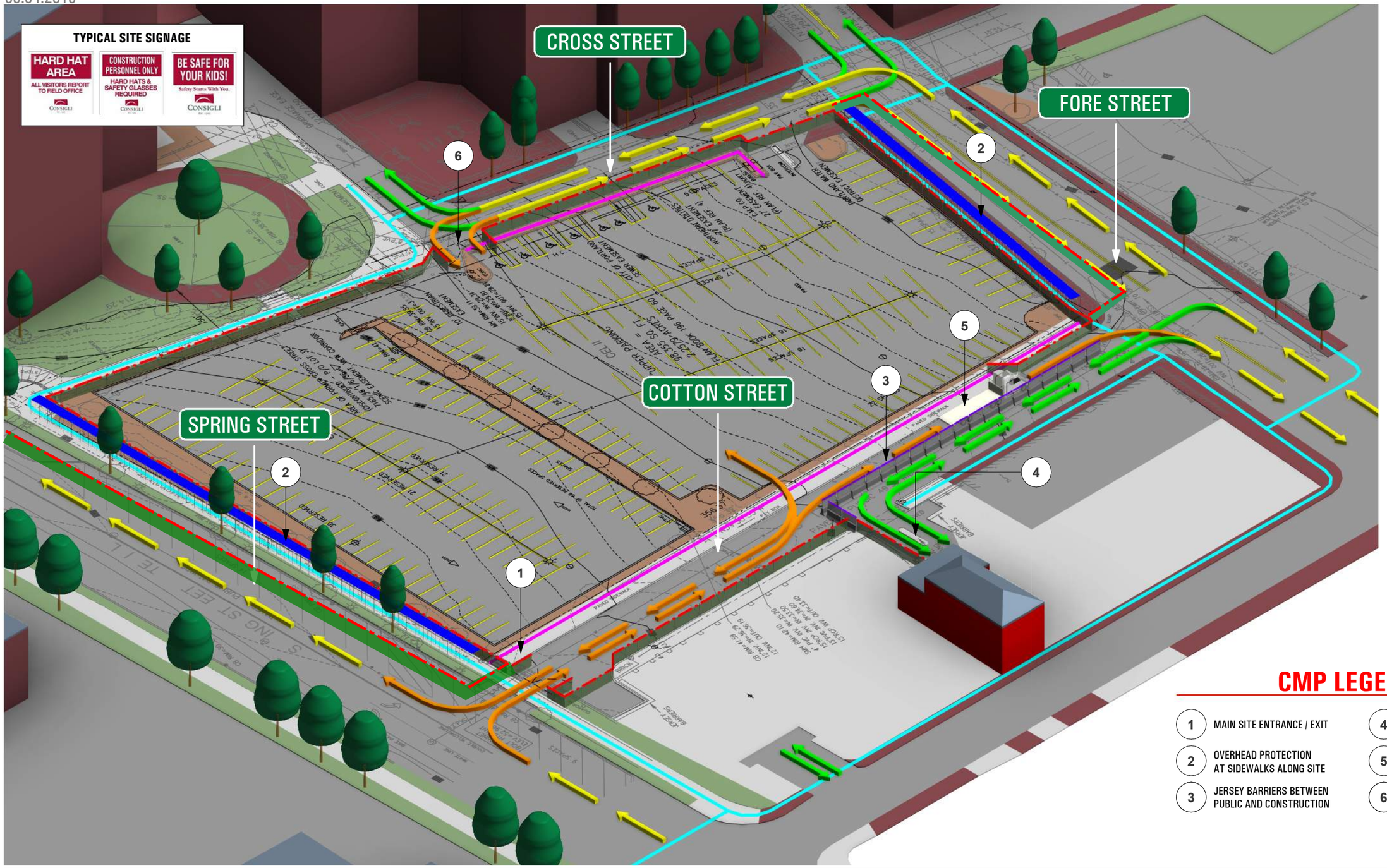
Traffic Management Plans

Portland Square Development

PHASE 1

MOBILIZATION

09.04.2019



GRAPHIC KEY

- CONSTRUCTION TRAFFIC
- PUBLIC TRAFFIC
- SHARED TRAFFIC
- PEDESTRIAN ACCESS
- SIDEWALK CLOSED
- CONSTRUCTION GATE
- JERSEY BARRIER

CMP SUBMISSION 9/25/19

CMP LEGEND

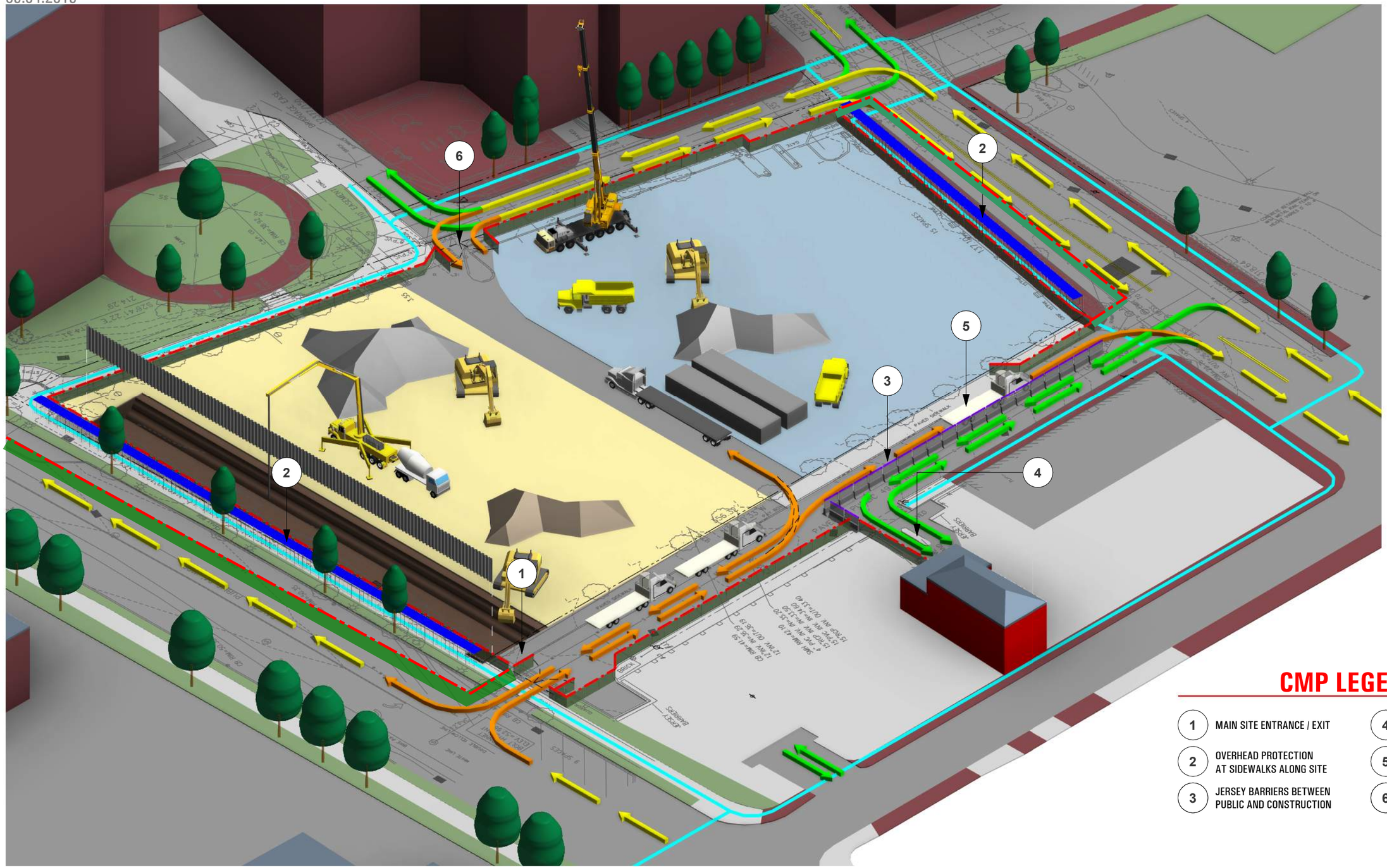
1. MAIN SITE ENTRANCE / EXIT
2. OVERHEAD PROTECTION AT SIDEWALKS ALONG SITE
3. JERSEY BARRIERS BETWEEN PUBLIC AND CONSTRUCTION
4. ACCESS TO PAKING LOT MUST BE MAINTAINED
5. CONSTRUCTION EXITING TRAFFIC
6. TEMP GATED ACCESS ALONG CROSS STREET

CONSIGLI
Est. 1905

Portland Square Development

PHASE 2 | SITE PREP AND EXCAVATION

09.04.2019



GRAPHIC KEY

- CONSTRUCTION TRAFFIC
- PUBLIC TRAFFIC
- SHARED TRAFFIC
- PEDESTRIAN ACCESS
- SIDEWALK CLOSED
- CONSTRUCTION GATE
- JERSEY BARRIER

CMP SUBMISSION 9/25/19

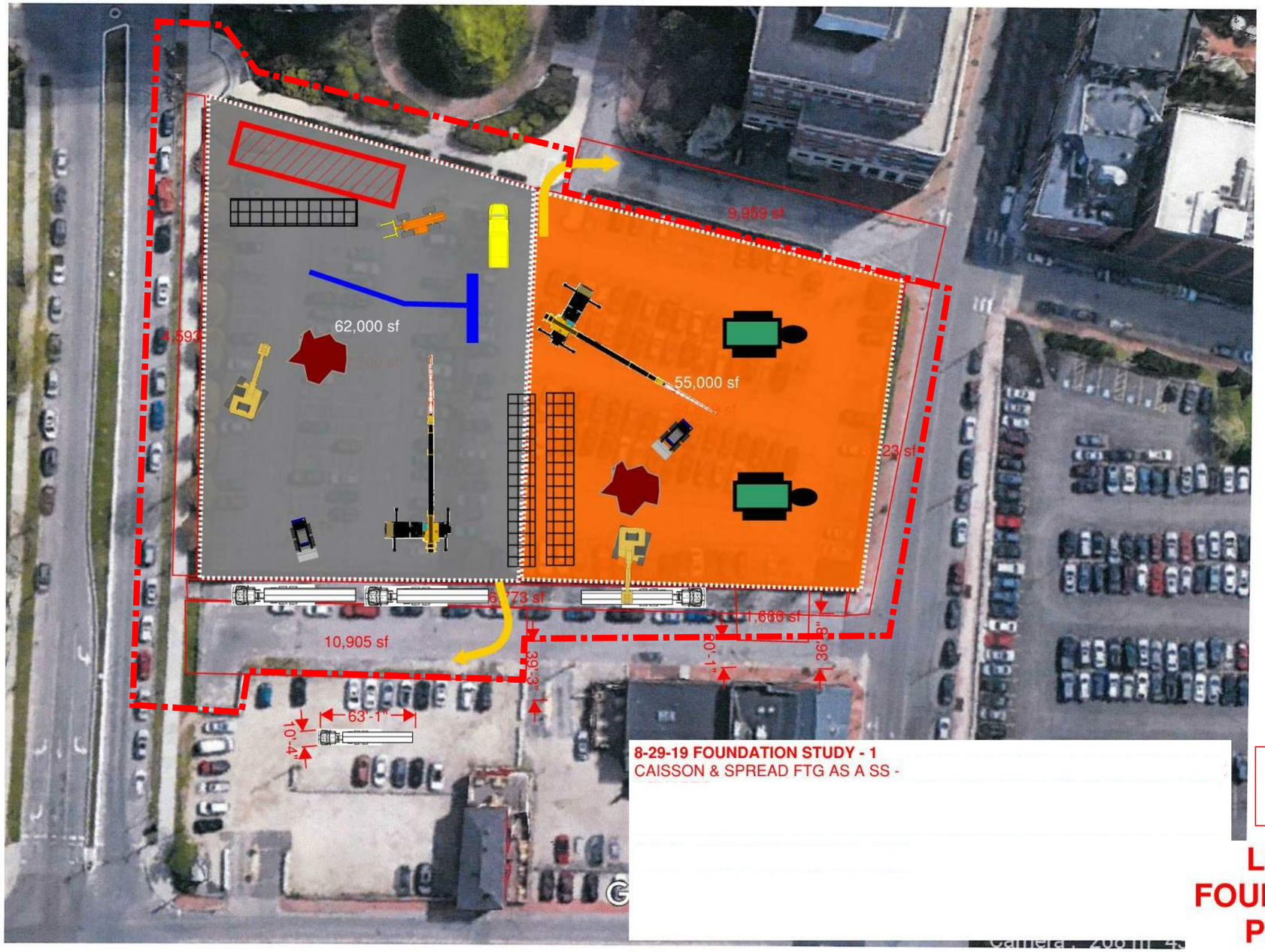
CMP LEGEND

1. MAIN SITE ENTRANCE / EXIT
2. OVERHEAD PROTECTION AT SIDEWALKS ALONG SITE
3. JERSEY BARRIERS BETWEEN PUBLIC AND CONSTRUCTION
4. ACCESS TO PAKING LOT MUST BE MAINTAINED
5. CONSTRUCTION EXITING TRAFFIC
6. TEMP GATED ACCESS ALONG CROSS STREET

Portland Square Development

PHASE 2

Plan Detail



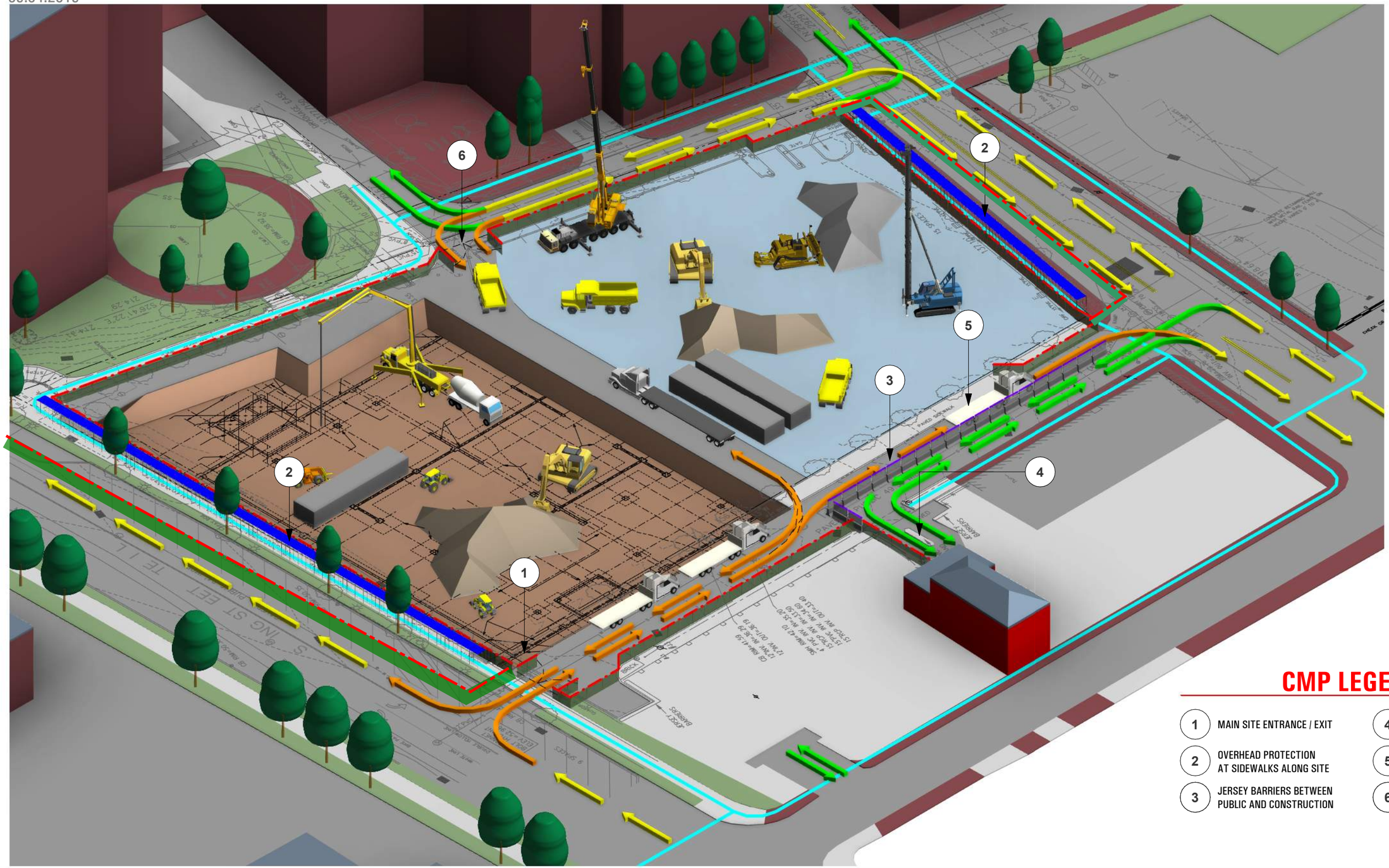
CMP SUBMISSION 9/25/19

LP-03 - FOUNDATION PHASE

Portland Square Development

PHASE 3 | FOUNDATIONS AND PILES

09.04.2019



GRAPHIC KEY

- CONSTRUCTION TRAFFIC
- PUBLIC TRAFFIC
- SHARED TRAFFIC
- PEDESTRIAN ACCESS
- SIDEWALK CLOSED
- CONSTRUCTION GATE
- JERSEY BARRIER

CMP SUBMISSION 9/25/19

CMP LEGEND

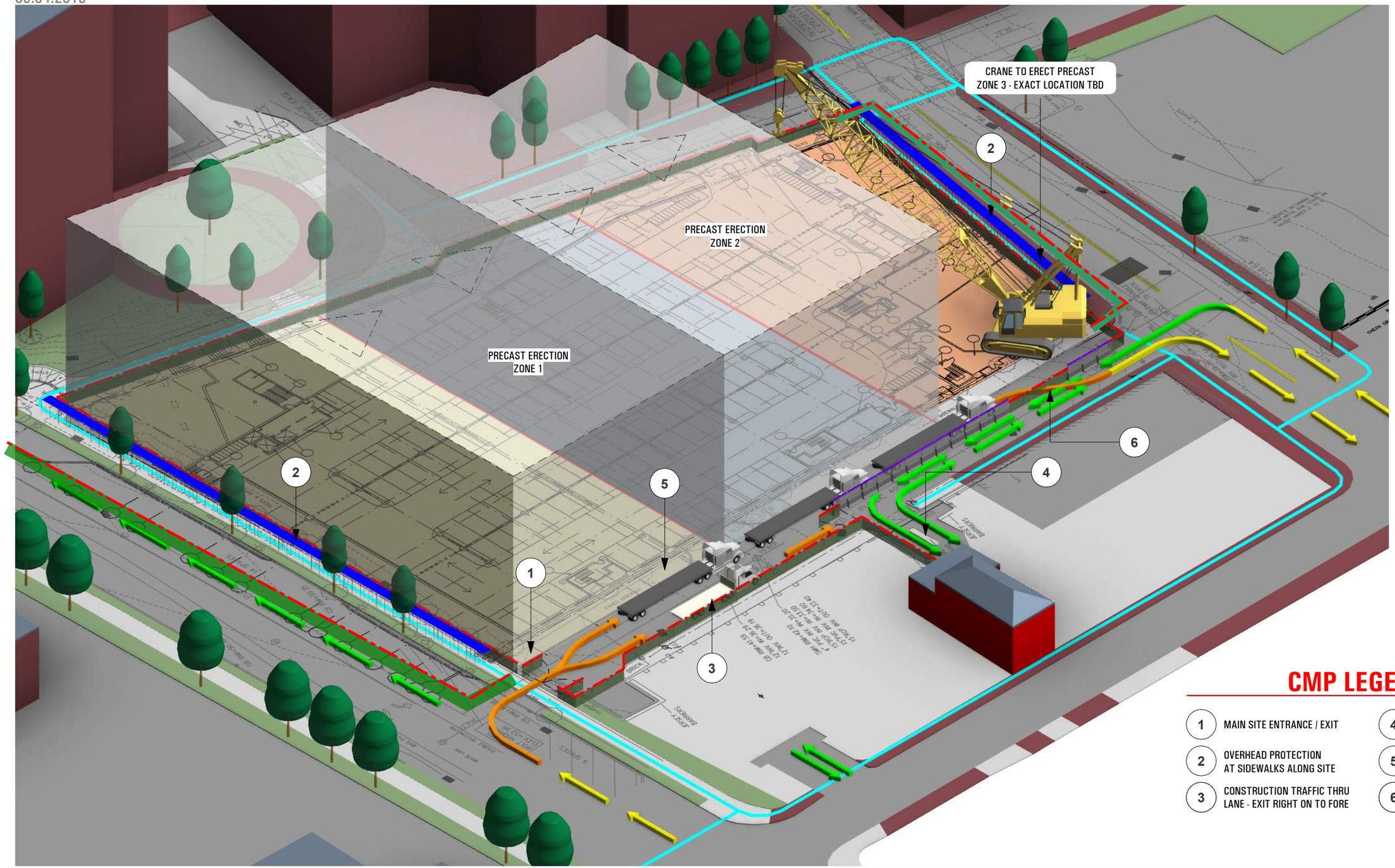
1. MAIN SITE ENTRANCE / EXIT
2. OVERHEAD PROTECTION AT SIDEWALKS ALONG SITE
3. JERSEY BARRIERS BETWEEN PUBLIC AND CONSTRUCTION
4. ACCESS TO PAKING LOT MUST BE MAINTAINED
5. CONSTRUCTION EXITING TRAFFIC
6. TEMP GATED ACCESS ALONG CROSS STREET

Portland Square Development

PHASE 4

PRECAST AND RIGGING

09.04.2019



GRAPHIC KEY

- CONSTRUCTION TRAFFIC
- PUBLIC TRAFFIC
- SHARED TRAFFIC
- PEDESTRIAN ACCESS
- SIDEWALK CLOSED
- CONSTRUCTION GATE
- JERSEY BARRIER

CMP SUBMISSION 9/25/19

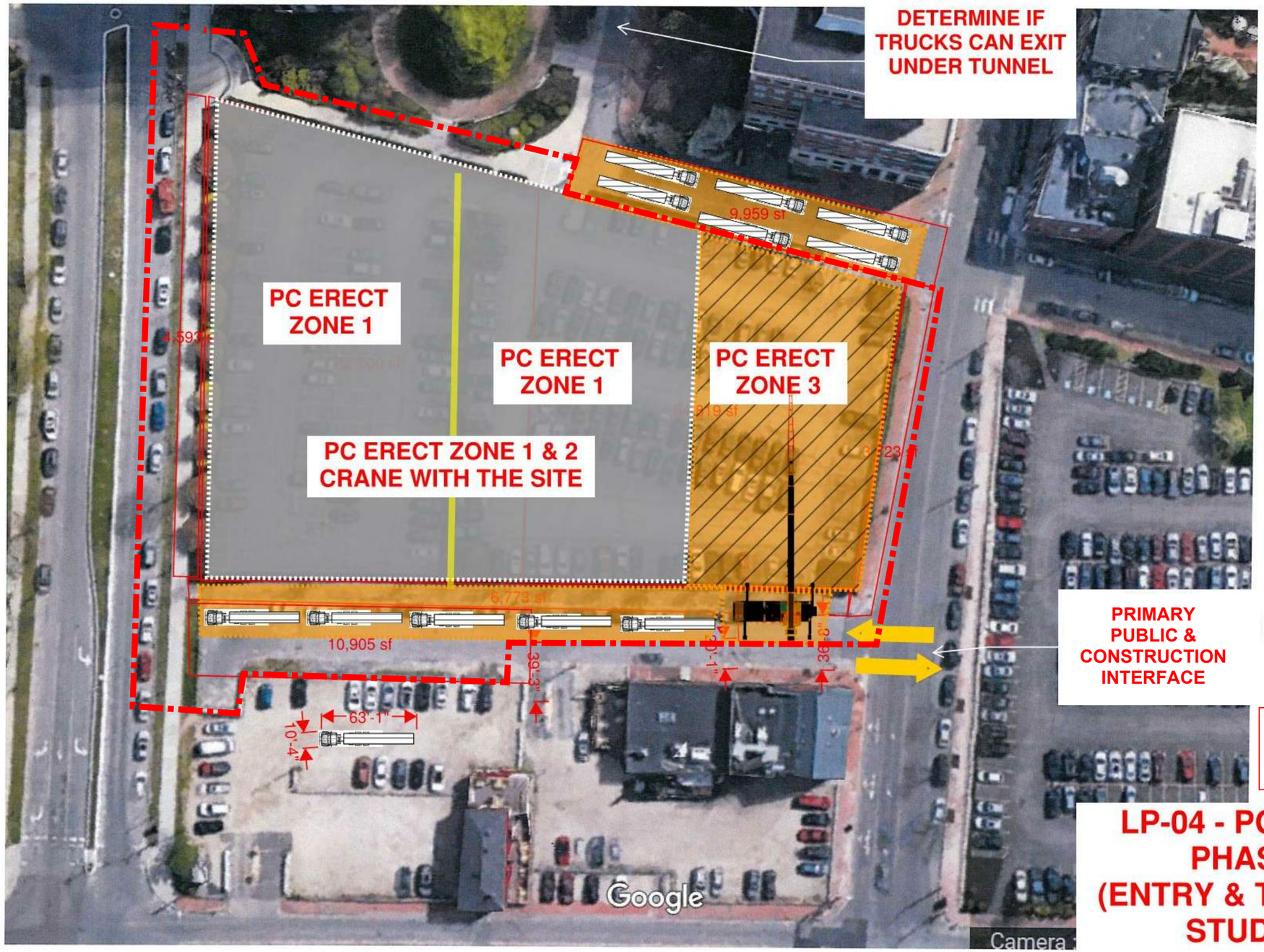
CMP LEGEND

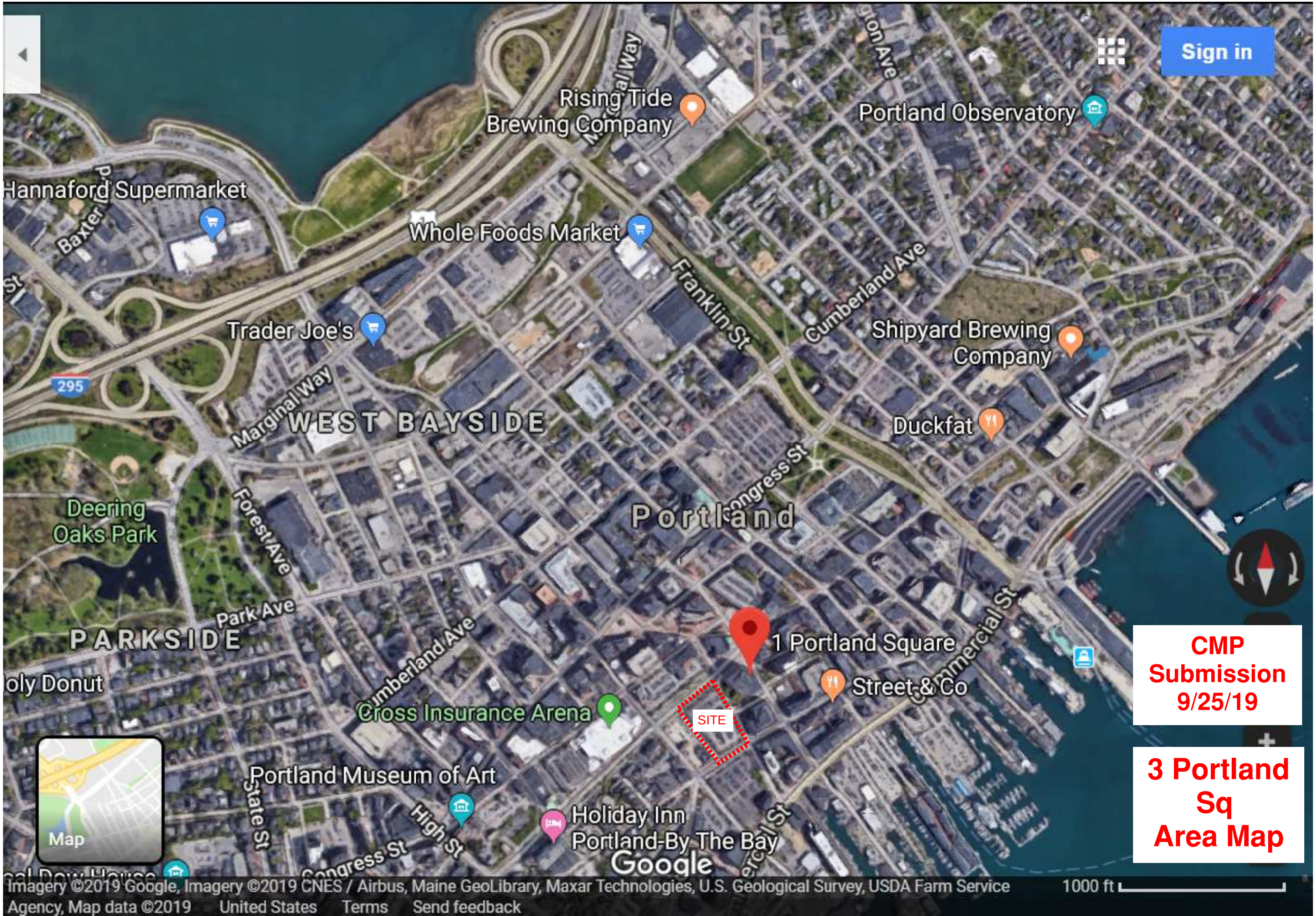
1. MAIN SITE ENTRANCE / EXIT
2. OVERHEAD PROTECTION AT SIDEWALKS ALONG SITE
3. CONSTRUCTION TRAFFIC THRU LANE - EXIT RIGHT ON TO FORE
4. ACCESS TO PAKING LOT MUST BE MAINTAINED
5. TRUCK MATERIAL DELIVERY LANE AND OFF-LOADING
6. GATE WITHIN BARRIERS FOR DELIVERY EXITING TRAFFIC

Portland Square Development

PHASE 4

Plan Detail




Sign in
Rising Tide Brewing Company
Portland Observatory
Hannaford Supermarket
Whole Foods Market
Trader Joe's
Shipyard Brewing Company
Duckfat
WEST BAYSIDE
Deering Oaks Park
PARKSIDE
Portland
1 Portland Square
Street & Co
Cross Insurance Arena
SITE
Portland Museum of Art
Holiday Inn Portland-By The Bay
Map
Google
Imagery ©2019 Google, Imagery ©2019 CNES / Airbus, Maine GeoLibrary, Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency, Map data ©2019
United States
Terms
Send feedback
1000 ft
CMP Submission 9/25/19
3 Portland Sq Area Map

Three Portland Square

Site Location of Development Amendment

41 Hutchins Drive
Portland, ME 04102
800-426-4262

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

0231886.00
North River IV, LLC
December 2019

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APPLICATION FORM

PUBLIC NOTICE

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Department of Environmental Protection
Bureau of Land & Water Quality
17 State House Station
Augusta, Maine 04333
Telephone: 207-287-3901

FOR DEP USE **FORM A PAGE 1**
ATS # _____
L-_____
Total Fees: _____
Date: Received _____

****

SITE LOCATION OF DEVELOPMENT PERMIT APPLICATION 38 M.R.SA. §§481-490

PLEASE TYPE OR PRINT IN *INK ONLY*

This application is for: (CHECK THE ONE THAT APPLIES)	☐ **20 acre development** ☐ **Planning Permit** ☐ **Metallic Mining**	☐ **Marine Oil Terminal** ☐ **Structure** ☐ **Subdivision**	■ **Major Amendment** ☐ **Minor Amendment**

1. Name of Applicant:	North River IV, LLC; Adam Myers	**6. Name of Agent (if applicable):**	Woodard & Curran, Lauren Swett
2. Applicant's Mailing Address:	224 12th Ave, New York NY 10001	**7. Agent's Mailing Address:**	41 Hutchins Dr., Portland, ME
3. Applicant's Daytime Phone #:	(212) 695-8090	**8. Agent's Daytime Phone # :**	(207) 558-3763
4. Applicant's Fax # (if available):		**9. Agent's Fax # (if available):**	
5. Applicant's *e-mail address* (REQUIRED -license will be sent via: e-mail):	amyers@northriverco.com	**10. Agent's *e-mail address* (REQUIRED - license will be sent via e-mail):**	lswett@woodardcurran.com

PROJECT INFORMATION

11. Name of Development:	Three Portland Square (Master Development Plan Phase 2)						
12. Map and Lot #'s:	**Map #:** 038	**Lot #:** B003	**13. Deed Reference #'s:**		**Book #:** 32163	**Page #:** 33	
14. Location of Project City/Town:	Portland	**15. County:**	Cumberland	**16. UTM Northing**		**17. UTM Easting**	
18. Brief Description of Project including total parcel size:	Amendment to existing SLOD permit relating to development of a +/- 98,355 SF parcel with proposed office tower, multi-level parking garage and office/retail wrap.						

19. Type of Direct Watershed: (Check all that apply)

☐ Lake not most at risk ■ River, stream or brook ☐ Coastal wetland
☐ Lake most at risk ☐ Urban impaired stream ☐ Wellhead or public water
☐ Lake most at risk, severely blooming ☐ Freshwater wetland

20. Name of Waterbody Project Site drains to:	Fore River		
21. Amount of Developed Area:	Total acres: 2.31	Existing Developed area: 2.31 acres	New Developed area: 0 acres (Existing parcel is fully developed)
22. Amount of Impervious Area:	Total acres: 2.31	Existing Impervious areas 1.90 acres	New Impervious area: 0.25 acres

23. Development started prior to obtaining a license?:	☐ **Yes** ■ **No**		
24. .Development or any portion of the site subject to enforcement action?	☐ **Yes** ☐ **No**	**If yes**, name of enforcement staff involved?	
25. Common scheme of development?:	☐ **Yes** ☐ **No**	**26. Title, Right or Interest:**	☒ **own** ☐ **lease** ☐ **purchase option** ☐ **written agreement**
27. Natural Resources Protection Act permit required?:	☐ **Yes** ☐ **No**	**If yes:** ☐ **PBR**	☐ **Tier 1** ☐ **Full Permit** ☐ **Tier 2**
28. Existing DEP Permit number (if applicable):	L-013526-A-N		
29. Names of DEP staff person(s) present at the pre-application meeting:	NA		
30. Does agent have an interest in project? If yes, what is the interest?	☐ **Yes** ■ **No**		

CERTIFICATIONS AND SIGNATURES LOCATED ON PAGE 2

IMPORTANT: IF THE SIGNATURE BELOW IS NOT THE APPLICANT'S SIGNATURE, ATTACH LETTER OF AGENT AUTHORIZATION SIGNED BY THE APPLICANT.

By signing below the applicant (or authorized agent), certifies that he or she has read and understood the following :

CERTIFICATIONS / SIGNATURES

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein.

Further, I hereby authorize the DEP to send me an electronically signed decision on the license I am applying for with this application by emailing the decision to the electronic address located on the front page of this application (see #5 for the applicant and #10 for the agent)".

Signed: _____ **Title** Managing Director **Date:** 12/19/19

Notice of Intent to Comply with Maine Construction General Permit	**With this Site Law application form and my signature, I am filing notice of my intent to carry out work which meets the requirements of the Maine Construction General Permit (MCGP). I have read and will comply with all of the MCGP standards.** **If this form is not being signed by the landowner or lessee of the property, attach documentation showing authorization to sign.** **Signed** _____ **Date:** 12/19/19

NOTE: You must file a MCGP Notice of Termination (Form K) within 20 days of completing permanent stabilization of the project site.

CERTIFICATION

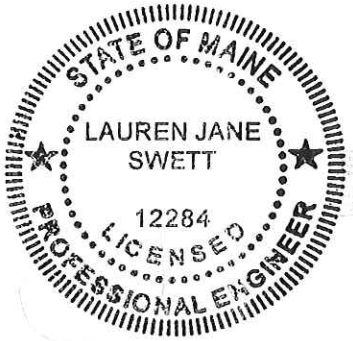
The person responsible for preparing this application and/or attaching pertinent site and design information hereto, by signing below, certifies that the application for development approval is complete and accurate to the best of his/her knowledge.

Signature: Lauren Swett

Name (print): Lauren Swett

Date: 12/19/19

Re/Cert/Lic No.: _____
Engineer 12284
Geologist _____
Soil Scientist _____
Land Surveyor _____
Site Evaluator _____
Active Member of the Maine Bar _____
Professional Landscape Architect _____
Other _____



Not Applicable - City of Portland has Delegated Review

FORM B

PUBLIC NOTICE:
NOTICE OF INTENT TO FILE

Please take notice that

_____

(*Name, Address and Phone # of Applicant*)

_____

is intending to file a Site Location of Development Act permit application with the Maine Department of Environmental Protection pursuant to the provisions of 38 M.R.S.A. §§ 481 thru 490 on or about

_____

(Anticipated Filing Date)

The application is for

_____

(Description of the Project)

_____

at the following location:

_____

(*Project Location*)

A request for a public hearing or a request that the Board of Environmental Protection assume jurisdiction over this application must be received by the Department in writing, no later than 20 days after the application is found by the Department to be complete and is accepted for processing. A public hearing may or may not be held at the discretion of the Commissioner or Board of Environmental Protection. Public comment on the application will be accepted throughout the processing of the application.

For Federally licensed, permitted, or funded activities in the Coastal Zone, review of this application shall also constitute the State's consistency review in accordance with the Maine Coastal Program pursuant to Section 307 of the federal Coastal Zone Management Act, 16 U.S.C. § 1456. (Delete if not applicable.)

The application will be filed for public inspection at the Department of Environmental Protection's office in (*Portland, Augusta or Bangor*)(circle one) during normal working hours. A copy of the application may also be seen at the municipal offices in _____, Maine.

(*Town*)

Written public comments may be sent to the regional office in Portland, Augusta, or Bangor where the application is filed for public inspection:

MDEP, Central Maine Regional Office, 17 State House Station, Augusta, Maine 04333
MDEP, Southern Maine Regional Office, 312 Canco Road, Portland, Maine 04103
MDEP, Eastern Maine Regional Office, 106 Hogan Road, Bangor, Maine 04401

Not Applicable - City of Portland has Delegated Review

FORM C

PUBLIC NOTICE FILING AND CERTIFICATION

The DEP Rules, Chapter 2, require an applicant to provide public notice for all Site Location projects with the exception of minor revisions and condition compliance applications. In the notice, the applicant must describe the proposed activity and where it is located. **"Abutter"** for the purposes of the notice provision means any person who owns property that is BOTH (1) adjoining and (2) within one mile of the delineated project boundary, including owners of property directly across a public or private right of way.

1. **Newspaper:** You must publish the Notice of Intent to File in a newspaper circulated in the area where the activity is located. The notice must appear in the newspaper within 30 days prior to the filing of the application with the Department. You may use the attached Notice of Intent to File form, or one containing identical information, for newspaper publication and certified mailing.

2. **Abutting Property Owners:** You must send a copy of the Notice of Intent to File by certified mail to the owners of the property abutting the activity. Their names and addresses can be obtained from the town tax maps or local officials. They must receive notice within 30 days prior to the filing of the application with the Department.

3. **Municipal Office:** You must send a copy of the Notice of Intent to File and a **duplicate of the entire application** to the Municipal Office.

   ATTACH a list of the names and addresses of the owners of abutting property.

CERTIFICATION

By signing below, the applicant or authorized agent certifies that:

1. A Notice of Intent to File was published in a newspaper circulated in the area where the project site is located within 30 days prior to filing the application;
2. A certified mailing of the Notice of Intent to File was sent to all abutters within 30 days of the filing of the application;
3. A certified mailing of the Notice of Intent to File, and a duplicate copy of the application was sent to the town office of the municipality in which the project is located; and
4. Provided notice of, if required, and held a public informational meeting in accordance with Chapter 2, Rules Concerning the Processing of Applications, Section 14, prior to filing the application. Notice of the meeting was sent by certified mail to abutters and to the town office of the municipality in which the project is located at least ten days prior to the meeting. Notice of the meeting was also published once in a newspaper circulated in the area where the project site is located at least seven days prior to the meeting.

The Public Informational Meeting was held on _____.
Date

Approximately _____ members of the public attended the Public Informational Meeting.

_____

Signature of Applicant or Authorized Agent Date

FORM D

SUBMISSIONS CHECKLIST

If a provision is not applicable, put "NA"

Section 1. Development description

A. Narrative

X 1. Objectives and details

X 2. Existing facilities (with dates of construction)

B. Topographic map

X 1. Location of development boundaries

NA 2. Quadrangle name

C. Construction plan

X 1. Outline of construction sequence (major aspects)

2. Dates

D. Drawings

X 1. Development facilities

X a. Location, function and ground area

X b. Length/cross-sections for roads

X 2. Site work (nature and extent)

X 3. Existing facilities (location, function ground area and floor area)

4. Topography

X a. Pre- and post-development (contours 2 ft or less)

X b. Previous construction, facilities and lot lines

X **Section 2. Title, right or interest** (copy of document)

Section 3. Financial capacity

X A. Estimated costs

B. Financing

X 1. Letter of commitment to fund

2. Self-financing

NA a. Annual report

NA b. Bank statement

3. Other

NA a. Cash equity commitment

NA b. Financial plan

NA c. Letter

X 4. Affordable housing information

Section 4. Technical ability (description)

X A. Prior experience (statement)

X B. Personnel (documents)

Section 5. Noise

X A. Developments producing a minor noise impact (statement)

NA 1. Residential developments

NA 2. Certain non-residential subdivisions

NA 3. Schools and hospitals

NA 4. Other developments

NA a. Type, source and location of noise

NA b. Uses, zoning and plans

NA c. Protected locations

NA d. Minor nature of impact

NA e. Demonstration
NA B. Developments producing a major noise impact (full noise study)
NA 1. Baseline
NA a. Uses, zoning and plans
NA b. Protected locations
NA c. Quiet area
NA 2. Noise generated by the development
NA a. Type, source and location of noise
NA b. Sound levels
NA c. Control measures
NA d. Comparison with regulatory limits
NA e. Comparison with local limits

X **Section 6. Visual quality and scenic character**(narrative, description, visual impact analysis)

X **Section 7. Wildlife and fisheries** (narrative)

X **Section 8. Historic sites** (narrative)

X **Section 9. Unusual natural areas** (narrative)

Section 10. Buffers
NA A. Site plan and narrative

Section 11. Soils
X A. Soil survey map and report
X 1. Soil investigation narrative
X 2. Soil survey map
NA B. Soil survey intensity level by development type
1. Class A (High Intensity) Soil Survey
2. Class B (High Intensity) Soil Survey
3. Class C (Medium High-Intensity) Soil Survey
4. Class D (Medium Intensity) Soil Survey
X C. Geotechnical Investigation
NA D. Hydric soils mapping

Section 12. Stormwater management
A. Narrative
X 1. Development location
NA 2. Surface water on or abutting the site
NA 3. Downstream ponds and lakes
X 4. General topography
X 5. Flooding
X 6. Alterations to natural drainage ways
X 7. Alterations to land cover
X 8. Modeling assumptions
X 9. Basic standard
X 10. Flooding standard
X 11. General standard
X 12. Parcel size
X 13. Developed area
X 14. Disturbed area
X 15. Impervious area
B. Maps
X 1. U.S.G.S. map with site boundaries
X 2. S.C.S. soils map with site boundaries
X C. Drainage Plans (a pre-development plan and a post-development plan)

X 1. Contours
X 2. Plan elements
X 3. Land cover types and boundaries
X 4. Soil group boundaries
X 5. Stormwater quantity subwatershed boundaries
X 6. Stormwater quality subwatershed boundaries
X 7. Watershed analysis points
X 8. Hydrologic flow lines (w/flow types and flow lengths labeled)
X 9. Runoff storage areas
X 10. Roads and drives
X 11. Buildings, parking lots, and other facilities
X 12. Drainage system layout for storm drains, catch basins, and culverts
NA 13. Natural and man-made open drainage channels
NA 14. Wetlands
NA 15. Flooded areas
X 16. Benchmark
X 17. Stormwater detention, retention, and infiltration facilities
X 18. Stormwater treatment facilities
NA 19. Drainage easements
X 20. Identify reaches, ponds, and subwatersheds matching stormwater model
NA 21. Buffers

X D. Runoff analysis (pre-development and post development)
X 1. Curve number computations
X 2. Time of concentration calculations
X 3. Travel time calculations
X 4. Peak discharge calculations
X 5. Reservoir routing calculations

X E. Flooding Standard
NA 1. Variance submissions (if applicable)
NA a. Submissions for discharge to the ocean, great pond, or major river
NA i. Map
NA ii. Drainage plan
NA iii. Drainage system design
NA iv. Outfall design
NA v. Easements
NA b. Insignificant increase
NA i. Downstream impacts
NA
X c. Submissions for discharge to a public stormwater system
NA i. Letter of permission
X ii. Proof of capacity
NA ii. Outfall analysis and design (pictures)
X 2. Sizing of storm drains and culverts
NA 3. Stormwater ponds and basins
NA a. Impoundment sizing calculations
NA b. Inlet calculations
NA c. Outlet calculations
NA d. Emergency spillway calculations
NA e. Subsurface investigation report
NA f. Embankment specifications
NA g. Embankment seepage controls
NA h. Outlet seepage controls
NA i. Detail sheet
NA j. Basin cross sections
NA k. Basin plan sheet
NA 4. Infiltration systems
NA a. Well locations map
NA b. Sand and gravel aquifer map
NA c. Subsurface investigation report with test pit or boring logs

NA d. Permeability analysis
NA e. Infiltration structure design
NA f. Pollutant generation and transport analysis
NA g. Monitoring and operations plan
NA i. Locations of storage points of potential contaminants
NA ii. Locations of observation wells and infiltration monitoring plan
NA iii. Groundwater quality monitoring plan
NA 5. Drainage easement declarations.
X F. Stormwater quality treatment plan peak discharge calculations
X 1. Basic stabilization plan
NA a. Ditches, swales, and other open channel stabilization
NA b. Culvert and storm-drain outfall stabilization
X c. Earthen slope and embankment stabilization
X d. Disturbed area stabilization
X e. Gravel roads and drives stabilization

X 2. General Standard
X a. Calculations for sizing BMP
X b. Impervious area calculation
X c. Developed area calculation
X d. Summary spreadsheet of calculations

NA 3. Phosphorus control plan
NA a. Calculations for the site's allowable phosphorus export
NA b. Calculations for determining the developed site's phosphorus export
NA c. Calculations for determining any phosphorus compensation fees
NA 4. Offset Credits
NA a. Urban impaired stream
NA Offset credit calculation
NA b. Phosphorus credit determination
NA i. Location map
NA ii. Scaled plan
NA iii. Title and right
NA iv. Demolition plan
NA v. Vegetation plan
NA vi. Offset credit calculation
NA vii. Calculation for the new allowable export
X 5. Runoff treatment measures
X a. structural measures
X i. Design drawings and specifications
X ii. Design calculations
X iii. Maintenance plan
NA iv. TSS removal or phosphorus treatment factor determinations
X v. Stabilization plan
NA b. Vegetated buffers
NA i. Soil survey
NA ii. Buffer plan
NA iii. Turnout and level spreader designs
NA iv. Deed restrictions
NA 6. Control plan for thermal impacts to coldwater fisheries
NA 7. Control plan for other pollutants
X 8. Engineering inspection of stormwater management facilities

X G. Maintenance of common facilities or property
X 1. Components of the maintenance plan
X A. Maintenance of facilities by owner or operator
X 1. Site owner or operator (name legally responsible party)
TBD 2. Contact person responsible for maintenance
TBD 3. Transfer mechanism

X 4. List of facilities to be maintained
X 5. List of inspection and maintenance tasks for each facility
TBD 6. Identifications of any deed covenants, easements, or restrictions
X 7. Sample maintenance log
TBD 8. Copies of any third-party maintenance contracts
NA B. Maintenance of facilities by homeowner's association
NA 1. Incorporation documents for the association
NA 2. Membership criteria
NA 3. Association officer responsible for maintenance
NA 4. Establishment of fee assessment for maintenance work
NA 5. Establishment of lien system
NA 6. Reference to department order(s) in association charter
NA 7. Transfer mechanism from developer to association
NA 8. List of facilities to be maintained
NA 9. Identification of any deed covenants, easements, or restrictions
NA 10. Renewal of covenants and leases
NA 11. List of inspection and maintenance tasks for each facility
NA 12. Sample maintenance log
NA 13. Copies of any third-party maintenance contracts
NA C. Maintenance of facilities by municipality or municipal district
NA 1. Identification of the municipal department or utility district
NA 2. Contact person responsible for maintenance
NA 3. Evidence of acceptance of maintenance responsibility
NA 4. Transfer mechanism from developer
NA 5. List of facilities to be maintained
NA 6. List of inspection and maintenance tasks for each facility
NA 7. Identifications of any deed covenants, easements, or restrictions
NA 8. Sample maintenance log
X 2. General inspection and maintenance requirements
NA a. Drainage easements
X b. Ditches, culverts, and catch-basin systems
X c. Roadways and parking surfaces
X d. Stormwater detention and retention facilities
NA 1. Embankment inspection and maintenance
X 2. Outlet inspection and clean-out
NA 3. Spillway maintenance
X 4. Sediment removal and disposal
NA e. Stormwater infiltration facilities
NA 1. Sediment protection plan
NA 2. Infiltration rehabilitation plan
NA 3. Sediment removal and disposal
NA 4. Groundwater monitoring plan
X f. Proprietary treatment devices
NA g. Buffers
NA h. Other practices and measures

Section 13. Urban Impaired Stream Submissions

NA 1. Off-site credits
NA 2. Compensation fees (Urban Impaired Stream/Phosphorus)
NA 3. Development impacts

Section 14. Basic Standards

X A. Narrative
X 1. Soil types
NA 2. Existing erosion problems
NA 3. Critical areas
NA 4. Protected natural resources
X 5. Erosion control measures

X 6. Site stabilization
X B. Implementation schedule
X C. Erosion and sediment control plan
X 1. Pre-development and post-development contours
X 2. Plan scale and elements
X 3. Land cover types and boundaries
NA 4. Existing erosion problems
NA 5. Critical areas
NA 6. Protected natural resources
X 7. Locations (general)
X 8. Locations of controls
X 9. Disturbed areas
X 10. Stabilized construction entrance
X D. Details and specifications (for both temporary and permanent measures)
NA E. Design calculations
X F. Stabilization plan
X 1. Temporary seeding
X 2. Permanent seeding
NA 3. Sodding
X 4. Temporary mulching
X 5. Permanent mulching
X G. Winter construction plan
X 1. Dormant seeding
X 2. Winter mulching
NA H. Third-party inspections
NA 1. Inspector's name, address, and telephone number
NA 2. Inspector's qualifications
NA 3. Inspection schedule
NA 4. Contractor contact
NA 5. Reporting protocol

Section 15. Groundwater

X A. Narrative
NA 1. Location and maps
NA 2. Quantity
NA 3. Sources
NA 4. Measures to prevent degradation
NA B. Groundwater protection plan
NA C. Monitoring plan
NA 1. Monitoring points
NA 2. Monitoring frequency
NA 3. Background conditions
NA 4. Monitoring parameters
NA 5. Personnel qualifications
NA 6. Proof of training
NA 7. Equipment and methods
NA 8. Quality assurance/quality control
NA 9. Reporting requirements
NA 10. Remedial action plan
NA D. Monitoring well installation report
NA 1. Well location map
NA 2. Elevation data
NA 3. Well installation data
NA 4. Well construction details
NA 5. Borehole logs
NA 6. Summary of depth measurements
NA 7. Characteristics of subsurface strata
NA 8. Well installation contract

NA 9. Schematic cross-sections
NA 10. Monitoring point summary table
NA 11. Protective casing
NA 12. On-site well identification

Section 16. Water supply

X A. Water supply method
NA 1. Individual wells (evidence of sufficient/healthful supply)
NA a. Support of findings by well drillers
NA b. Support of findings by geologist
NA 2. Common well(s) (reports)
NA a. Hydrogeology report
NA b. Engineering report
NA c. Well installation report
NA d. Long-term safe yield and zone of influence determination
NA e. Public water supply
NA i. Proposed well or wells
NA ii. Existing well or wells
NA iii. Water quality analysis
NA 3. Well construction in shallow-to-bedrock areas
NA 4. Additional information
X 5. Off-site utility company or public agency
NA 6. Other sources
NA B. Subsurface wastewater disposal systems (locations of systems and wells)
X C. Total usage (statement re: total anticipated water usage)

Section 17. Wastewater disposal

NA A. On-site subsurface wastewater disposal systems (investigation results)
NA 1. Site plan
2. Soil conditions summary table
NA 3. Logs of subsurface explorations
4. Additional test pits, borings or probes
NA a. Soil conditions A
NA b. Soils with Profiles 8 and 9 parent material
NA c. Soil conditions D
NA d. Disposal field length 60 feet or greater
NA 5. 3-bedroom design
NA 6. Larger disposal systems
a. System design details
NA b. Plan view
NA c. Cross sections
NA d. Test pit data
NA e. Mounding analysis
NA B. Nitrate-nitrogen impact assessment
NA 1. When required
NA a. Exempted____
i. Conventional systems meeting certain setbacks
NA ii. Denitrification systems
NA b. Special conditions and other exemptions
NA 2. Assumptions
NA a. Initial concentration
NA b. Background concentration
NA c. Contribution from development
NA d. Mixing and dilution
NA e. Severe-drought scenario
NA f. Wastewater flow to subsurface wastewater disposal fields

NA 3. Assessment report minimum requirements
NA a. Narrative and calculations
NA b. Site plan
NA i. Well locations
NA ii. 10 mg/l and 8 mg/l isocons
NA iii. Groundwater contours and groundwater flow divides
NA c. References
NA 4. Denitrification systems
NA a. Design plans and specifications
NA b. Installation information
NA c. Monitoring plan
NA d. Maintenance
NA e. Backup system
X D. Municipal facility or utility company letter
NA E. Storage or treatment lagoons

X **Section 18. Solid waste** (list: type, quantity, method of collection and location)
NA A. Commercial solid waste facility (final disposal location)
X B. Off-site disposal of construction/demolition debris (final disposal location)
NA C. On-site disposal of woodwaste/land clearing debris
NA 1. Applicability of rules (evidence re: applicability of rules)
NA 2. Burning of wood wastes
NA a. Delineation on site plan
NA b. Plans for handling unburned woodwaste and woodash
NA c. Evidence of capacity to accept waste (approved facility)
NA d. Usage of materials
NA e. Data on mixing ratios and application rates
X D. Special or Hazardous Waste

Section 19. Flooding
X A. Explanation of flooding impact
X B. Site plan showing 100-year flood elevation
NA C. Hydrology analysis
X D. FEMA flood zone map with site boundaries

Section 20. Blasting
TBD A. Site Plan or map
TBD B. Report
1. Assessment
2. Blasting plan

Section 21. Air emissions (narrative and summary)
NA A. Point and non-point sources identified
NA B. Emission components (point sources)

Section 22. Odors
NA A. Identification of nature/source
NA B. Estimate of areas affected
NA C. Methods of control)

NA **Section 23. Water vapor** (narrative)

NA **Section 24. Sunlight** (statement and drawing, if required)

Section 25. Notices
NA A. Evidence that notice sent
NA B. List of abutters for purposes of notice

1. DEVELOPMENT DESCRIPTION

This narrative is submitted in support of an amendment to the Portland Square Site Location of Development (SLOD) Permit for the Three Portland Square project in Portland, Maine.

1.1 PERMIT BACKGROUND & REQUIREMENTS

In 1986, the Maine Department of Environmental Protection (MaineDEP) issued a Site Location of Development (SLOD) Permit Order (No. L-013526-A-N) for Portland Square. Since that time, a number of amendments have been made to that permit. The proposed development will be constructed within the property limits regulated by the existing Portland Square SLOD Permit Order, and an amendment to that permit is required. The following report is provided for this permit amendment application. The City of Portland will be reviewing this application as part of their Delegated Review Authority granted by the Maine DEP.

A Master Development Plan for Portland Square was submitted to the City in April 2019. The Portland Square property encompasses four parcels on approximately 6.5 acres of land between Spring, Cotton, Center, Commercial and Cross Streets within the Old Port District of Portland. This property consists of two existing buildings, referred to as One and Two Portland Square, and the adjacent "Upper" and "Lower" surface parking lots. The Master Development Plan includes full development of the property over five phases. Separate SLOD Amendment Applications will be submitted for each phase of development. A SLOD Amendment Application has been submitted and approved for Portland Square Phase 1 (Center Street Hotel). This application is in support of Phase 2 (Three Portland Square).

1.2 OBJECTIVE AND DETAILS

The proposed buildings and parking structure will be constructed on Parcel II of the Portland Square property adjacent to the existing One and Two Portland Square buildings, and bounded by Spring Street, Cotton Street and Fore Street. The proposed project includes the redevelopment of the existing "Upper" surface parking lot with an 8-story office building with ground-level retail (Office Tower), a 7-level parking structure, and a 4-story office building with ground level retail/restaurant space (Fore Street Wrap). The proposed project also includes redevelopment of the adjacent Portland Square plaza, stairs and private access driveway (referred to as Upper Cross Street), and redesign of Cotton Street to provide connectivity from Fore Street to Spring Street.

In addition to the SLOD Amendment Application, the proposed project requires the following permits:

- City of Portland Level III Site Plan Review – In progress
- FAA Notice of Proposed Construction – Notice will be filed with the FAA at least 45 days prior to the start of construction.

No additional environmental permits from State or Federal regulators are required for this project as it does not exceed size or resource thresholds.

1.3 EXISTING FACILITIES

The Site is currently fully developed as a paved surface parking lot with mulched landscaped esplanades and sidewalk with street trees. There are no significant natural features or wetlands due to the intense level of existing development. Topography slopes from northwest to southeast towards Fore Street, from approximate elevation 51' down to 29'. A boundary survey of Portland Square was completed by Owen Haskell, Inc. Professional Land Surveyors in October 2018 and is attached to this Section.

1.4 TOPOGRAPHIC MAP

A USGS topographic map showing the approximate location of development boundaries is attached to this Section for your reference.

1.5 CONSTRUCTION PLAN

A Construction Management Plan prepared by Consigli Construction is included as an attachment to this section.

1.6 DRAWINGS

Project design plans showing the proposed improvements are included as an attachment to this section.

1.7 LIST OF ATTACHMENTS

The following documents are attached to this Section:

- Survey
- USGS Topographic Map
- Construction Management Plan (Bound Separately)
- Design Drawings (Bound Separately)

Plan References:

1. ALTA/ACSM LAND TITLE SURVEY FOR PORTLAND SQUARE LIMITED PARTNERSHIP, TWO PORTLAND SQUARE, CITY OF PORTLAND, COUNTY OF CUMBERLAND, STATE OF MAINE, BY STEVENS, MORTON, ROSE & THOMPSON DATED DEC. 11, 1989, REVISED THROUGH DEC. 11, 1992.
2. SURVEY FOR ATBRO CORP. DATED JULY 1981 BY H.I. & E.C. JORDAN.
3. LAND TITLE SURVEY FOR NORTHLAND REALTY DATED NOV. 26, 1985 BY H.I. & E.C. JORDAN.
4. "CROSS STREET EASEMENT PLAN" DATED JAN. 3, 1986 BY HUNTER– BALLEW ASSOCIATES ON FILE WITH THE CITY OF PORTLAND DEPT. OF PLANNING AND URBAN DEVELOPMENT.
5. STANDARD BOUNDARY SURVEY FOR PORTLAND SQUARE LIMITED PARTNERSHIP, NORTHLAND REALTY CORP. DATED OCT. 26, 1987 BY STEVENS, MORTON, ROSE & THOMPSON, INC. RECORDED IN C.C.R.D. IN PLAN BOOK 182, PAGE 29.
6. LAND TITLE SURVEY ON FORE STREET, PORTLAND, MAINE MADE FOR TWO PORTLAND SQUARE LIMITED PARTNERSHIP DATED FEB. 21, 1996 BY OWEN HASKELL, INC. RECORDED IN PLAN BOOK 196, PAGE 60.
7. ALTA/ACSM LAND TITLE SURVEY OF ONE PORTLAND SQUARE DATED MAY 16, 1996 BY LEWIS & WASINA, INC. UPDATED TO JUNE 24, 1996 IN PLAN BOOK 196, PAGE 221.
8. PLAN MADE FOR MGI ONE PORTLAND SQUARE, INC. BY H.I. & E.C. JORDAN DATED NOV. 15, 1989 REVISED TO JUNE 26, 1996 IN PLAN BOOK 196, PAGE 86 AND 219.
9. LAND TITLE SURVEY FOR MGI TWO PORTLAND SQUARE, INC., FORE STREET, PORTLAND, MAINE, JUNE 25, 1996 BY OWEN HASKELL, INC. IN PLAN BOOK 196, PAGE 220.
10. PLATS AND PLANS OF A BUSINESS CONDOMINIUM OCTOBER 29, 1987 PLAN BOOK 166, PAGE 44.
11. PLAN OF PROPERTY IN PORTLAND MAINE MADE FOR PORTLAND SQUARE LIMITED PARTNERSHIP DATED NOV. 15, 1989 BY H.I. AND E.C. JORDAN.
12. ALTA/ACSM LAND TITLE SURVEY ON FORE STREET PORTLAND, MAINE MADE FOR MGI, ONE PORTLAND SQUARE DATED APRIL 14, 1999 BY OWEN HASKELL, INC.
13. ALTA/ACSM LAND TITLE SURVEY ON FORE STREET PORTLAND, MAINE MADE FOR TIMOTHY O'NEIL DATED APRIL 14, 1999 REV. 7 3/23/04 BY OWEN HASKELL, INC.
14. ALTA/ACSM LAND TITLE SURVEY, BCIA PROJECT, ONE PORTLAND SQUARE, TWO PORTLAND SQUARE AND PORTLAND SQUARE PARKING, PORTLAND, MAINE, SHEETS 1 AND 2, DATED SEPT. 30, 2005 LAST REVISED FEB. 7, 2006 AND MARCH 3, 2006 BY OWEN HASKELL, INC.
15. ALTA/ACSM LAND TITLE SURVEY, oNE PORTLAND SQUARE, TWO PORTLAND SQUARE AND PORTLAND SQUARE PARKING, PORTLAND, MAINE, MADE FOR NORTH RIVER IV LLC FEBRUARY 12, 2015 BY OWEN HASKELL, INC.

Utility Note:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1–888–DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

Flood Zone Note:

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS IN ZONE C OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051 0013 B, WHICH BEARS AN EFFECTIVE DATE OF JULY 17, 1986 AND IS NOT IN A SPECIAL FLOOD HAZARD AREA.

Notes:

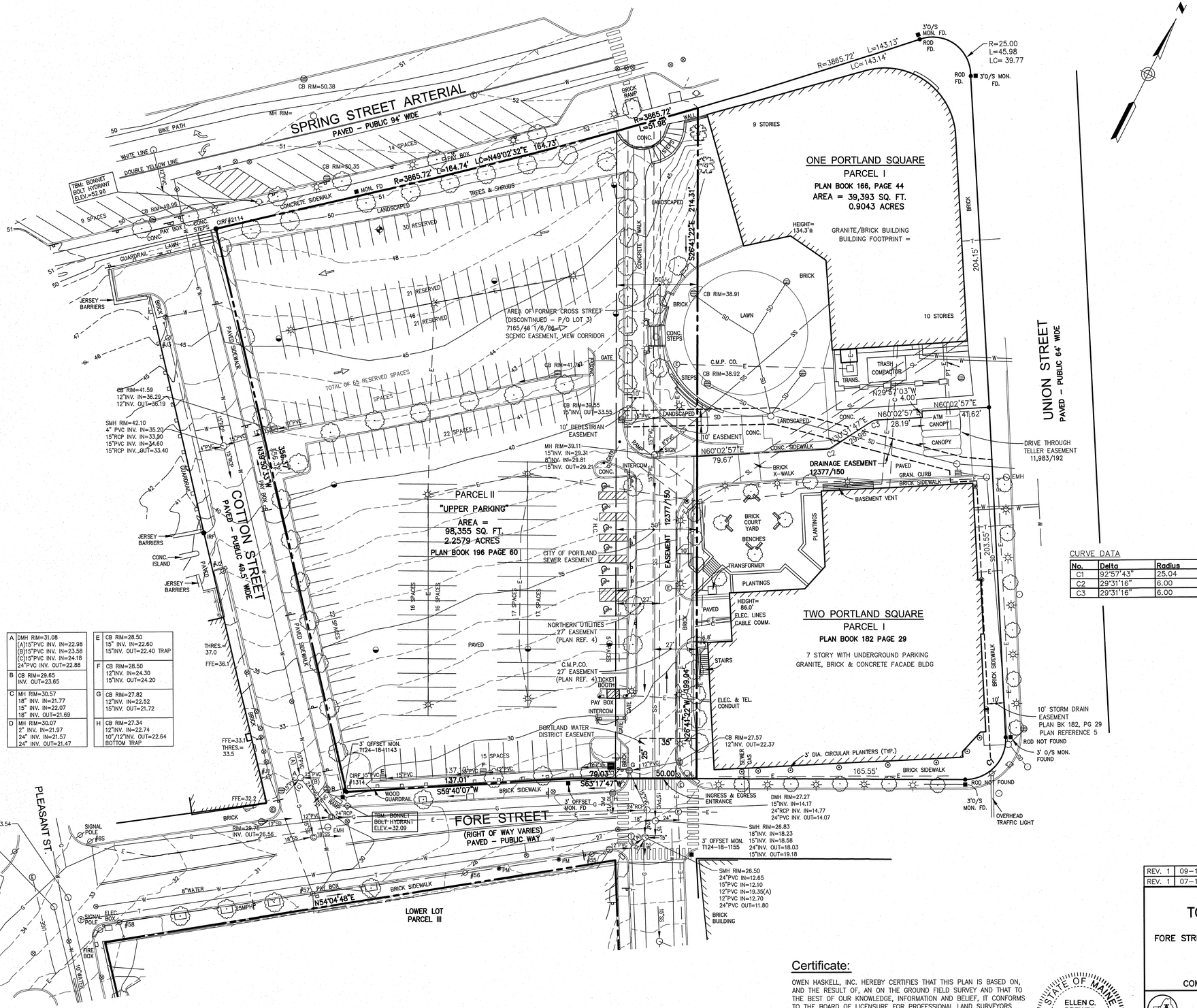
1. OWNER OF RECORD: NORTH RIVER IV LLC, 224 12TH AVENUE, NEW YORK, NY 10001 C.C.R.D. BOOK 32163 PAGE 33

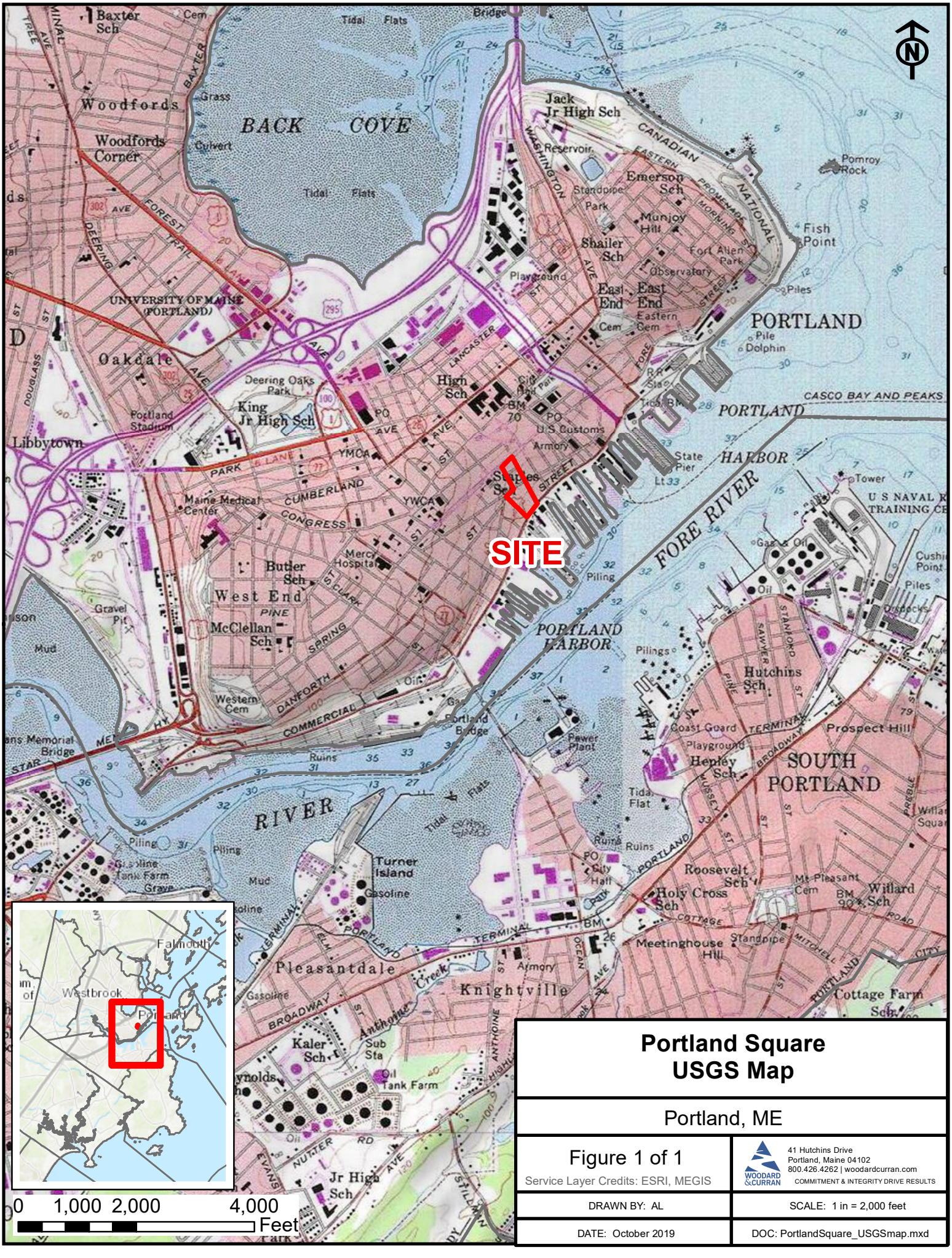
2. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM MAINE WEST NAD83. CITY POINT T124–18–1143 N:299542.1747 E:2928944.1068 AND T124–18–1155 N:299607.6956 E:2929152.2276 HELD.

3. ELEVATIONS ARE BASED ON CITY DATUM.

4. THE LOCUS IS SHOWN AS LOT 3 BLOCK B ON THE CITY OF PORTLAND ASSESSORS MAP 38.

A	DMH RIM=31.08 (A)15"PVC INV. IN=22.98 (B)15"PVC INV. IN=23.58 (C)15"PVC INV. IN=24.18 24"PVC INV. OUT=22.88	E	CB RIM=28.50 15" INV. IN=22.60 15"INV. OUT=22.40 TRAP
B	CB RIM=29.65 INV. OUT=23.65	F	CB RIM=28.50 12"INV. IN=24.30 15"INV. OUT=24.20
C	MH RIM=30.57 18" INV. IN=21.77 15" INV. IN=22.07 18" INV. OUT=21.69	G	CB RIM=27.82 12"INV. IN=22.52 15"INV. OUT=21.72
D	MH RIM=30.07 2" INV. IN=21.97 24" INV. IN=21.57 24" INV. OUT=21.47	H	CB RIM=27.34 12"INV. IN=22.74 10"/12"INV. OUT=22.64 BOTTOM TRAP


SPRING STREET ARTERIAL
PAVED – PUBLIC 94' WIDE
COTTON STREET
PAVED – PUBLIC 49.5' WIDE
FORE STREET
(RIGHT OF WAY VARIES)
PAVED – PUBLIC WAY
PLEASANT ST.
YORK ST.
UNION STREET
PAVED – PUBLIC 64' WIDE
ONE PORTLAND SQUARE
PARCEL I
PLAN BOOK 166, PAGE 44
AREA = 39,393 SQ. FT.
0.9043 ACRES
GRANITE/BRICK BUILDING
BUILDING FOOTPRINT =
9 STORIES
10 STORIES
HEIGHT= 134.3'±
TWO PORTLAND SQUARE
PARCEL I
PLAN BOOK 182 PAGE 29
7 STORY WITH UNDERGROUND PARKING
GRANITE, BRICK & CONCRETE FACADE BLDG
PARCEL II
"UPPER PARKING"
AREA = 98,355 SQ. FT.
2.2579 ACRES
PLAN BOOK 196 PAGE 60
LOWER LOT
PARCEL III
AREA OF FORMER CROSS STREET (DISCONTINUED – P/O LOT 3)
7165/46 1/6/86
SCENIC EASEMENT, VIEW CORRIDOR
DRAINAGE EASEMENT 12377/150
CITY OF PORTLAND SEWER EASEMENT
NORTHERN UTILITIES 27' EASEMENT (PLAN REF. 4)
C.M.P.CO. 27' EASEMENT (PLAN REF. 4)
PORTLAND WATER DISTRICT EASEMENT
DRIVE THROUGH TELLER EASEMENT 11,983/192
10' STORM DRAIN EASEMENT PLAN BK 182, PG 29 PLAN REFERENCE 5
TOTAL OF 65 RESERVED SPACES
S26°41'22"E 214.31'
S59°40'07"W 137.01'
S63°17'47"W 79.03'
N54°04'48"E 356.27'
N60°02'57"E 79.67'
N29°57'03"W 4.00'
N60°02'57"E 41.62'
S26°41'22"W 199.04'
N26°41'22"E 203.55'
165.55'
204.15'
50.00'
CB RIM=50.38
CB RIM=50.35
MH RIM=
CB RIM=49.96
CB RIM=41.59
12"INV. IN=36.29
12"INV. OUT=36.19
SMH RIM=42.10
4" PVC INV. IN=35.20
15"RCP INV. IN=33.90
15"PVC INV. IN=34.60
15"RCP INV. OUT=33.40
CB RIM=41.74
CB RIM=39.55
15"INV. OUT=33.55
MH RIM=39.11
15"INV. IN=29.31
8"INV. IN=29.81
15"INV. OUT=29.21
CB RIM=38.91
C.M.P. CO.
CB RIM=38.92
CB RIM=27.57
12"INV. OUT=22.37
DMH RIM=27.27
15"INV. IN=14.17
24"RCP INV. IN=14.77
24"PVC INV. OUT=14.07
SMH RIM=26.83
18"INV. IN=18.23
15"INV. IN=18.58
24"INV. OUT=18.03
15"INV. OUT=19.18
SMH RIM=26.50
24"PVC IN=12.65
15"PVC IN=12.10
12"PVC IN=19.35(A)
12"PVC IN=12.70
24"PVC OUT=11.80
CB RIM=28.50
15" INV. IN=22.60
15"INV. OUT=22.40 TRAP
CB RIM=29.65
INV. OUT=23.65
MH RIM=30.57
18" INV. IN=21.77
15" INV. IN=22.07
18" INV. OUT=21.69
MH RIM=30.07
2" INV. IN=21.97
24" INV. IN=21.57
24" INV. OUT=21.47
CB RIM=27.82
12"INV. IN=22.52
15"INV. OUT=21.72
CB RIM=27.34
12"INV. IN=22.74
10"/12"INV. OUT=22.64
BOTTOM TRAP
TBM: BONNET BOLT HYDRANT ELEV.=52.96
TBM: BONNET BOLT HYDRANT ELEV.=32.09
R=3865.72'
L=164.74'
LC=N49°02'32"E 164.73'
R=3865.72'
L=143.13'
LC=143.14'
R=3865.72'
L=51.98'
R=25.00
L=45.98
LC= 39.77
3'O/S MON. FD.
ROD FD.
ROD NOT FOUND
3' O/S MON. FOUND
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Portland Square
USGS Map

Portland, ME

Figure 1 of 1

Service Layer Credits: ESRI, MEGIS

WOODARD & CURRAN
41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

DRAWN BY: AL	SCALE: 1 in = 2,000 feet
DATE: October 2019	DOC: PortlandSquare_USGSmap.mxd

2. TITLE, RIGHT, INTEREST

2.1 NARRATIVE

As noted on the survey, Three Portland Square will be located on a parcel owned by North River IV, LLC. A copy of the Quitclaim with Covenant Deed conferred to North River IV, LLC, which serves as evidence of right, title, and interest, has been attached to this Section.

2.2 LIST OF ATTACHMENTS

- City of Portland Tax Map
- Quitclaim with Covenant Deed, dated March 26, 2015, between former owner RREEF America REIT III-Z4 LLC and North River IV, LLC

Index Number - E9NE

April 1 2012 fy 2013 Tax Map Index; http://www.portlandassessors.com/taxmaps.htm

E9SW E9SE E10SW

O7NE E9NW

F10SW F9SE F9SW

1 inch = 50 feet

CENTER ST
YORK ST
DANFORTH ST
PLEASANT ST
MAPLE ST
SPRING ST
SOUTH ST
FORE ST
COTTON ST
CIVIC CENTER SQ
FREE ST
OAK ST
CONGRESS ST
BROWN ST
CASCO ST
TOLMAN PL
SHEPLEY ST

CUMBERLAND COUNTY CIVIC CENTER

37 PLEASANT ST CONDO

SOUTH STREET CONDO

70 CENTER STREET CONDO

110 FREE STREET CONDO

500 CONGRESS STREET CONDO

540 CONGRESS ST CONDO

CONGRESS STREET CONDO

537 LOFTS CONDO

WINDOW LOFTS CONDO

KIMBALL COURT CONDO

ONE PORTLAND SQUARE CONDO

F9SE F10SW F10SE

E9NE E10NW

E9SE E10SW E10SE

SPRING ST
ONE PORTLAND SQUARE CONDO
39393
032 I036
032 I040
CANAL PLZ
1 - 4
0 - 0
032 I039
21195
40
038 B001
39520
038 B002
2
455
463
469
UNION ST
24 - 48
23 - 49
47 - 97
41764
032 I041
PATTON CT
11 - 1
18 - 2
032 I013
1880
032 I017
032 I018
395
3315
032 F014
365 - 377
379 - 387
366 - 380
382 - 388
376
370
380 - 396
398 - 406
384
388
12
392
032 J001
2812
032 J002
1892
398
FORE ST
032 J005
958
FORE-DANA CONDO
3120
404
408 - 412
401 - 403
414 - 426
405 - 427
428 - 448
429 - 457
032 N011
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032 N010
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032 N009
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032 N012
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032 R001
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032 R004
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032 R003
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032 R007
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032 R008
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WHARF ST
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032 V015
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032 V016
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032 V001
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032 V002
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032 V004
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032 V005
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223
032 V014
8048
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032 V012
032 V008
5392
227
225
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ONE UNION ST CONDO
5109
231
235
237
DANA ST
1 - 11
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032 S001
5808
11
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032 S003
2727
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032 S004
161
3600
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032 S005
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3576
MOULTON ST
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2 - 10
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3983
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032 U003
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032 U004
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032 T004
6093
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MARKET ST
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029 S001
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COMMERCIAL ST
136 - 154
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031 H002
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DOCK
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031 H001
031 J030
79792
031 J031
SILVER ST
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029 D001
030 C006
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030 C007
030 C008
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030 C002
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030 A001
030 A002
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030 B002
030 B003
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030 B006
030 B001
40 PORTLAND PIER CONDO
8269
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030 H008
030 H001
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030 H004
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030 H007
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031 H007
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182 - 194
185 - 197
031 J031
79792
031 L038
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031 K103
031 L035
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031 L036
041 A018
041 A012
041 A017
041 A016
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031 L034
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031 L135
031 K003
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031 K008
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031 J032
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031 J003
CHANDLER'S WHARF CONDO
81980
71280
031 J002
031 K010
031 L036
71280
CHANDLER'S WHARF
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81980
DOCK
298453
LONG WHARF
1 - 25
2 - 26
WIDGERY'S WHARF
2 - 32
1 - 31
2 - 96
1 - 95
UNION WHARF
36
30
COTTON ST
498 - 516
505 - 517
474 - 496
463 - 503
040 F009
64954
040 F011
305
68736
038 G001
6002
038 F019
12471
CROSS ST
1 - 39
2 - 38
038 G003
038 G007
16950
038 G005
12386
CENTER ST
1 - 39
2 - 40
038 F006
245
038 F004
241
4857
038 F010
261
4930
4463
038 F020
9430
226 - 252
229 - 251
254 - 268
253 - 265
041 A015
260
12983
041 A014
041 A011
254
041 A0121
12 A
22352
041
COMMERCIAL ST
1 - 39
2 - 40
256 - 282
257 - 291
038 G002
HARBOR LANDING CONDO
8568
233 - 253
234 - 254
0 - 0
0 - 12

April 1 2012 fy 2013

Tax Map Index; http://www.portlandassessors.com/taxmaps.htm

Index Number - E10NW

1 inch = 50 feet

MAINE REAL ESTATE TAX-Paid

QUITCLAIM WITH COVENANT DEED

DLN:1001540002732

RREEF AMERICA REIT III-Z4 LLC, a Delaware limited liability company with a place of business in 222 South Riverside Plaza, Chicago, Illinois 60606-5808 for consideration paid, grants to North River IV LLC, a Delaware limited liability company with a place of business at 224 12th Avenue, New York, NY 10001, with **QUITCLAIM COVENANT**, the land, together with all improvements thereon and all rights and easements appurtenant thereto, located at or near Union street and Fore street consisting of unites 1-6 One Portland Square, a Business Condominium, the building known as Two Portland Square and certain related parcels, Portland, Cumberland County, Maine, more particularly described on **Exhibit A** attached hereto.

IN WITNESS WHEREOF, RREEF America REIT III-Z4 LLC, has caused this deed to be executed by James E. Toney, Assistant Vice President its duly authorized Assistant Vice President, this 26th day of March, 2015.

RREEF AMERICA REIT III-Z4 LLC,
a Delaware limited liability company,

By: RREEF AMERICA REIT III-Z LLC,
a Delaware limited liability company, its manager,

By: James E. Toney
Its duly authorized Assistant Vice President

Witness:
Vanessa C. Z

STATE OF ILLINOIS
COUNTY OF COOK

March 26, 2015

Personally appeared before me the above-named James E. Toney, Assistant Vice President of RREEF America REIT III-Z LLC, a Delaware limited liability company, manager of RREEF America REIT III-Z4 LLC, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said company.

Notary Public/Attorney at Law
Print name: Beverly A Dillon

OFFICIAL SEAL
BEVERLY A. DILLON
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES MARCH 3, 2018

EXHIBIT A

Legal Description

Tract 1:

Parcel One - One Portland Square.

Units No. 1, 2, 3, 4, 5, and 6 of One Portland Square, a business condominium, situated at the corner of Union and Spring Streets in the City of Portland, County of Cumberland and State of Maine, as more particularly described in the Declaration of One Portland Square, a business condominium, dated as of October 27, 1987 and recorded in the Cumberland County Registry of Deeds on October 29, 1987 in Book 8039, Page 37, and in the plats and plans incorporated into the declaration and recorded in the Cumberland County Registry of Deeds in Plan Book No. 166, Page 44 sheets 1 through 13, by virtue of the recording of which declaration, plats and plans, the declarant created the condominium pursuant to the Maine Condominium Act, Title 33 of the Maine Revised Statutes of 1964, as amended, Chapter 31, Sections 1601-101 et seq., as amended.

Parcel Two - Upper Parking

A parcel of land shown as "Lot 3" on a land title survey prepared for Northland Realty Corporation by Lewis & Wasina, Inc. dated April 5, 1995, Project No. 9508 located on the southerly side of Spring Street Arterial, the easterly side of Cotton Street and the northerly side of Fore Street, City of Portland, County of Cumberland, State of Maine, and being more particularly described as follows:

Beginning at a found rebar at the intersection of the northerly right of way line of Fore Street and the easterly right of way line of Cotton Street;

Thence, N24° 18' 44" W along the easterly right of way line of Cotton street a distance of 356.32 feet to a set 5/8 inch rebar with aluminum cap stamped "Lewis & Wasina PLS 2114" at the southerly right of way line of Spring Street Arterial;

Thence, N65° 47' 27" E along the southerly right of way line of Spring Street Arterial a distance of 89.72 feet to a found rebar;

Thence, continuing to follow the southerly right of way line of Spring Street Arterial along a curve to the left having a delta of 3° 11' 35", a radius 3887.30 feet, an arc length of 216.65 feet and a chord bearing and length of N64° 11' 39" E, 216.62 feet to a found drill hole in a concrete sidewalk;

Thence, S11° 09' 10" E following the former easterly right of way line of cross street, now discontinued, along lot 1 and lands conveyed by deed to Two Portland Square limited partnership as shown on said plan a total distance of 413.33 feet to a found rebar on the northerly right of way line of Fore Street;

Thence, S78° 49' 49" W along the northerly right of way line of Fore Street a distance of 79.03 feet to a found rebar;

Thence, S75° 13' 06" W along the northerly right of way line of fore street a distance of 137.10 feet to the point of beginning.

All the above mentioned found rebar are 5/8 inch with aluminum cap stamped "SMRT RLS 1314".

Reference should be made to the plan for further details of the boundary and easements.

The basis of bearing for this description is magnetic North, 1972, as shown on said plan.

Parcel Three - Lower Parking

A certain lot or parcel of land being the majority of the block bounded northerly by Fore Street, easterly by Cross Street, southerly by Commercial Street and westerly by Center Street in the City of Portland, County of Cumberland, and State of Maine and further bounded and described as follows:

Beginning at a drill hole at the intersection of the northwesterly line of Commercial Street and the easterly line of Center Street, said point also being the most southwesterly corner of certain land conveyed to the Atbro Corporation by Deed dated October 3, 1979, and recorded in the Cumberland County Registry of Deeds in Book 4506, Page 48;

Thence North 43° 29' 22.8" East along Commercial Street, a distance of 69.18 feet to a reinforcing rod;

Thence North 46° 50' 30" East along said Commercial Street, a distance of 54.32 feet to a reinforcing rod;

Thence North 52° 30' 11.2" east along said Commercial Street, a distance of 35.64 feet to a drill hole;

Thence North 24° 17' 37.6" West along land formerly of Ari Newman and Lee Beamis, and now Harbor Landing Condominium, see Declaration of Condominium recorded in Book 6505, Page 312, Cumberland County Registry of Deeds, a distance of 93.23 feet to a reinforcing rod;

Thence North 65° 44' 46" East along land now or formerly of said Ari Newman and Lee Beamis, a distance of 109.60 feet to a P.K. spike in the westerly line of Cross Street;

Thence North 13° 21' 13.9" West along said Cross Street, a distance of 287.70 feet to a reinforcing rod, said point being located at the intersection of the westerly line of Cross Street and the southerly line of Fore Street;

Thence South 69° 41' 09.0" West along said Fore Street, a distance of 318.64 feet to a reinforcing rod, said point being located at the intersection of the southerly line of Fore Street and the easterly line of Center Street;

Thence South 24° 16' 16.2" East along said Center Street, a distance of 451.12 feet to the point of beginning.

Excepting from the above described premises those premises taken by the State of Maine by its Department of Transportation set forth in its notice of layout and taking dated August 21, 1991 and recorded in the Cumberland County Registry of Deeds in Book 9688, Page 341.

Tract 2: Two Portland Square.

A certain lot or parcel of land with any buildings thereon situated at the intersection of Fore Street and Union Street in the City of Portland, County of Cumberland, and State of Maine, being Lot 2 on plan for Two Portland Square Subdivision by Stevens Morton Rose & Thompson dated October 22, 1987, revised to September 18, 1989 and recorded in Plan Book 182, Page 29.

Subject to and together with that certain parking easement established in Declaration of Easement by Portland Square limited partnership dated December 18, 1989 and recorded in Book 9028, Page 117, as affected by Subject Property Notice dated December 18, 1989 and recorded in Book 9028, Page 136, and by Permitted Parking Areas Plan dated December 18, 1989 and recorded in Book 9028, Page 141.

Rights, easements, covenants, conditions and restrictions set forth in Declaration of Easement by Portland Square Limited Partnership dated October 30, 1987, recorded at Book 8045, Page 303, as affected by Additional Declaration of Easement dated December 18, 1989, recorded at Book 9028, Page 92, Release of Easement dated December 18, 1989, recorded at Book 9028, Page 97, Subject Property Notice dated December 18, 1989, recorded at Book 9028, Page 102, and Permitted Parking Areas Plan dated December 18, 1989, recorded at Book 9028, Page 112.

3. FINANCIAL CAPACITY

3.1 PROJECT CONSTRUCTION COST

The construction budget for the proposed development is approximately $70,000,000.

3.2 FINANCING

Attached to this Section is a letter from the Senior Vice President of People's United Bank demonstrating that the developer has financial capacity to support the proposed project.

3.3 SLOD AFFORDABLE HOUSING/CITY OF PORTLAND INCLUSIONARY ZONING

The proposed redevelopment includes parking, office, and retail, and this section does not apply.

3.4 LIST OF ATTACHMENTS

- Financial Capacity Letter

People's United Bank

March 8, 2019

Ms. Barbara Barhydt
City of Portland, Planning Division
389 Congress Street, 4th floor
Portland, ME 04101

Re: North River IV, LLC and North River Company, LLC

To Whom It May Concern:

North River Company ("NRC"), the Manager of North River IV LLC, which is the owner of record of the properties known as Portland Square, Portland, ME, has had a banking relationship with People's United Bank, N.A. since 2010. In that time, People's United Bank has provided NRC and its affiliates with real estate financings in excess of $170,000,000, including loans for acquisition, new development and complex renovation projects. We consider the principals of NRC to be of the highest character and, based on our knowledge of NRC's management expertise, financial condition and access to significant liquid assets, People's United Bank would be comfortable entertaining requests for financing any type of real estate project and of any size.

NRC and its affiliates have access to cash reserves and credit facilities well in excess of $20,000,000 with People's United Bank.

People's United Bank is a subsidiary of People's United Financial, Inc., a diversified financial services company with over $45 Billion in assets. Founded in 1842, People's United Bank is a community-based, regional bank in the Northeast offering commercial and retail banking, as well as wealth management services through a network of nearly 400 retail locations in Connecticut, New York, Massachusetts, Vermont, New Hampshire and Maine.

If I may be of any further assistance regarding this highly valued relationship, please contact me at (207) 828-3023 or by email at timothy.mcmachen@peoples.com.

Sincerely,

Timothy J. McMachen
Senior Vice President
Commercial Real Estate

4. TECHNICAL ABILITY

4.1 NARRATIVE

On behalf of North River IV, LLC, Woodard & Curran is preparing this application for the Three Portland Square Project. Woodard & Curran is a national environmental consulting and engineering firm with expertise in site-civil engineering, stormwater management, and property development. Since the company was formed 40 years ago, Woodard & Curran has completed numerous site designs and permit applications for municipal, industrial, manufacturing, and commercial clients throughout the Northeast, and specifically within its home State of Maine. Woodard & Curran has been involved in numerous development projects in the Greater Portland Area and has developed working relationships with various consultants who are called upon, as necessary, to provide specialized services.

North River IV, LLC is also supported by a design team including Pat Carroll Landscape Architects, Winton Scott Architects and Becker Structural Engineers. Copies of the company profiles of the various design team partners are attached, providing further verification of technical capacity for this project.

4.2 LIST OF ATTACHMENTS

- Technical Capacity Documentation

CARROLL ASSOCIATES

Firm Description

Carroll Associates is a small consulting firm engaged in the practice of landscape architecture, land planning, and site design. The firm was created in 1993, and is involved in a wide range of design and planning projects throughout Maine and New England.

The firm provides professional services to a broad-based clientele that includes municipal and institutional organizations, architects, engineers, real estate developers, and private individuals. While maintaining a diverse workload, the firm is entrenched in public, urban, and residential based planning and design work. Carroll Associates has significant experience in public, urban waterfront settings, institutional projects ranging from elementary schools to university work; municipal projects and recreational projects including work at Acadia National Park. The overriding objective in each is to provide a sensitive and well thought out solution which respects the natural environment and creates a functional and inviting setting for the building and its user.

Carroll Associates has been involved with many complex state and municipal projects which are specifically relevant to this project. Relevant Site Planning and Urban Design projects in Portland include the following:

- Ocean Gateway Ferry Terminal
- Marriot Residence Inn
- Riverwalk Condominiums (unbuilt)
- Maine State Pier Redevelopment Design Competition (selected design, unbuilt)
- Merrill's Wharf Redevelopment
- Thompsons Point Redevelopment
- International Marine Terminal Expansion
- Portland Gateway Hotel

In all of these projects the ability to integrate a new facility or program with historical buildings, complex physical and environmental sites, and established neighborhoods was critical to the overall success of the project.

We are well experienced with working within an interdisciplinary design team and the need to provide strong design solutions with limited budgets. Key to the firm's success is the commitment to providing attention and focusing on the specific needs of the client, remaining flexible and bringing projects to closure on time and within budget.

Professional services offered through Carroll Associates may include any or all of the following:

- Site Selection and Analysis
- Program Development and Budgeting
- Site Feasibility/ Utilization Studies
- Recreation Planning and Design
- Site Master Planning
- Construction Documents, Bidding, and Administration
- Consultant Team Coordination and Management
- Local, State, and Federal Permitting and Approvals



Brick Hill, South Portland, ME

Brickhill consisted of redevelopment of former Maine Youth Center into mixed use 'Smart Growth' project. The program for the 56 acre site includes 300 affordable housing apartments and condominiums, 250,000 SF of professional office space, recreation amenities including an 8 acre park, boat launch, community gardens, and hiking trails while preserving the historic brick structures on the site. The project is 100% completed in 2017. Carroll Associates provided Master Planning and Site Design Services for the project since 2001.



Forefront at Thompsons Point

The Forefront at Thompson's Point is a mixed-use development located on an existing vacant industrial site on the Fore River in Portland Maine. The original program consisted of a new Sports Event Cente, Concert Hall with an adjacent outdoor amphitheater seating 4500, a 235 room hotel, cultural center, restaurants, and approximately 180,000 sf of professional office space. Carroll Associates has been retained by the Developer to provide Master Planning and Landscape Architectural Services on the project.



Oceangate and Maine State Pier Redevelopment

Redevelopment of underutilized portion of Portland waterfront to provide new berthing for cruise ships and international ferry terminal. Oceangate Project includes extensive parking for ferry arrivals and departures, passengers, and tour busses; integration of adjacent narrow gauge railway, extension of existing streets to provide critical connections, and outdoor plazas and parks providing strong pedestrian connectivity to adjacent open space systems. Maine State Pier project includes redevelopment of aging waterfront pier and landside property to provide strong mixed use including office, retail, hotel, and a 2 acre park and with direct access to the waterfront.



Harborcorp, Portsmouth, NH

Redevelopment of vacant property in West End of Portsmouth, NH to provide mixed use development. Project envisions up to 115 Hotel rooms, 24 Condominium Units, Conference Facilities, Retail, dedicated parkland, and Structured Parking. The project ties into the existing Sheraton Hotel across the street. Approvals are in place and construction is expected to begin in 2019

CARROLL ASSOCIATES

PATRICK J. CARROLL
Principal Landscape Architect



Professional Registration:
Maine, New Jersey, New Hampshire, CLARB

Education:
Utah State University
Bachelor of Landscape Architecture,1978

Prior Experience
Carroll Associates, Portland ME 1993-
Moore Weinrich Architects, ME 1989- 2003
Environmental Planning and Design, ME 1988
Design Workshop, CO 1982- 1988
Land Design, UT 1989- 1988

As founder of Carroll Associates, Pat brings 40 years of landscape Architectural experience on a wide variety of projects throughout Maine, New England, and the Western United States. His successful project experience on largescale master planning and urban design provides a strong basis for solving complex design issues and managing important design and permitting challenges. His sensitivity and understanding of environmental constraints and culture provides for successful projects that are fitting and appropriate to each setting.

Erin Kay
Project Manager



Professional Registration:
Maine

Education:
Rhode Island School of Design
Master of Landscape Architecture, 2010

University of New Hampshire
BA Studio Art, 2004

Prior Experience
Carroll Associates, Portland ME 2013-
Crossby/Schlessinger, MA 2010- 2013

Erin joined Carroll Associates in 2010, and brings significant experience in urban design and planning from her experience in Boston prior to joining the firm. She has actively participated in many of the larger urban projects Carroll Associates has undertaken in the last five years, including Thompsons Point, Harborcorp and other complex and challenging projects. Her ability to quickly synthesize a site and develop creative solutions make her a valuable member of the design team.

WSA

WINTON SCOTT
ARCHITECTS

5 Milk Street, Portland, ME 04101
207.774.4811|www.wintonscott.com

Established in 1975, Winton Scott Architects is a small, design-oriented architectural practice located in Portland, Maine. Our work encompasses a diverse array of project types and scales ranging from multi-block urban developments, to historic renovations, commercial and institutional buildings, and multifamily and single family residences.

Our firm has been recognized numerous times for design excellence by the Maine and New England Chapters of the American Institute of Architects, as well as the United States Green Building Council; and our work has been profiled in national trade journals, local publications, and several books focussed on design and architecture.

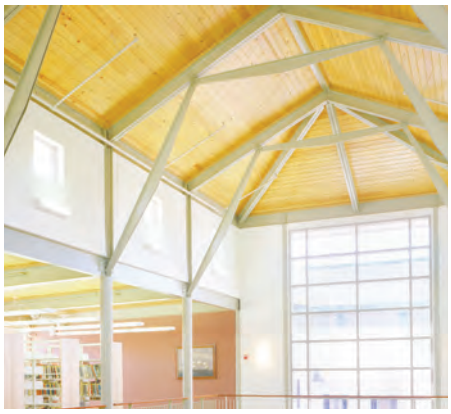
Winton Scott Architects is comprised of a staff of six, including four senior architects ranging in experience from 15 to 45 years. The office is organized horizontally with all staff members capable of managing projects from program and design through production of construction documents and construction contract administration. This depth of experience and continuity in staffing have allowed WSA to take on large, complex projects while consistently delivering the highest level of professional services to our clients. The culture of the office is that of an open, creative collaboration of seasoned architects striving for the highest level of design excellence and client satisfaction.

We believe that architecture should be sustainable, adaptable, timeless, and derivative of its context and function. All buildings, even the most modest in scale and budget, can be at once artful, functional, and inspiring if they are rigorously conceived and executed with craft and precision. Each of our designs responds to the specific needs of our clients and the individual character of a particular site and its surrounding context.

Project Images From Top:

Ocean Gateway Cruise Ship Terminal
Skidompha Library
Youth Alternatives Family Center
Merrill Auditorium









Winton Scott Architects

Recent Urban Design / Planning Projects



Project: Maine State Pier Redevelopment

Program: Offices, Hotel, Retail, Restaurants, Marine Operations, Park

Areas: Site area = 7.2 Acres
Buildings = 325,000 S.F.

WSA Role: Design Team Leader, Masterplanning, Architect for Office Building.



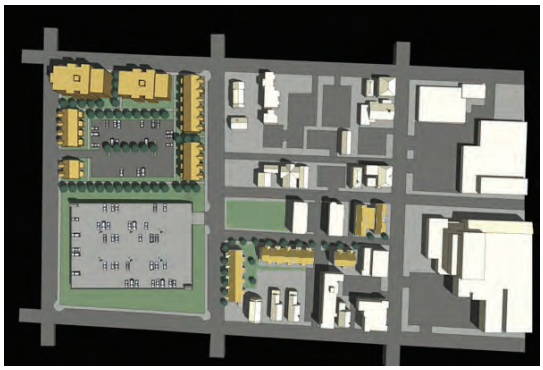
Project: Brick Hill- (Maine Youth Center Redevelopment)

Value: $65M

Program: Offices, apartments, condominiums

Areas: Site area = 59 Acres
Buildings = 336,000 S.F.

WSA Role: Masterplanning, Architects for 3 apartment projects, 2 office buildings

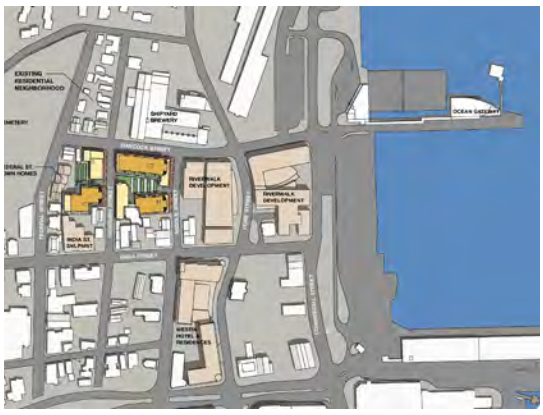


Project: Pearl Place & Unity Village Infill Housing

Program: Market rate & Subsidized apartments (188 Units)

Areas: Site area = 2.5 Acres
Buildings = 220,000 S.F.

WSA Role: Masterplanning, Architecture



Projects: Westin Hotel & Residences
The Village at Oceangate
Eastern Waterfront Garage
Oceangateway Cruiseship Terminal

Program: Hotel, Condominiums, Office, Retail Parking Garage, Terminal

Areas: Site area = 14.75 Acres
Buildings = 890,000 S.F.

WSA Role: Masterplanning, Architecture

WSA
WINTON SCOTT
ARCHITECTS



Winton Scott, NCARB
President

Professional Registrations	Maine, Massachusetts, and NCARB Certification
Other Experience	Louis I. Kahn, Architect, Philadelphia, PA Senior Project Architect Phillips Exeter Library Eero Saarinen and Assoc., New Haven Designer and Job Captain Ford Foundation Headquarters
Education	University of Texas, Bachelor of Architecture with Highest Honors, 1960

Before founding founding Winton Scott Architects in 1975, Winton Scott had built an impressive list of project experiences with some of the most highly respected architectural firms in the country. During this same period, he also accepted several teaching appointments with some notable schools of architecture, honing his own design interests.

Although Winton is a skilled designer, comfortable with any site, any building type and any scale, one of his special interests is urban design. His keen sensibilities in this arena are dramatically apparent in several recent projects completed by WSA



Stephen W. Weatherhead, RA
Principal

Professional Registrations	Licensed Architect, State of Maine
Education	Syracuse University, Bachelor of Architecture Professional Degree, 1988 Syracuse University in Florence, Italy Architecture Study Abroad Program, 1986

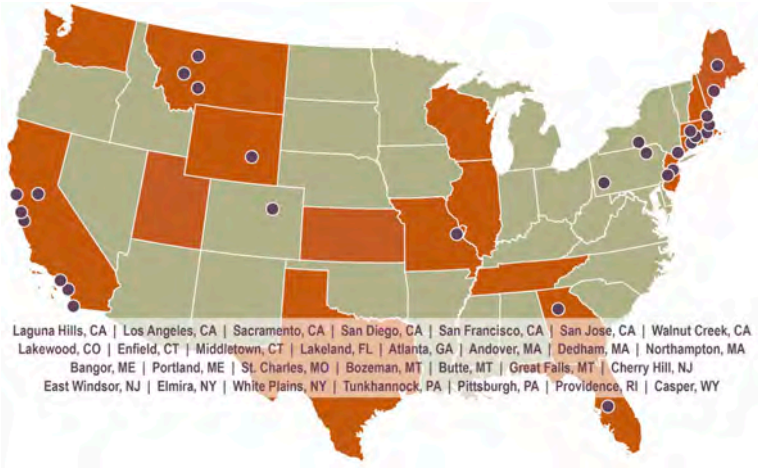
Steve joined Winton Scott Architects in 1994 to take on the role of Project Architect for the renovations to Merrill Auditorium. Since that time, he has gained extensive design and management experience on a wide range of renovation and new construction projects undertaken by the firm. His work encompasses projects ranging from custom homes to large scale commercial and institutional projects as well as a large portion of the firm's municipal work which includes a multitude of projects completed for the City of Portland.

With over 28 years of experience in all phases of architectural practice from conceptual design through construction, Steve knows how to effectively manage the design team and lead an open process that has consistently produced successful building projects based on the specific needs of his clients. He has managed projects for WSA totaling over $100M in construction value that have utilized a full range of project delivery methods both in the private and public sectors.

PROFILE OF THE FIRM

Woodard & Curran is an integrated engineering, science, and operations company. Privately held and steadily growing, we serve public and private clients locally and nationwide.

Talented people are at the heart of our firm. Our company was founded in 1979 on a simple business concept: provide an enjoyable place to work with opportunity, integrity, and commitment, and we will attract talented people. It happened. At the heart of our company are people who are experts in their fields and passionate about what they do, showing a level of commitment and integrity that drive results for our clients. You experience this power every day in our actions, our solutions, and our promises kept.



Woodard & Curran serves clients locally and nationwide from offices throughout the U.S. Headquartered in Portland, Maine, the firm operates offices in the locations noted above, as well as treatment facilities in the states that appear in orange.

Commitment evident in personal approach

Our commitment is reflected in the personal attention, collaborative resources, and dedication to results that we devote to each project. We assign the right people with the right expertise to the job, and provide clients with easy accessibility to senior experts.

Our work is characterized by responsiveness, resourcefulness, and willingness to do what it takes to get the job done properly. Examples range from helping communities garner state and federal funding for wastewater treatment system improvement to managing a multi-vendor manufacturing project through a major snowstorm and getting production lines up and running. We are experts at navigating the complexities of environmental regulations and have been involved in transforming many brownfields sites into marketable properties. In defining moments like these, it is commitment that brings our clients results.

Operating with integrity

Our integrity impacts our decision-making at all junctures of our work — from the openness of our communication to the fairness of our prices to placing your interests above our pocketbook. We hire people who share our values of honesty, respect, and fairness and who want to do the right thing. They, in turn, treat everyone — our people, our clients, regulators, and stakeholders — respectfully and honestly.

Full-service firm with multidisciplined staff

Our integrity and commitment are matched only by the depth of our expertise. Our staff are specialists in their fields, offering in-depth understanding of cutting-edge technology, astute problem-solving, multidisciplinary engineering, and expert regulatory guidance. The firm has received numerous honors and awards, and we have ranked among *Engineering News-Record's* top 100 environmental firms every year since 2000.

Services to the private sector

Woodard & Curran provides a range of site/civil and environmental engineering, science, and operations support to companies in the real estate sector, as well as to hospitals, colleges and universities, and law firms, helping our clients realize their project vision.



BARRY SHEFF, PE
PRINCIPAL-IN-CHARGE

Professional Profile

Barry is a Senior Principal and Senior Project Manager with over 25 years' experience working with the public sector on infrastructure planning and implementation, and with the private sector on urban revitalization projects. He is responsible for design and project management, with expertise engaging and facilitating stakeholder processes. His project work has involved utility infrastructure with focus on stormwater and wastewater utility planning studies, evaluations, and engineering; green infrastructure; master development planning and site design; and environmental/land-use permitting at the local, state, and federal levels. Barry focuses his work on sustainable environmental design and is committed to collaborating with owners and stakeholders to develop practical solutions to complex problems. He has been involved in numerous projects with high-performance buildings and LEED certification. Barry has a track record of understanding client expectations, consistent budget controls and excellent communication skills that enable him to drive the success of small and large projects of varying complexities.

Related Experience

Maine Medical Center, Portland, ME – Parking Garage. Principal-in-Charge for the permitting and design of the new 2,000+ car parking garage in St. John Valley neighborhood of Portland. The project is the result of a partnership between a private land-owner and Maine Medical Center (MMC) as part of the hospital's major campus expansion. Woodard & Curran's work involves site options analysis, land-use and environmental permitting, site/civil engineering and utility infrastructure design for the multi-level parking structure to serve MMC employees. Focus areas of the project involve the coordination with employee shuttle services, and the need for accommodating employee commuting patterns and routes while reducing demand on the existing urban street network surrounding the hospital campus.

Patrons Oxford Insurance – Patrons Oxford Insurance Headquarters. Principal-in-Charge for the permitting and design of the new Patrons Oxford Insurance Headquarters in Portland, Maine. The project was the first development in the Portland Technology Park in Portland (designed by Woodard & Curran). The project involved close coordination with the design team and owner, and included the low impact design considerations for parking and site features, as well as integration into the Technology Park's stormwater management plan.

East Brown Cow Management Inc., South Portland, ME – Sable Oaks Office. Principal-in-Charge responsible for civil site design and land-use permitting of a 45,000-SF office building with associated parking lot, access drives, plazas, and landscaping. The project included design of stormwater treatment systems, erosion control, site amenities, and utilities. Permitting efforts involved the City of South Portland, Maine Department of Environmental Protection (DEP), Army Corps of Engineers, and Federal Aviation Administration given proximity to the Portland International Jetport.

Education

- Bachelors, Civil / Environmental Engineering, University of Vermont

Registrations

- Registered Professional Engineer - ME, #9708
- NCEES License - National, 60366
- Maine DOT Local Project Administration Tier 1 Certification

Professional Associations

- American Society of Civil Engineers
- American Public Works Association
- New England Water Environment Association (NEWEA)
- Order of the Engineer

East Brown Cow Management Inc., Portland, ME – Hyatt Place Hotel. Principal-in-Charge for this redevelopment project to convert an existing parking lot on a 20,000 SF urban parcel of land into an 80,000 SF hotel. We collaborated with the architect and owner's representative to provide local permitting and site / civil engineering design associated with the project. The project was complicated by private power distribution infrastructure that crossed the site and needed to be maintained, as well as the City's desire to have off-site roadway improvements incorporated into the project.

PDT Architects, Portland, ME – Adams School Workforce Housing. Project Manager for this urban redevelopment project, supporting AVESTA Housing and its design team. Located in the Munjoy Hill neighborhood of Portland, the project is a result of a public RFP for redevelopment proposals of this brownfield site, the home of a former elementary school. The project involved the demolition of the existing Adams School building and site amenities, and remediation of environmental contamination; and development of a 16-unit affordable ownership-housing complex, with public open space and playground area. Our work involved local and state environmental permitting, and site engineering and design associated with the placement of this project in a densely developed residential neighborhood. The engineering effort required an intensive balance of earthwork activities to control remediation costs and ensure adequate environmental protections for the residents and users of the open spaces.

The Watermark and Ocean Gateway Garage – Mixed Use Development. Project Manager for the environmental due diligence phases (Phase 1 environmental site assessment and soil/groundwater investigations), site design, and permitting for this private mixed use development on the Portland waterfront (adjacent to the Ocean Gateway facility) with boutique hotel, luxury condominiums, retail, commercial space, office building, 750-car parking garage, and additional surface parking lots. Site/civil work includes layout, grading, drainage, erosion and sedimentation control, and utility design. Permitting includes City Site Plan, Subdivision, Historic Preservation, Maine DEP Site Law, and Maine Historic Preservation permitting. The parking garage was constructed while the remaining portions of the project were unbuilt.

MaineDOT, Portland, ME – Ocean Gateway Multimodal Facility. Program and Project Manager of the permitting and design for implementing first phase of the Master Plan of the redevelopment of a 19.5-acre ship repair facility to a multi-use marine transportation facility on Portland's waterfront. The phase one facility encompassed the former Bath Iron Works site and the associated City-owned land-based infrastructure. Under Barry's responsible charge, Woodard & Curran prepared, submitted, and obtained land-use and environmental permits for the project, including local land-use and Board of Harbor Commissioners approvals; Maine Department of Public Safety Construction Permit; Maine Traffic Movement Permit; U.S. Army Corps of Engineers Department of the Army Permit; and Maine DEP Site Location of Development Permit and Natural Resources Protection Act. We also designed the site infrastructure (vehicle queuing, pick-up and drop-off, short- and long-term parking) to be flexible in its use. The project includes the design of City streets, a major regional trail connection, and the narrow gauge passenger railway. The design creates a new city block and the impetus for economic development. The design of utility infrastructure and blending the facility into an existing congested urban environment proved challenging, but in the end, met the City's future needs. Barry was responsible for working with a steering committee to develop and refine concepts working within available construction funding constraints, and for preparing Phase 1 improvement recommendations as a summary of the preliminary design efforts. As the Program Manager, Barry was responsible for managing the contract with the State of Maine and the 10-firm design team.

University of Southern Maine, Portland, ME – Community Education Center and Parking Garage. Project Manager/Engineer responsible for site and utility design of a 1200-car parking garage, 500-seat lecture hall, and 15,000-SF office classroom building. Coordinated the site survey; completed preliminary site evaluations; prepared grading and utility plans for surface parking areas, open space, and roadways; developed construction documents; completed stormwater design; coordinated with the City of Portland for roadway realignments and discontinuances; coordinated design plans with the project architect and landscape architect; and prepared technical specifications for construction documents. Coordinated with the regulatory agency; prepared local Demolition Permit applications; prepared Application for Maine DEP Site Law and City's Major Site Plan Applications under tight time frames. The project is LEED Gold certified.

City of Portland, ME – Bayside Adapts, Phase I. Principal-in-Charge of the team providing planning and engineering services to facilitate the City's first climate change adaptation planning effort, for the City's Bayside neighborhood. The focus of the project was to conduct a Sewer and Stormwater Data Gap Analysis, and public engagement process to help the community identify a socially responsible, technically sound and financially feasible adaptive strategy to protect the Bayside Neighborhood from the effect of rising tides, extreme rain events and storm surge. Our work involved coordination and contracting with a subconsultant, RPS ASA to evaluate and recommend sea level rise and storm surge scenarios appropriate for City of Portland's planning horizon.

BECKER
STRUCTURAL ENGINEERS

About Us

Becker Structural Engineers, Inc., was founded in 1995 and is a full service structural consulting firm with a staff of twenty-seven. We provide practical, cost-effective and innovative solutions on a wide range of challenging projects in three practice areas; buildings, parking structures and bridges.

We believe in competency and character as our defining values. We are pro-active and interactive in our approach. Our dedicated staff and our investment in technology allows us to deliver high quality service on multiple large and small projects simultaneously. We embrace an engineering approach to projects which combines classical engineering theory and practical experience, paired with the versatility and efficiency of Autodesk Revit to create structural models which interact and coordinate with architectural and mechanical models to define the comprehensive building system. This approach advances the design and coordination of our projects.

Our building design practice includes residential, commercial, education and public institutional buildings. We have substantial experience with contemporary building design which is complemented by an extensive background and expertise renovating and restoring historic structures. Our design capabilities are complemented by our construction phase services, which include construction reviews for general conformance and implementation and administration of the IBC Special Inspections Program. We believe a strong job site presence contributes to enhanced quality and improved construction efficiency. Working with the owner, architects, contractor and testing agencies our office provides a full range of construction monitoring capabilities.

Becker Structural Engineers have been the selected structural engineering consultant for municipalities, owners and developers throughout New England. Recent and relevant work includes on-going services under a **General Consulting Services for the City of Portland** and a **General A/E Services** agreement with the **Portland Housing Authority.** Significant buildings in Portland include the multi-story medical offices for **InterMed**, the **Hyatt Hotel** located on Fore St. and the rehabilitation of the **historic Twitchell-Champlain** building on Merill's Wharf which now serves as the law offices for Pierce Atwood**.** We strive to integrate ourselves in understanding the overall approach that each owner is seeking to obtain, with guidance on analysis and cost recommendations to fit within the sustainability of the program design.


City of Portland
International Jetport
Parking Garage


Hyatt Hotel


InterMed Medical Offices


Historic Twitchell-Champlain Offices

BECKER
STRUCTURAL ENGINEERS



Casco Bay Ferry Terminal



Canal Zero Redevelopment



Maine Medical Center
Employee Parking Garage



Portland Public Library

50 Sewall Street M.O.B. (LEED Certified), Portland, ME
58 Fore Street Building 2/3 & Marina Building, Portland, ME
84 Marginal Way M.O.B and Parking Structure, Portland, ME
173 Main Street Redevelopment, Waterville, ME
409 Cumberland Ave Housing, Portland, ME
Bayside Anchor Housing, Portland, ME
Bayside Village Student Housing, Portland, ME
Berlin City Honda Showroom, South Portland, ME
Berlin City TSL Showroom, South Portland, ME
Canal Zero, Portland, ME
Casco Bay Ferry Terminal, Portland, ME
CEI Office Building (LEED Certified), Brunswick, ME
Consigli Office Building, Milford, MA
Dead River Corporate Office, South Portland, ME
DHS Office Building, Portland & Lewiston, ME
Elm Terrace Apartments, Portland, ME
Emerson Shailer Housing, Portland, ME
Exactitude Office/Manufacturing Building, Cumberland, ME
Ferry Terminal Redevelopment IMT Office Building, Portland, ME
Genest Warehouse Addition, Biddeford, ME
Gorham Savings Bank Operations Center, Gorham, ME
Handyboat Restaurant/Dockside Grill, Falmouth Foreside, ME
Hill Farm Equestrian Center, New Gloucester, ME
Huston Commons, Portland, ME
Hyatt - Old Port Hotel, Portland, ME
IDEXX Laboratories Data Center Relocation, Westbrook, ME
Irish Heritage Center Structural Review, Portland, ME
Jackson Laboratories Building Renovation, Bar Harbor, ME
LL Bean Vertical Expansion Feasibility Study, Freeport, ME
Maine DEP - Deering & Greenlaw Buildings, Augusta, ME
Maine Medical Center Family Practice Office Building, Portland, ME
Maine Medical Center Employee Parking Garage, Portland, ME
Maine Municipal Association Office Addition, Augusta, ME
Maine Standards Building, Cumberland, ME
Maine Veterans Homes Office Building, Augusta, ME
Marriot Residence Inn, Portland, ME
Merrill Auditorium, Portland City Hall, Portland, ME
Norway Savings Bank, Gray, ME
Park Danforth New Residence Wing, Portland, ME
Patrons Insurance Building, Portland, ME
Pearl Place I & II, Portland, ME
Pinetree Shopping Center Retail Development, Portland, ME
Portland Public Library, Portland, ME
Portland Public Market Redevelopment, Portland, ME
RMS Office Building, South Portland, ME
Saco Biddeford Savings Bank (LEED Silver), Saco, ME
Shops at Falmouth Village, Falmouth, ME
Strand Theatre, Rockland, ME
Topsham Retail Center, Topsham, ME
Twitchell - Champlin Building, Portland, ME
Vortechnics Office Building, Scarborough, ME
Westin Hotel, Portland, ME

BECKER
STRUCTURAL ENGINEERS



Paul B. Becker, P.E., SECB
President

As the founder of Becker Structural Engineers, Paul has over thirty-eight years of structural engineering experience in New England and the Mid-Atlantic States. His technical experience covers all aspects of the structural engineering profession including complex building systems using steel framing, cast in place, precast and post-tensioned concrete, deep foundation support systems, earth retaining structures, masonry and timber framing. He has served as lead design engineer and project manager, responsible for establishing and monitoring schedules, budgets and quality control on projects with construction costs of up to $75 million. As Principal in Charge of a project, he collaborates with the client and project team to establish the project scope, schedule and contracts and monitors the progress and quality of work.

PROFESSIONAL ENGINEER REGISTRATION

- Maine (#6554)
- Massachusetts (#39009)
- New Hampshire (#6258)
- New York (#86255
- Vermont (#7773)
- Georgia (#033280)
- Connecticut (#20725)
- Rhode Island (#9067)
- Ohio (#74529)
- Certified in the Practice of Structural Engineering (#2285-0708)



Todd M. Neal, P.E.
Vice President

A principal of BSE, Todd is a registered Professional Engineer in the State of Maine and has extensive experience in the design and fabrication of precast/prestressed concrete garages, building components, bridge components, architectural precast concrete. Specialty topics include repair and maintenance of parking structures. He offers expertise in construction management, structural testing and administration of special inspection programs in accordance with the IBC Codes. Todd is currently an active member on the PCI Parking Garage Design Committee and Joint Sealant Sub-Committee and contributed to the publication of the PCI “Maintenance Manual for Precast Parking Structures” and the PCI Committee Report “Joints in Precast Parking Structures”.

PROFESSIONAL ENGINEER REGISTRATION

- Maine (#9406)
- Connecticut (#27306)
- Massachusetts (#51354)
- West Virginia (#20277)
- New Brunswick, Canada (#L5173)
- Nova Scotia, Canada (#11330)
- Certified in the Practice of Structural Engineering (#2639-0708)



Ethan A. Rhile, P.E.
Senior Associate

Ethan joined BSE in September of 2001 after practicing structural engineering in the Mid-Atlantic States. He has extensive experience in the design of multiple story buildings and industrial facilities, with several projects eclipsing 250,000 square feet. He has served as a Project Manager, responsible for the technical design, quality control, budgeting, and construction administration for building projects up to ten stories in height, with construction budgets up to $100 million. He has an in-depth knowledge of computer software packages including STAAD-III, SAPP 2000, RISA 3D, RAM Elements, RAM Structural System, SP Mats, AutoCAD and Revit.

PROFESSIONAL ENGINEER REGISTRATION

- Maine (#10266)
- Commonwealth of Pennsylvania (#057589)

5. NOISE

Mechanical systems located on the rooftops of the proposed buildings will be screened to mitigate noise impacts. Noise associated with the proposed development is not anticipated to negatively impact surrounding development in its urban setting.

6. VISUAL

Fore Street and Spring Street in the Portland Square area are urban, developed streets with only one or two significant parcels remaining to be developed. The proposed buildings will replace a visually unappealing surface parking lot and have been designed to work in concert with existing and proposed surrounding developments.

7. WILDLIFE & FISHERIES

The Site is fully developed and there are no known areas of significant natural features, including areas of significant wildlife habitats or wetlands. The attached Official Species List identifies the northern long-eared bat, which has been listed as a Federally Threatened Species, in association with the project area; however, there are no critical habitat areas located within the project area. Based on US Fish & Wildlife information, the northern long-eared bat typically lives in caves during the winter months, and in trees larger than three inches in diameter during the summer, with migration between these two habitats in the spring in the fall. Tree-clearing for this project will be minimal and limited to only removal and replacement of street trees and landscaping trees and vegetation; it is not anticipated that this project will have a negative impact on the northern long-eared bat species.

As described in Section 14, erosion and sedimentation control measures will be utilized during construction to ensure that the work will not result in release of sediment to natural resources. These measures will be in accordance to the MaineDEP Erosion Control Best Management Practices.

A letter was sent to the Maine Department of Inland Fisheries and Wildlife (MDIFW) on December 19, 2019, requesting information regarding any known threatened or endangered species or critical habitat relative to the project area. A copy of the response will be forwarded upon receipt.

7.1 LIST OF ATTACHMENTS

- Official Species List
- Maine Department of Inland Fisheries and Wildlife Letter, dated December 19, 2019

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
Phone: (207) 469-7300 Fax: (207) 902-1588
http://www.fws.gov/mainefieldoffice/index.html

In Reply Refer To: October 02, 2019
Consultation Code: 05E1ME00-2020-SLI-0004
Event Code: 05E1ME00-2020-E-00038
Project Name: Portland Square Phase II

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies the threatened, endangered, candidate, and proposed species and designated or proposed critical habitat that may occur within the boundary of your proposed project or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC Web site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the Endangered Species Consultation Handbook at: http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

This species list also identifies candidate species under review for listing and those species that the Service considers species of concern. Candidate species have no protection under the Act but are included for consideration because they could be listed prior to completion of your project. Species of concern are those taxa whose conservation status is of concern to the Service (i.e., species previously known as Category 2 candidates), but for which further information is needed.

If a proposed project may affect only candidate species or species of concern, you are not required to prepare a Biological Assessment or biological evaluation or to consult with the Service. However, the Service recommends minimizing effects to these species to prevent future conflicts. Therefore, if early evaluation indicates that a project will affect a candidate species or species of concern, you may wish to request technical assistance from this office to identify appropriate minimization measures.

Please be aware that bald and golden eagles are not protected under the Endangered Species Act but are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). Projects affecting these species may require development of an eagle conservation plan: http://www.fws.gov/windenergy/eagle_guidance.html Information on the location of bald eagle nests in Maine can be found on the Maine Field Office Web site: http://www.fws.gov/mainefieldoffice/Project%20review4.html

Additionally, wind energy projects should follow the wind energy guidelines: http://www.fws.gov/windenergy/ for minimizing impacts to migratory birds and bats. Projects may require development of an avian and bat protection plan.

Migratory birds are also a Service trust resource. Under the Migratory Bird Treaty Act, construction activities in grassland, wetland, stream, woodland, and other habitats that would result in the take of migratory birds, eggs, young, or active nests should be avoided. Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g.,

cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm and at: http://www.towerkill.com; and at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
(207) 469-7300

Project Summary

Consultation Code: 05E1ME00-2020-SLI-0004

Event Code: 05E1ME00-2020-E-00038

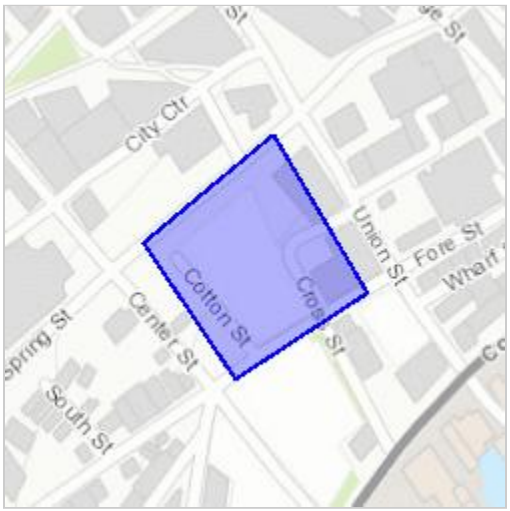
Project Name: Portland Square Phase II

Project Type: DEVELOPMENT

Project Description: Redevelopment of existing surface parking lot with a parking garage and mixed-use space.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/43.65581794579938N70.25671779687991W



Counties: Cumberland, ME

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

COMMITMENT & INTEGRITY
DRIVE RESULTS

41 Hutchins Drive
Portland, ME 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

December 19, 2019

Maine Department of Inland Fisheries and Wildlife
41 State House Station
Augusta, ME 04333

RE: Three Portland Square – Environmental Review Request

To Whom It May Concern:

North River IV, LLC is proposing to redevelop an approximately 2.3-acre property bounded by Spring Street, Cotton Street and Fore Street in Portland, Maine. The site is currently fully developed as a surface parking lot with perimeter landscaping features. The proposed project will include construction of an 8-story office building with ground-level retail, a 7-level parking structure, and a 4-story office building with ground level retail/restaurant, as well as the redevelopment of the adjacent Portland Square plaza, stairs, private access driveway and Cotton Street.

The proposed work will require a Maine Department of Environmental Protection Site Location of Development Permit Amendment, which requires coordination with the Maine Department of Inland Fisheries and Wildlife (MDIFW). On behalf of North River IV, LLC, we are requesting a review of the project area for any known threatened or endangered species or critical habitat. A Site Location Map and Site Plan have been attached for your reference.

We appreciate your review of this project. If you have any questions regarding this information or the proposed project, please do not hesitate to contact me at 207-558-3763 or lswett@woodardcurran.com. Thank you for your assistance.

Sincerely,

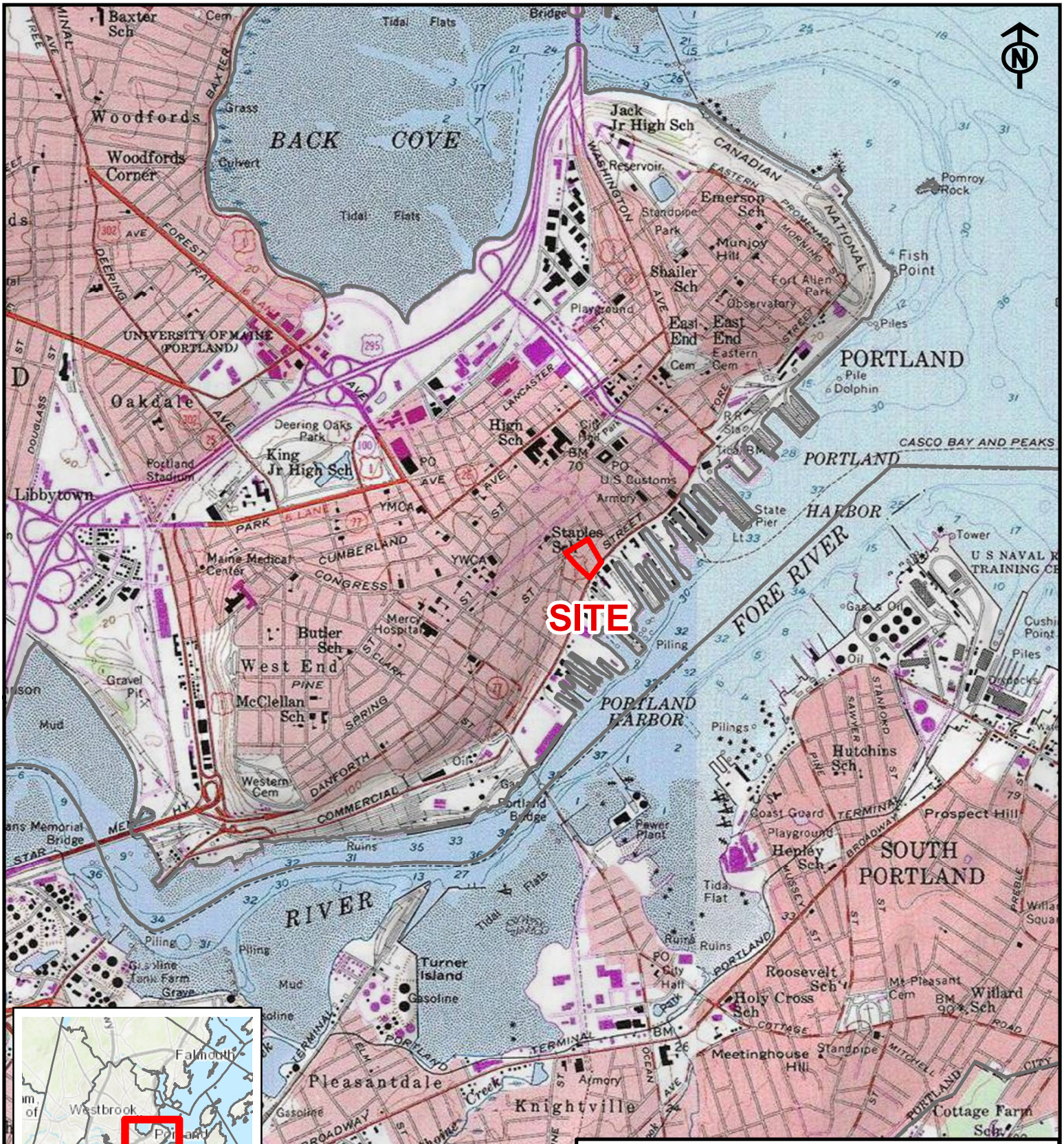
WOODARD & CURRAN

Lauren Swett

Lauren Swett, P.E.
Technical Manager

Enclosure(s) Site Location Map
Site Plan

PN: 0231886.00



Portland Square
USGS Map

Portland, ME

Figure 1 of 1

Service Layer Credits: ESRI, MEGIS

41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

DRAWN BY: AL	SCALE: 1 in = 2,000 feet
DATE: October 2019	DOC: PortlandSquare_USGSmap.mxd

8. HISTORIC SITES

The proposed Three Portland Square project is not located within any City of Portland Historic Preservation Districts. The project is located adjacent to a historic landmark, the Tracy-Causer Building, which is located across Cotton Street from the site. Work has been done to avoid impacts to existing grades around this building. Appropriate consultation with the City of Portland Historic Preservation staff will be completed as required. A request was made to the Maine Historic Preservation Commission (MHPC) for information regarding any known historic properties relative to the project area on December 19, 2019. A copy of the response will be forwarded upon receipt.

8.1 LIST OF ATTACHMENTS

- Maine Historic Preservation Commission Letter, dated December 19, 2019

COMMITMENT & INTEGRITY
DRIVE RESULTS

41 Hutchins Drive
Portland, ME 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

December 19, 2019

Kirk F. Mohney, Director
Maine Historic Preservation Commission
55 Capitol Street, 65 State House Station
Augusta, Maine 04333-0065

Re: Three Portland Square – Project Review Request

Dear Mr. Mohney:

North River IV, LLC is proposing to redevelop an approximately 2.3-acre property bounded by Spring Street, Cotton Street and Fore Street in Portland, Maine. The site is currently fully developed as a surface parking lot with perimeter landscaping features. The proposed project will include construction of an 8-story office building with ground-level retail, a 7-level parking structure, and a 4-story office building with ground level retail/restaurant, as well as the redevelopment of the adjacent Portland Square plaza, stairs, private access driveway and Cotton Street.

The proposed work will require a Maine Department of Environmental Protection Site Location of Development Permit Amendment, which requires coordination with the Maine Historic Preservation Commission. On behalf of North River IV, LLC, we are requesting a review of the project area for any known historic properties. The proposed project is not located within or adjacent to a City of Portland Historic Preservation District. A USGS topographic map has been attached for your reference.

We appreciate your review of this project. If you have any questions regarding this information or the proposed project, please do hesitate to contact me at 207-558-3763 or lswett@woodardcurran.com. Thank you for your assistance.

Sincerely,

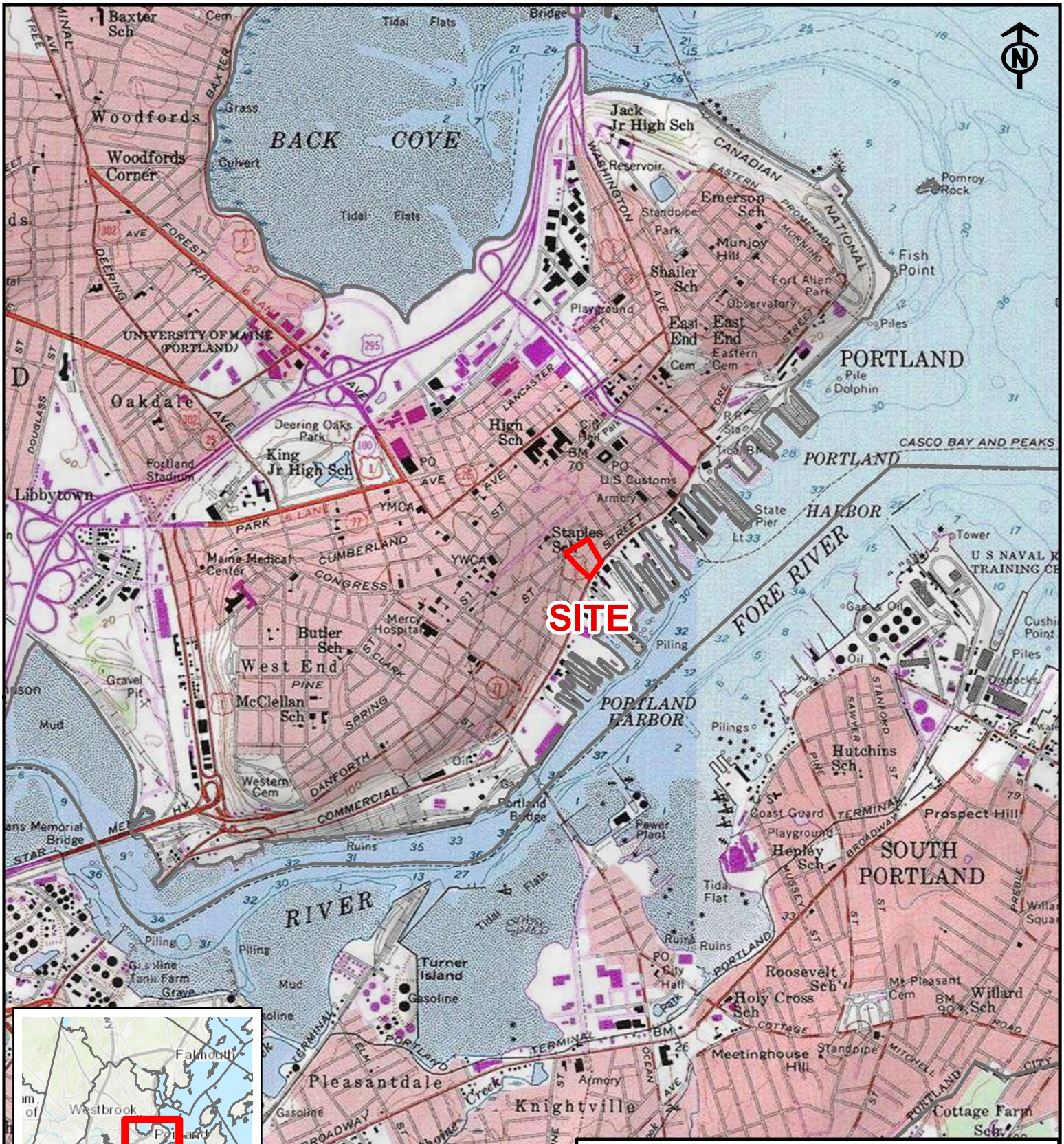
WOODARD & CURRAN

Lauren Swett

Lauren Swett, P.E.
Technical Manager

Enclosure(s) USGS Map

PN: 0231886.00



Portland Square
USGS Map

Portland, ME

Figure 1 of 1

Service Layer Credits: ESRI, MEGIS

41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

DRAWN BY: AL	SCALE: 1 in = 2,000 feet
DATE: October 2019	DOC: PortlandSquare_USGSmap.mxd

9. UNUSUAL NATURAL AREAS

The Site is fully developed and there are no known unusual natural areas. A request was made to the Maine Natural Areas Program on December 19, 2019 for information regarding botanical features relative to the project area. A copy of the response will be forwarded upon receipt.

9.1 LIST OF ATTACHMENTS

- Maine Natural Areas Program Letter, dated December 19, 2019

COMMITMENT & INTEGRITY
DRIVE RESULTS

41 Hutchins Drive
Portland, ME 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

December 19, 2019

Maine Natural Areas Program
177 State House Station
Augusta, ME 04333-0093

Via email: maine.nap@maine.gov

RE: Three Portland Square – Site Review Request

To Whom It May Concern:

North River IV, LLC is proposing to redevelop an approximately 2.3-acre property bounded by Spring Street, Cotton Street and Fore Street in Portland, Maine. The site is currently fully developed as a surface parking lot with perimeter landscaping features. The proposed project will include construction of an 8-story office building with ground-level retail, a 7-level parking structure, and a 4-story office building with ground level retail/restaurant, as well as the redevelopment of the adjacent Portland Square plaza, stairs, private access driveway and Cotton Street.

The proposed work will require a Maine Department of Environmental Protection Site Location of Development Permit Amendment, which requires coordination with the Maine Natural Areas Program. On behalf of North River IV, LLC, we are requesting information on rare and exemplary botanical features in the project area. A site location map has been attached for your reference.

We appreciate your review of this project. If you have any questions regarding this information or the proposed project, please do not hesitate to contact me at 207-558-3763 or lswett@woodardcurran.com. Thank you for your assistance.

Sincerely,

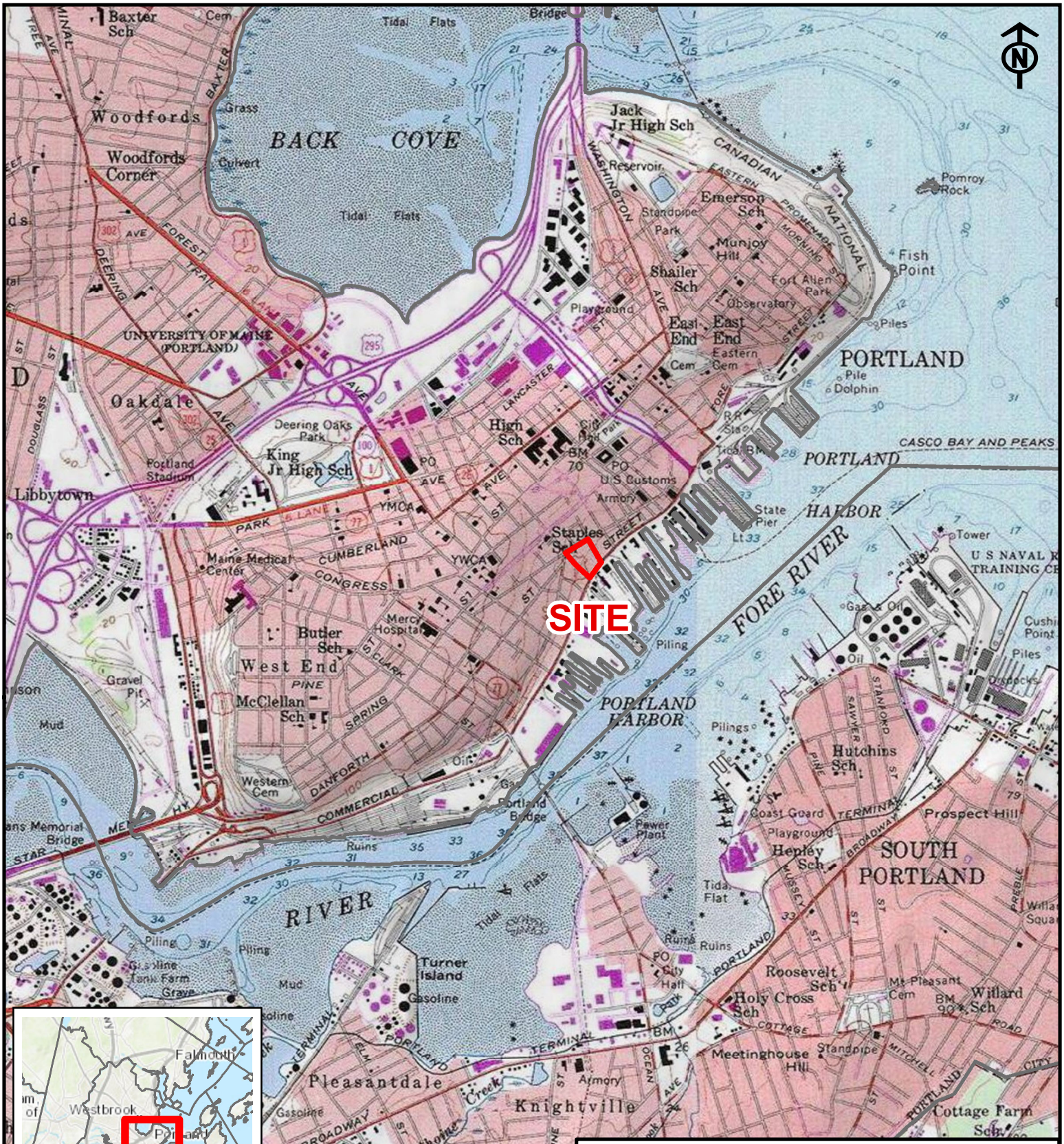
WOODARD & CURRAN

Lauren Swett

Lauren Swett, P.E.
Technical Manager

Enclosure(s) Site Location Map

PN: 0231886.00



Portland Square
USGS Map

Portland, ME

Figure 1 of 1

Service Layer Credits: ESRI, MEGIS

41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

DRAWN BY: AL	SCALE: 1 in = 2,000 feet
DATE: October 2019	DOC: PortlandSquare_USGSmap.mxd

10. BUFFERS

This project is occurring entirely on previously developed land. The proposed buildings cover almost the entire site, as required per City of Portland Zoning setback requirements. Therefore, this section is not applicable.

11. SOILS

11.1 NARRATIVE

According to the Cumberland County Soil Survey, the Site contains of Hinckley Loamy Sand (HIB). This soil designation consists of gravely and sandy soil deposits.

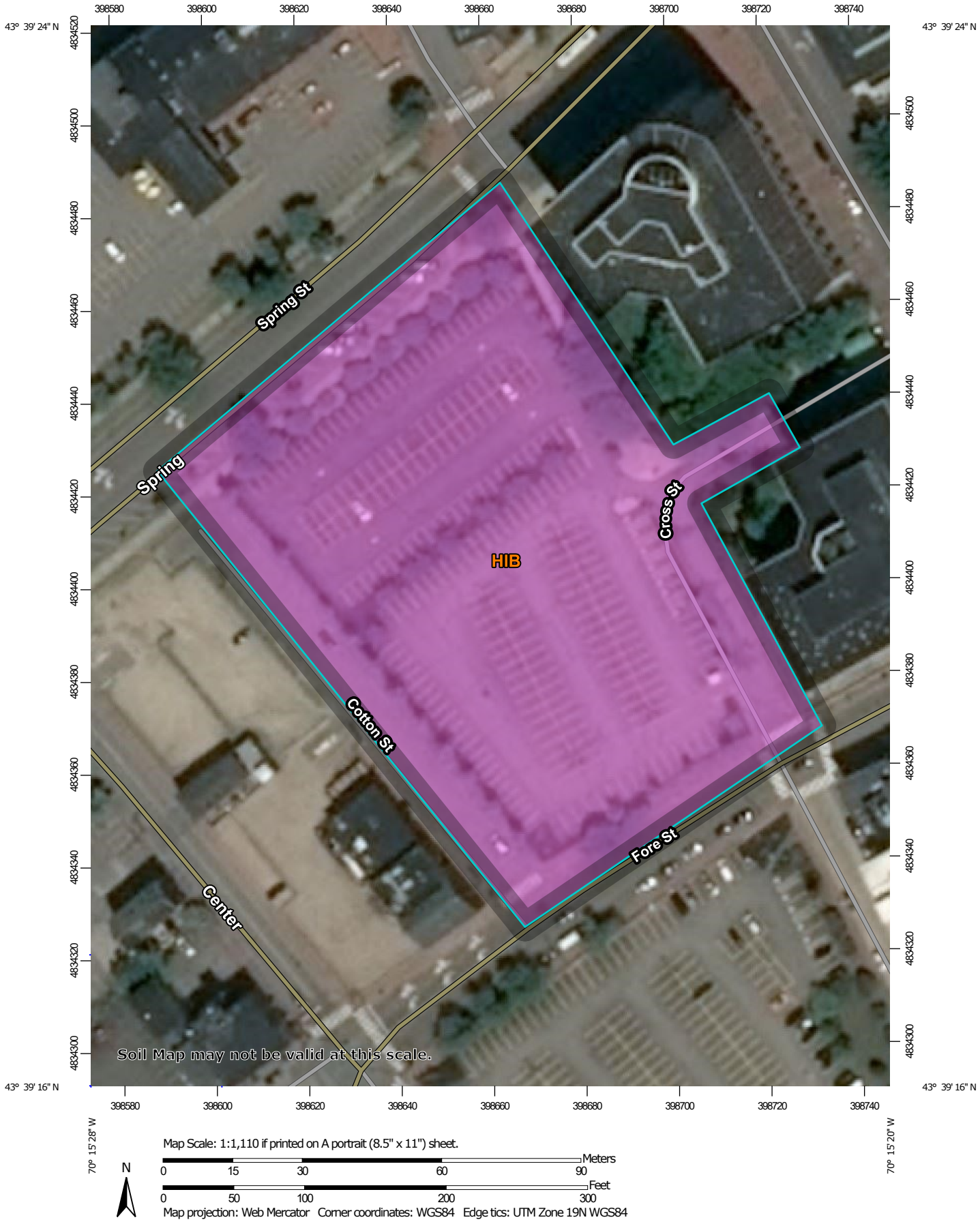
Haley & Aldrich, Inc. performed a subsurface exploration and preliminary geotechnical engineering evaluation in December 2016, and issued the attached report entitled *Preliminary Geotechnical Evaluation – Portland Square Development.* Subsurface explorations identified the presence of 'man-placed fill soils' on site, overlying naturally-deposited marine soil, glacial till and bedrock. The subsurface explorations consisted of eighteen test borings over the Portland Square project area; nine of these test borings are within the project area of the proposed Three Portland Square development. The soils profile encountered during the test borings generally consisted of bituminous concrete overlying about 2- to 9-feet of man-placed fill, which was generally underlaid with 6- to 20-feet of marine deposit consisting of variable density clays, silts and sands, 0- to 7 feet of glacial till and weathered bedrock.

Additionally, groundwater levels were documented in each observation well and test boring. Groundwater was encountered from elevation 15.5 to 40.8.

11.2 LIST OF ATTACHMENTS

- United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey
- Preliminary Geotechnical Evaluation – Portland Square Development, dated December 23, 2016, prepared by Haley & Aldrich, Inc. (Bound Separately)

Hydrologic Soil Group—Cumberland County and Part of Oxford County, Maine
(Portland Square Garage)



Map Scale: 1:1,110 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 16, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
HIB	Hinckley loamy sand, 3 to 8 percent slopes	A	3.0	100.0%
Totals for Area of Interest			**3.0**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

12. STORMWATER

The attached Stormwater Management Plan describes the proposed stormwater management measures for the project, as shown on the design drawings attached to Section 1 of this Report. A USGS map and a soils map are attached to Section 1 and Section 11 of this Report, respectively. The Erosion and Sedimentation Control Plan for the proposed project is summarized in further detail in Section 14 of this Report.

12.1 LIST OF ATTACHMENTS

- Stormwater Management Plan (Bound Separately)

13. URBAN IMPAIRED STREAM

The proposed project is not located within the watershed of an Urban Impaired Stream; the Urban Impaired Stream standard does not apply.

14. BASIC STANDARDS

The overall goal of the Soil Erosion and Sedimentation Plan is to reduce the potential for erosion and sedimentation at the site and prevent any transportation of sedimentation down-gradient of the site. A variety of erosion control techniques will be implemented to achieve this goal. During construction, these include:

- Installation and maintenance of construction entrances at the travelled interface between stabilized and non-stabilized portions of the project site;
- Diversion barriers to keep up-gradient runoff from flowing through the active construction areas;
- Positive grades throughout the construction site to direct flow to sediment control barriers;
- Installation and maintenance of sediment barriers adjacent to and down-gradient of the construction site;
- Catch basin inlet protection devices;
- Preservation and maintenance of vegetated areas to the maximum extent possible;
- Temporary stabilization of disturbed vegetated areas to be exposed for more than seven days;
- Application of permanent seeding and mulching (or other permanent surface treatment as indicated on the drawings) applied as soon as areas achieve final grades;
- Controls for fugitive dust, debris, and other materials; and
- Inspection of all in-place measures after every significant rainfall until the site is permanently stabilized.

All measures will be implemented in accordance with the "Maine Erosion and Sedimentation Handbook for Construction: Best Management Practices". All temporary measures will be installed prior to any earthmoving operation and removed after the areas are permanently stabilized. All control measures will be maintained in an effective operating condition until the Site is permanently stabilized. Permanent erosion control measures will include vegetation and pavement. The Contractor will be responsible for implementing and maintaining all erosion and sediment control measures and conducting inspections in accordance with the attached *Stormwater Erosion & Sediment Control Inspection Report Form* (or equivalent).

Inspections shall be performed at least once a week, as well as before and after storm events. A person with knowledge of stormwater management and erosion and sediment control, including the standards and conditions in the permit, shall conduct the inspections and perform maintenance of the facilities. If maintenance or modifications are necessary, implementation will be completed within seven days and prior to any rainfall event. After construction, the responsible party for the owner will conduct inspections of the Site per the inspection and maintenance requirements outlined in Section 12 of this Report.

14.1 LIST OF ATTACHMENTS

- Stormwater Erosion & Sediment Control Inspection Report Form

STORMWATER EROSION & SEDIMENT CONTROL
INSPECTION REPORT FORM

Inspectors: Date: ___ / ___ / _____

_____ of _____ (Project Owner)
_____ of _____ (Contractor)
_____ of _____
_____ of _____

Storm Event? ☐ Yes ☐ No Rainfall Amount _____ Storm Duration _____ hours

Visual Observations of Activity and Site Conditions:

Disturbed Soil Areas:

Storage of Soils:

Sediment & Erosion Control Measures:

Construction Site Entrance:

Surface Stabilization:

Corrective Action Taken:

Attachments (if any):

Signature:

Name Title Date

15. GROUNDWATER

As noted previously, a subsurface investigation has been completed, and groundwater levels were documented in each observation well and test boring. Groundwater was encountered from elevation 15.5' to 40.8'. Some construction practices such as deep foundations and dewatering activities will be required for this project. The final foundation and dewatering plan will be developed prior to construction.

16. WATER SUPPLY

The proposed development will be provided with both fire protection water service and domestic water service by the Portland Water District from mains located on Spring Street, Cotton Street and Fore Street. Proposed water service locations are shown on the Utility Plan included in the design drawings attached to Section 1 of this Report.

The project team met with representatives from Portland Water District on September 19, 2019 to review anticipated water demand and service connections for the proposed development. During this meeting, Portland Water District indicated the existing water mains on Fore Street and Cotton Street are insufficient to service the proposed development; therefore, replacement of segments of the Fore Street and Cotton Street water mains will be required. The project team will continue to coordinate the design with representatives from Portland Water District as the design progresses. A copy of the Ability to Serve Determination letter from Portland Water District will be provided upon receipt.

17. WASTEWATER DISPOSAL

Several sanitary sewer services to the buildings are proposed to connect to sewer infrastructure within Cotton Street (Office Tower), Fore Street (Fore Street Wrap) and Upper Cross Street (Parking Structure) to accommodate the various uses of the buildings. The proposed locations of the sanitary sewer services are shown on the Utility Plan included in the design drawings attached to Section 1 of this Report. Internal grease traps will be utilized if restaurant uses are proposed in the retail spaces. Drainage within covered parking areas will be collected by floor drains and directed to an oil water separator prior to discharge into the sewer main within Upper Cross Street.

A Wastewater Capacity Application will be submitted to the Portland Department of Public Works as part of the Level III Site Plan application process to request confirmation of ability to serve the proposed development. The ability to serve confirmation will be provided to the Planning Department directly by the Department of Public Works.

18. SOLID WASTE

Adequate provisions for recycling and solid waste disposal have been made. General solid waste, construction, demolition, and land-clearing debris will be managed in full accordance with all applicable laws and will not cause a deleterious effect on the environment.

18.1 COMMERCIAL SOLID WASTE

All solid waste materials and recyclables from the proposed redevelopment project will be transported and disposed of, or recycled, in accordance with applicable laws and regulations. The proposed design includes service and loading area located between the office tower and parking structure. Access to this service and loading area will be provided via Upper Cross Street. Service will be scheduled to minimize impacts to business hours to the greatest extents practicable. A solid waste management plan with schedules for solid waste removal will be developed for the proposed building.

18.2 CONSTRUCTION & LAND CLEARING DEBRIS

As with any construction project, the proposed construction will generate construction waste and demolition debris (CDD). The contractor will be responsible for hauling the CDD or contracting with a waste management service to haul the CDD from the project site. The contractor will be fully responsible for handling, managing, and disposing of all waste generated by construction in accordance with Maine Solid Waste Management Regulations – 06-096 CMR 400-409. The contractor will be bound by contract to dispose of all materials in full accordance with all applicable local state and federal regulations. Actual waste volumes will be measured at the time of construction.

18.3 SPECIAL & HAZARDOUS WASTE

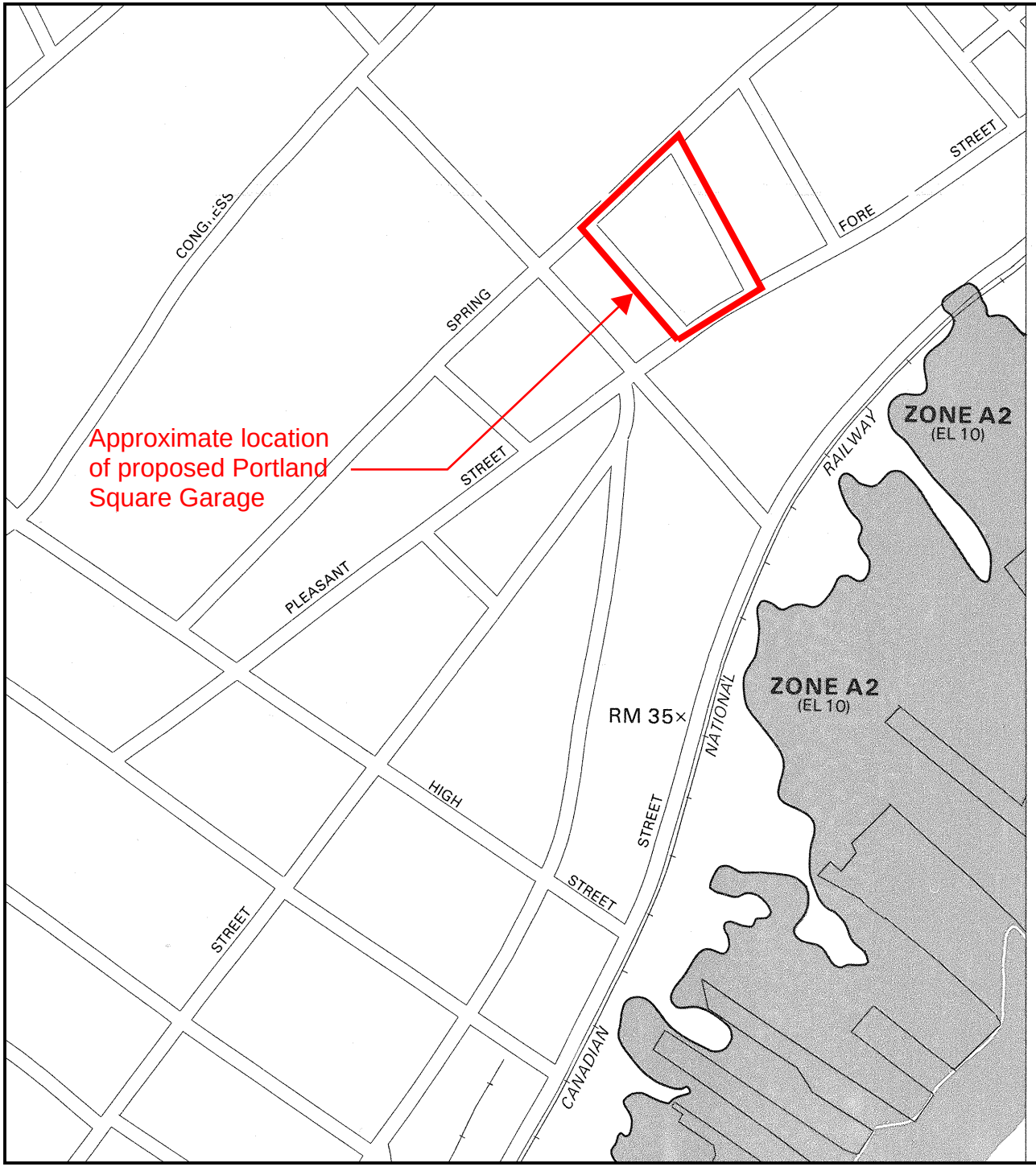
The proposed development is not anticipated to produce any hazardous waste. A previous site investigation on the Portland Square property identified the presence of typical urban fill, as is seen on redevelopment sites throughout the City. We anticipate that soils from the site may be classified as special waste and shall be handled and disposed of accordingly.

19. FLOODING

The proposed development is not located within a flood hazard zone, as shown on the FEMA Flood Insurance Rate Map attached to this Section. The proposed development will not cause or increase flooding or cause an unreasonable flood hazard to any adjacent structures. The 100-year flood plain is located off-site and is not within the viewport of the design drawings; therefore, the 100-year flood plain is not shown on the design drawings attached to Section 1 of this Report.

19.1 LIST OF ATTACHMENTS

- FEMA Flood Insurance Rate Map



APPROXIMATE SCALE

400 0 400 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CITY OF
PORTLAND, MAINE
CUMBERLAND COUNTY

PANEL 13 OF 17
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
230051 0013 B

EFFECTIVE DATE:
JULY 17, 1986

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

20. BLASTING

Some construction means and methods that may be used on this project will cause vibrations that could be transmitted through the ground to nearby buildings. Project specifications will be prepared that require the contractor to conduct pre-construction surveys prior to the start of potential vibration causing activities, the following will occur. The pre-construction survey(s) will be used to review and document existing building conditions. Site demolition and removals, installation/removal of temporary earth support systems, excavation, vibratory compaction and foundation construction will be completed on this project. If deemed necessary, ground vibrations will be monitored at nearby buildings and used to confirm that measured vibrations are below the maximum permissible that are required by the specifications.

The proposed buildings have been sited and designed to avoid impacts to bedrock. If bedrock is encountered during construction and blasting is required, the specifications will require that the contractor prepare and submit a blasting plan for review for compliance with all project-specific, local, state and federal requirements and regulations. A pre-construction meeting will be planned with abutting property owners to generally discuss construction means and methods that could cause vibrations.

21. AIR EMISSIONS

The project is not a commercial, industrial or institutional development that will require an air emissions license, so this section is not applicable.

22. ODORS

The proposed development will not involve any processes that emit significant odors; this section is not applicable.

23. WATER VAPOR

The proposed development will not use water for any processes that would emit water vapor; this section is not applicable.

24. SUNLIGHT

The proposed development will not block any access to sunlight for any structures utilizing solar energy; this section is not applicable.

25. PUBLIC NOTICE EVIDENCE

The City of Portland has Delegated Review Authority for the proposed project; it is our understanding that the Applicant is not required to complete their own Public Notice, and that the City will issue a Public Notice as part of their internal permit process.

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woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

HALEY ALDRICH

www.haleyaldrich.com

PRELIMINARY GEOTECHNICAL EVALUATION
PORTLAND SQUARE DEVELOPMENT
PORTLAND, MAINE

by Haley & Aldrich, Inc.
Portland, Maine

for Winton Scott Architects
Portland, Maine

File No. 32328-111
December 2016



HALEY & ALDRICH, INC.
75 Washington Avenue
Suite 1A
Portland, ME 04101
207.482.4600

23 December 2016
File No. 32328-111

Winton Scott Architects
5 Milk Street
Portland, Maine 04101

Attention: Steve Weatherhead, RA
Senior Associate

Subject: Preliminary Geotechnical Evaluation
Portland Square Development
Portland, Maine

Ladies and Gentlemen:

This report presents the results of previous and recent subsurface exploration programs and preliminary geotechnical engineering evaluations including a discussion of how the subsurface conditions may impact the proposed development. This work was undertaken at your request and in accordance with our proposal, dated 20 September 2016, and your subsequent authorization.

Elevations

Elevations referenced herein are in feet and reference Portland City Datum (PCD). PCD relates to the National Geodetic Vertical Datum of 1929 (NGVD 29) as follows:

Elevation in ft (PCD) = Elevation in ft (NGVD 29) + 0.02 ft

Site Location, Existing Site Conditions and Historic Site Development

The Portland Square Development project is located on roughly two city blocks in downtown Portland that are generally bound by Commercial Street to the east, Center Street to the south, Spring Street to the west and Cross Street to the north as shown on Figure 1, Project Locus.

The Portland Square Parking Lot (Upper Lot) is generally bound by Spring Street to the west, Cotton Street to the south, Fore Street to the east and the One/Two Portland Square properties to the north. The site is currently being used as a commercial, at-grade (surface) parking facility. Existing site grades generally slope down from Center Street (west) to Fore Street (east) from approximately El. 52 to El. 28.

The Fore Street Parking Lot (Lower Lot) is generally bound by Fore Street to the west, Center Street to the south, Commercial Street to the east and Cross Street to the north. The existing Richardson Wharf Building is located in the northeast corner of the site adjacent to Commercial Street and is not part of the development project. Like the Upper Lot, the Lower Lot is currently being used as a commercial, surface parking facility. Existing site grades generally slope down from Fore Street (west) to Commercial Street (east) from approximately El. 28 to El. 10.

Based on our review of Historical Sanborn maps of the site (Upper and Lower Lots), it appears that each Lot contained multiple structures (buildings) between approximately 1886 and 1980. In general, the structures consisted of residential buildings or those that housed industrial, commercial or manufacturing facilities (e.g., blacksmith, machine, metal and wood shops) as well as ice houses and lumber yards. Each Lot became essentially vacant of above-grade structures between 1980 and 1986. Historical Sanborn Maps of the Lots are provided for informational purposes in Appendix D.

Based on our discussions with the project team and our review of preliminary master plans for the Upper and Lower Lots (see Appendix E) provided by Winton Scott Architects (WSA) dated August 2016 (Upper Lot) and June 2016 (Lower Lot), it is our understanding that the proposed site improvements generally include construction of an urban infill, mixed-use development consisting of a combination of commercial office, retail and residential space with multiple levels of parking (both at and below grade). It is also our understanding that the development will likely be constructed in multiple phases. Please note that the specific plan layout and finish floor slab levels of the proposed structures have not yet been finalized.

Our current understanding of the proposed development on the Upper Lot includes the following general elements:

- Office Building 1: 6-story tower on top of 5 levels of structured parking, 109,980 square feet (sf)
- Office Building 2: 6-story tower on top of 5 levels of structured parking, 100,400 sf

Below grade parking is currently planned beneath the footprint of Office Buildings 1 and 2. The elevation of the lowest parking level is currently planned at El. 29, approximately 23 ft below existing site grades along Center Street. Access to/from the below grade parking area is planned off Cotton Street. Ground floor retail/restaurant space is planned along Fore Street.

Our current understanding of the proposed development on the Lower Lot includes the following general elements:

- Building 3: 3-story tower above 4-levels of structured parking with some retail and residential space, 61,433 sf
- Buildings 4 and 5: 4-story residential towers above 1-level retail and 2- levels of structured parking
- Building 6: 6-story hotel

Below grade parking is currently planned beneath the footprint of the Buildings 3, 4, 5 and a portion of Building 6. The elevation of the lowest parking level (Ground Level) is currently planned at El. 6.42, approximately 22 to 26 ft below existing site grades adjacent to Fore Street. Access to/from Level 1 of the below grade parking area is planned off Cross Street as site grades at Cross Street on the north side of this portion of the site roughly match the proposed Level 1slab elevation (i.e., El. 16.92). The Ground Level parking area will be accessed by the ramp from Level 1 inside of the garage.

In addition to the proposed buildings summarized above, additional site improvements will likely include stormwater management, site roadways and supporting utility infrastructure needed to service the planned development. The details of these site improvements, including proposed site grading have not yet been developed.

Subsurface Exploration Programs

Multiple subsurface exploration programs have been undertaken at and adjacent to the site. Test borings were drilled by Haley & Aldrich in the vicinity of the site for design and construction of One and Two Portland Square, Canal Plaza and the Porteous Warehouse Development (bound by Commercial Street, York Street and Foundry Lane, located south of the Fore Street parking lot, across Center Street). In addition, test borings were drilled under the supervision/direction of Haley & Aldrich in 1985 and 1987 for preliminary geotechnical and phase I/II environmental site assessments completed on both the Upper Lot and Lower Lot sites. Additionally, and most recently, due diligence and preliminary phase geotechnical subsurface exploration programs for the subject project were completed by Haley & Aldrich in 2015 and 2016, respectively.

The approximate locations of relevant test borings are shown on Figures 2 and 3, Site and Subsurface Exploration Location Plans and test boring logs are provided in Appendix A.

2015 DUE DILIGENCE PHASE EXPLORATION PROGRAM

Haley & Aldrich completed a subsurface exploration program consisting of four test borings, designated HA15-1(OW) through HA15-4(OW), within the limits of the Upper and Lower Lots. “As-drilled” test boring locations were determined in the field by Haley & Aldrich by taping distances from existing site features upon the completion of drilling.

The test borings were drilled by New England Boring Contractors (NEBC) of Hermon, Maine during the period 10 to 12 August 2015. The test borings were advanced through overburden soils and terminated in/on bedrock at depths ranging from approximately 18 to 30 ft BGS using a Mobile Drill B-53 truck-mounted drill rig and 3-in. outside diameter (OD; NW size) steel casing.

Soil samples were generally collected continuously through man-placed fill soils and at standard, 5-ft intervals in naturally-deposited soils, by driving a 1-3/8-in. inside diameter (ID) split-spoon sampler with a 140-lb hammer dropped from a height of 30 in., as indicated on the test boring logs. The number of hammer blows required to advance the sampler through each 6-in. interval was recorded and is

provided on the logs. The uncorrected SPT N-value (N-uncorrected) is defined as the total number of blows required to advance the sampler through the middle 12 in. of the 24-in. sampling interval (24-in. long split-spoon sampler).

A photoionization detector (PID) was used in the field to screen for the presence of volatile organic compounds (VOCs) in the recovered man-placed fill soil samples. Elevated PID readings were recorded on individual test boring logs provided in Appendix A of this report.

Approximately 4.5 ft of bedrock was sampled in test boring HA15-1(OW) using a 2.0-in. (NQ-size) ID diamond-tipped core barrel.

Observation wells were installed in each of the completed boreholes to provide information on the static groundwater level at the sites. The observation wells consisted of 1-in. ID, machine-slotted PVC well screen and solid PVC riser pipe cut just below existing ground surface. Each observation well was outfitted with a flush-mounted steel roadway box. Observation well installation and groundwater monitoring reports are provided in Appendix B.

A Haley & Aldrich engineer was present on site to monitor the explorations and document the soil, rock, and groundwater conditions encountered in the explorations and prepare test boring logs. All soil and rock samples were collected and preserved in glass jars and wooden boxes. All soil and bedrock samples are available for review upon request. The available soil and bedrock samples are currently being stored at the Haley & Aldrich laboratory facility in Portland, Maine.

2016 PRELIMINARY PHASE EXPLORATION PROGRAM

Haley & Aldrich completed a preliminary subsurface exploration program consisting of 18 test borings, designated HA16-1 through HA16-18 within the limits of the Upper (HA16-1 through HA16-9) and Lower Lots (HA16-10 through HA16-18). “As-drilled” test boring locations were determined in the field by Haley & Aldrich by taping distances from existing site features upon the completion of drilling.

The test borings were drilled by New England Boring Contractors (NEBC) of Londonderry, New Hampshire under contract with Woodard & Curran (WC; project environmental consultant) during the period 3 to 17 October 2016. In general, the test borings were advanced through overburden soils and terminated in/on bedrock at depths ranging from approximately 15 to 43 ft below ground surface (BGS) using a Acker Drill AD-II truck-mounted drill rig and 4-in. outside diameter (OD; HW size) steel casing.

Soil samples were generally collected continuously through man-placed fill soils and at standard, 5-ft intervals in naturally-deposited soils, by driving a 1-3/8-in. inside diameter (ID) split-spoon sampler with a 140-lb hammer dropped from a height of 30 in., as indicated on the test boring logs. The number of hammer blows required to advance the sampler through each 6-in. interval was recorded and is provided on the logs. The uncorrected SPT N-value (N-uncorrected) is defined as the total number of blows required to advance the sampler through the middle 12 in. of the 24-in. sampling interval (24-in. long split-spoon sampler).

A photoionization detector (PID) was used by WC personnel in the field to screen for the presence of volatile organic compounds (VOCs) in the man-placed fill soil samples recovered from select test borings.

Approximately 5 to 7 ft of bedrock was sampled (cored) in each test boring except HA16-5, HA16-9, HA16-11, HA16-12 and HA16-16. Bedrock samples were collected using a 1.875-in. (NX-size) ID diamond-tipped core barrel.

A Haley & Aldrich geologist was present on site to monitor the explorations and document the soil, rock, and groundwater conditions encountered in the explorations and prepare test boring logs. All soil and rock samples were collected and preserved in glass jars and wooden boxes. All soil and bedrock samples are available for review upon request. The available soil and bedrock samples are currently being stored at the Haley & Aldrich laboratory facility in Portland, Maine.

Subsurface Conditions

The subsurface conditions encountered at the site consist of man-placed fill soils overlying multiple naturally-deposited geologic units. Additional details are provided on the test boring logs included in Appendix A. In addition, a summary of the soil units and thicknesses encountered within each test boring that was completed under the direction of Haley & Aldrich during the 2015 (due diligence phase) and 2016 (preliminary phase) subsurface exploration programs is provided on Table I. Please refer to subsurface profiles shown on Figures 4-6 for a graphical representation of the soil conditions across the sites (Upper and Lower Lots). A general description of soil, bedrock and groundwater conditions encountered in the due diligence and preliminary phase test borings are provided separately, below.

Please note that soil descriptions provided on the test boring logs do not represent actual field conditions other than at the specific test boring locations. Actual conditions encountered between test boring locations may vary from those described herein and shown in Table I and Figures 4-6.

Geologic Unit	Approximate Encountered Thickness (ft)	Generalized Description
Man-Placed Fill	2 to 24 (2 to 9 within Upper Lot and 12 to 24 within Lower Lot)	Loose to very dense poorly-graded SAND with variable amounts of silt (SP, SP-SM), silty SAND with variable amounts of gravel (SM), poorly-graded gravel with variable amounts of sand (GP), well graded SAND with variable amounts of silt and gravel (SW, SW-SM), well graded GRAVEL with sand (GW) and medium stiff to hard SILT (ML) with variable amounts of sand and gravel. Portions of the layer contained shell, organic, wood, concrete, brick, ceramic, glass, coal, slag, ash, rubber, and leather fragments. 1 to 5-ft thick layers of wood or concrete were encountered in test borings HA16-11, HA16-12 and HA16-16 through HA16-18. A strong petroleum-like odor was noted within the layer between approximately 3 and 12 ft BGS in test boring HA16-13. *(encountered in each test boring)*
Marine Deposit	0 to 20	very soft to hard SILT (ML) and CLAY (CL) with variable amounts of or interbedded with poorly-graded SAND (SP) or silty SAND with gravel (SM) and very loose to very dense silty SAND with variable amounts of gravel or lean clay (SM) and well graded GRAVEL with variable amounts of silt and sand (GW, GW-GM) (*encountered in each test boring except HA16-16 and HA16-18*)
Glacial Till	0 to 8	very dense well graded SAND with gravel (SW) (*encountered in test borings HA15-1(OW) through HA15-4(OW), HA16-1, HA16-8 and HA16-13*)
Bedrock	moderately hard to hard, fresh to highly weathered PHYLLITE and QUARTZITE. Up to 7 ft of weathered bedrock was encountered overlying more competent material at some test boring locations. Top of bedrock surface encountered in each test boring is shown on Figures 2 and 3 and graphically on Figures 4 and 5. *(sampled/cored in each test boring except HA15-1(OW) through HA15-4(OW), HA16-5, HA16-9, HA16-11, HA16-12 and HA16-16)*	

GROUNDWATER CONDITIONS

Observation wells were installed in each of the due diligence phase boreholes (i.e., HA15-1 through HA15-4). The observation wells were installed to provide information on the static groundwater level at the site and to determine whether the groundwater levels are affected by tidal fluctuations in nearby Fore River.

Beginning on 17 June 2016 downhole pressure transducers were installed in observation wells HA15-2(OW) and HA15-4(OW) and were programmed to record the groundwater level once every 15 minutes. The transducers were removed and data were downloaded on 6 December 2016. Observation well installation reports are provided in Appendix C and a graphical representation of the measured groundwater levels during the period 17 June to 6 December 2016 are provided for reference in Figure 8.

In addition, water levels were measured in the 1985, 1987 and 2016 boreholes upon the completion of drilling. It should be noted that the drilling means and methods used (HSAs; no water added during advancement of the boreholes) to drill the test borings likely did not significantly influence the static water levels. However, steel casing and drilling fluid (water) was used to drill the 2016 test borings. Therefore, it is our opinion that the measurements in the 1985 and 1987 test borings provide reasonable estimates of groundwater levels across the sites for this preliminary phase of the project.

The measured water levels in each observation well and test boring are summarized below. Static groundwater levels at each observation well and test boring location is also shown on Figures 2 and 3.

Site	Approximate Range in Ground Surface Elevation (ft, PCD)	Deepest Proposed Ground Floor Elevation (Approximate Bottom of Excavation)	Approximate Range in Water Level Elevation (ft, PCD)
Upper Lot	El. 52 (upper) to El. 28 (lower)	El. 29 (El. 26)	El. 40 (upper) to El. 16 (lower)
Lower Lot	El. 32 (upper) to El. 10 (lower)	El. 8.4 to El. 6.4 (upper) to El. 11 to El. 15 (lower) (El. 3.4 upper to El. 12 lower)	El. 16 to El. 18 (upper) to El. 4 to 5 (lower)

Based on the measured water levels summarized above and our understanding of the proposed FFEs for structures on the Upper and Lower Lots, we offer the following:

- Upper Lot:
  - Water levels could be 1 to 11 ft (approximate) above the FFE within the upper half of the site.
  - Water levels could be 5 to 13 ft (approximate) below the FFE within the lower half of the site.

- Lower Lot:
  - Water levels could be up to 12 ft (approximate) above the FFE within the upper half of the site.
  - Water levels could be in excess of 3 ft below the FFE within the lower half of the site.

Based on the water level readings measured in observation well HA15-4(OW) (adjacent to Commercial Street) it appears that the static water levels measured are not influenced by tidal fluctuations in the nearby Fore River.

In general, water levels may fluctuate with season, precipitation, local soil/bedrock conditions, excavation means and methods, temperature and tidal conditions. Therefore, water levels may vary from those summarized above, provided on the testing boring logs included in Appendix A and shown on Figures 2, 3 and 7.

Geotechnical Laboratory Testing

A geotechnical laboratory testing program was undertaken on representative soil samples collected during the 2016 subsurface exploration program to aid in soil classification and evaluation of reuse potential. The laboratory testing program consisted of 16 grain size analyses. All laboratory testing was performed in accordance with applicable American Society for Testing Materials (ASTM) testing procedures by GeoTesting Express of Acton, Massachusetts.

A summary of laboratory testing is summarized below and actual laboratory test results are provided in Appendix B.

Soil Unit	No. of Tests	Generalized Descriptions
Fill	6	clayey SAND with gravel, silty SAND with gravel, GRAVEL with silt and sand
Marine Deposit	10	CLAY with varying amounts of sand and gravel, sandy SILT, clayey SAND with gravel, silty SAND with varying amounts of gravel

Impacts of Subsurface Conditions on Proposed Development

Based on the subsurface conditions encountered in the 1985/1987 and 2015 and 2016 test borings completed by Haley & Aldrich and our current understanding of the project, we have the following general geotechnical "observations" regarding future development of the Upper (Portland Square) and Lower (Fore Street) Lots.

Please refer to Figures 4 and 5, Subsurface Profiles, for a graphical representation of the soil conditions across the site. Proposed building ground floor slab levels are shown on the profiles along with proposed finish floor elevations and anticipated bottom of excavation needed to construct the building foundation systems.

- Due to the historic presence of structures on each site, as shown on the historic Sanborn maps included in Appendix D, and layers of concrete and wood and miscellaneous debris encountered within the man-placed fill soils during our due diligence and preliminary phase subsurface investigations, it is likely that demolition debris and/or abandoned building foundations or other obstructions will be encountered during construction (excavation and foundation installation/construction). These potential obstructions may include, but are not limited to granite blocks, wood piles, concrete slabs, railroad rails, footings, pile caps, foundation walls and grade beams.

- Based on the elevation of the top of bedrock as compared to the planned finish floor elevation of the lowest floor slabs, we anticipate that up to approximately 13 ft of rock removal will be required in the upper portion of the Upper Lot to construct the building foundations and lowest level floor slab. We do not anticipate rock removal to be needed to construct the building foundations and lowest level floor slab in the lower portion of the Upper Lot or in the Lower Lot.

- Due to the proximity of the water table to the planned finish floor elevation of the lowest floor slab in the upper portion of both the Upper and Lower Lots, we anticipate that either a foundation drainage system or a membrane waterproofing system will be need to protect the below grade portions of the buildings from water infiltration and would be designed to resist hydrostatic pressures. The foundation drainage system would likely consist of a network of perimeter and underslab drains that ideally would connect by gravity to an existing or proposed storm drain system at the site. The membrane waterproofing system would likely be needed on the below grade portions of foundation walls and below slabs/mats. The feasibility of both options should be evaluated during the design phase of the project. The use of vapor barriers beneath the lowest level floor slab in residential and retail spaces will likely be needed.

- Due to the relatively shallow depth of the top of bedrock as compared to the planned finish floor elevation of the lowest floor slab, we estimate that structures occupying the upper one-half (approximate) of the Upper Lot could be supported by shallow, spread footing or mat foundations bearing on bedrock.

- Due to the presence and compressible nature of the man-placed fill and marine silt/clay soils present within some portions of the site, we estimate that structures occupying the lower one-half (approximate) of the Upper Lot and the entirety of the Lower Lot would likely need to be supported by deep foundations (i.e., driven piles or drilled shafts) or on shallow, spread footing foundations bearing in improved ground. Possible ground improvement technologies appropriate for the site and subsurface conditions are aggregate piers (APs), grouted aggregate piers (GAPs) and geo-concrete columns (GCCs). Additional evaluations are required to further explore the technical feasibility and cost of these systems. Depending on the magnitude of actual column loads, it may be possible to support some of the buildings on the lower portion of the Upper Lot on shallow footing or mat foundations. Detailed evaluations will be needed as well as interaction with the Structural Engineer to evaluate this.

- Considering that existing site grades will not be raised (except for Building 6), and in some cases lowered, we anticipate that the lowest level floor slab for most, if not all of the buildings could be designed and constructed as a soil-supported, slabs-on-grade.

- Based on the subsurface conditions present at the sites and the seismic requirements of the latest edition of the International Building Code (IBC), it is likely that buildings would have to be designed in accordance with a "Site Class D" classification. A more rigorous evaluation will be conducted during the design phase once the locations and FFE's of the buildings are finalized.

- Temporary support of excavation systems will be required to construct the below grade portions of the buildings on the upper portion of both the Upper and Lower Lots. Based on planned FFE's of the buildings and existing site grades we anticipate that a drilled-in soldier pile and lagging system with internal and/or external bracing will be the most cost effective system. Additional evaluations will be required during the design phase to determine the technical feasibility of different systems and their design requirements.

Please note that additional explorations and analyses should be conducted during future phases of the project to verify the accuracy of these observations as they relate to future site development plans.

Recommendations for Future Work

There are several items that require additional evaluation and consideration during the preliminary and final design, and contract document preparation phases of the project. These items are summarized below.

- Additional subsurface explorations within the Upper and Lower Lots may be required in order to:
  - Better define the top of bedrock surface for more accurate determination of quantities that will require removal during construction.

  - Determine the limits of where shallow foundations can be used to support the proposed structures and also to determine where building foundation bearing conditions and type will change.
  - Collect rock samples for laboratory testing and determination of engineering properties needed to design temporary lateral earth support systems and drilled shaft building foundations bearing in/on bedrock (especially if design column loads require the foundations to resist axial uplift and lateral forces)

- Evaluation of the use of ground improvement techniques and shallow, spread footing foundations in lieu of a deep foundation system across a portion of the proposed building footprints.

- Evaluations to determine final foundation support requirements for the buildings.

- Development of geotechnical specifications such as earthwork, rock removal/blasting (if used), temporary lateral earth support, dewatering, driven/drilled pile installation and testing (if used) and ground improvement (if used) will be required.

- Additional groundwater data is needed determine the most cost effective, technically feasible system to protect the below grade spaces.

- Evaluations to determine the most cost effective temporary support of excavation system for both the Upper and Lower Lots.

Limitations of Recommendations

This memorandum is prepared for the exclusive use of WSA relative to the Portland Square Development in Portland, Maine. There are no intended beneficiaries other than WSA. Haley & Aldrich shall owe no duty whatsoever to any other person or entity on account of the Agreement or the memorandum. Use of this memorandum by any person or entity other than of WSA for any purpose whatsoever is expressly forbidden unless such other person or entity obtains written authorization from WSA and from Haley & Aldrich. Use of this memorandum by such other person or entity without the written authorization WSA and Haley & Aldrich shall be at such other person's or entities sole risk, and shall be without legal exposure or liability to Haley & Aldrich.

Use of this memorandum by any person or entity, including by WSA, for a purpose other than relative to the Portland Square Development in Portland, Maine is expressly prohibited unless such person or entity obtains written authorization from Haley & Aldrich indicating that the memorandum is adequate for such other use. Use of this memorandum by any other person or entity for such other purpose without written authorization by Haley & Aldrich shall be at such person's or entities sole risk, and shall be without legal exposure or liability to Haley & Aldrich.

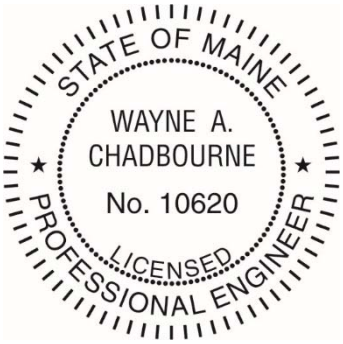
The information provided herein is based, in part, upon the data obtained from the referenced subsurface explorations. The nature and extent of variations between explorations may not become evident until construction. If variations then appear, it may be necessary to reevaluate the recommendations of this memorandum.

Closure

We greatly appreciate the opportunity to provide preliminary level geotechnical engineering consulting services on this project and trust this meets your present needs. We look forward to our continued association with you through preliminary and final design, construction document preparation, and construction. Please do not hesitate to contact us if you require additional information or have questions regarding any of the information provided herein.

Sincerely yours,
HALEY & ALDRICH, INC.

Bryan C. Steinert, P.E.
Project Manager



Wayne A. Chadbourne, P.E.
Senior Associate

Enclosures:

- Figure 1 – Project Locus
- Figure 2 – Site and Subsurface Exploration Location Plan Upper Lot
- Figure 3 – Site and Subsurface Exploration Location Plan Lower Lot
- Figure 4 – Subsurface Profiles A-A and B-B
- Figure 5 – Subsurface Profile C-C
- Figure 6 – Subsurface Profile Legend and Notes
- Figure 7 – Groundwater Level Monitoring Data
- Appendix A – Test Boring Logs
- Appendix B – Laboratory Test Results
- Appendix C – Observation Well Installation and Groundwater Monitoring Reports
- Appendix D – Historical Sanborn Maps
- Appendix E – Preliminary Conceptual Master Plans, Upper and Lower Lots

References

1. Report entitled, “Due Diligence Geotechnical Evaluation, Portland Square Development, Portland, Maine,” prepared by Haley & Aldrich, Inc. for Winton Scott Architects, dated 25 September 2016.

2. Report entitled, “Subsurface and Foundation Investigation, Proposed Two Portland Square, Portland, Maine,” prepared by Haley & Aldrich, Inc. for Portland Square Limited Partnership, dated July 1989.

3. Report entitled, “Supplemental Oil and Hazardous Material Site Evaluation, Fore Street Parking Lot, Portland, Maine,” prepared by Haley & Aldrich, Inc. for Portland Square Limited Partnership, dated December 1989.

4. Report entitled, “Supplemental Oil and Hazardous Material Site Evaluation, Portland Square Parking Lot, Portland, Maine,” prepared by Haley & Aldrich, Inc. for Portland Square Limited Partnership, dated December 1989.

5. Report entitled, “Proposed Site Development, Porteous Warehouse Project, The Finch Group, Inc., Portland, Maine,” prepared by Haley & Aldrich, Inc. for HTA/Oest Associates, Inc., dated 6 May 1986.

6. Report entitled, “Report of Preliminary Soil and Foundation Investigation, Proposed Canal National Bank Development, Portland, Maine,” prepared by Haley & Aldrich, Inc. for Stahl Associates, dated 25 May 1971.

TABLE I
Exploration Subsurface Data
Portland Square Development
Portland, Maine

Haley & Aldrich, Inc. File No.: 32328-111

	Test Boring No.[1]	Ground Surface Elevation[2,3]	Approximate Strata Thickness[4,5,6] (ft)					Approximate Elevation of Top of Bedrock[2,3,57]	Approximate Elevation of Bottom of Exploration[2,3]
			Topsoil/ Bituminous Concrete/Fill	Marine Deposit		Glacial Till	Weathered Bedrock		
				Silt/Clay	Sand/Gravel				
UPPER LOT	HA15-1(OW)	49.5	7.2	5.8	NE	1.1	NE	35.4	31.0
	HA16-1	49.0	4.7	9.3	NE	5.5	3.3	29.5	19.0
	HA16-2	46.0	8.5	6.0	NE	NE	4.2	31.5	20.0
	HA16-3	44.5	2.3	5.7	2.3	NE	3.2	34.2	26.2
	HA16-4	42.0	4.5	4.5	4.5	NE	3.5	28.5	19.0
	HA16-5	40.0	5.0	NE	9.9	NE	0.1	25.1	25.0
	HA16-6	39.0	6.5	NE	8.3	NE	0.2	24.2	17.5
	HA16-7	31.5	2.1	1.2	14.5	NE	6.5	13.7	2.5
	HA16-8	32.5	5.0	NE	11.7	7.3	1.0	8.5	1.5
	HA16-9	32.5	3.8	9.7	10.5	NE	2.7	8.5	5.8
LOWER LOT	HA15-2(OW)	29.0	9.2	13.2	1.6	4.6	NE	0.4	-0.9
	HA15-3(OW)	26.5	14.5	NE	12.5	1.9	0.3	-2.7	-3.8
	HA15-4(OW)	11.5	18.0	NE	NE	8.4	0.4	-15.3	-16.8
	HA16-10	25.5	21.0	NE	13.0	NE	4.5	-8.5	-17.7
	HA16-11	19.5	24.0	NE	11.5	NE	--	--	-16.0
	HA16-12	20.0	19.0	NE	9.0	NE	> 2.0	-8.0	-10.0
	HA16-13	22.5	12.3	4.9	NE	1.1	1.7	4.2	-2.5
	HA16-14	14.0	19.5	4.0	3.1	NE	8.4	-12.6	-25.7
	HA16-15	15.5	20.7	2.8	NE	NE	6.5	-8.0	-19.5
	HA16-16	17.0	17.7	NE	NE	NE	> 2.3	-0.7	-3.0
	HA16-17	11.0	18.0	NE	7.7	NE	3.3	-14.7	-23.0
	HA16-18	12.0	20.3	NE	NE	NE	4.7	-8.3	-18.0

Notes:

[1] Test boring locations are shown on Figures 2 and 3, Site and Subsurface Exploration Location Plans.

[2] Ground surface elevations were determined by Haley & Aldrich, Inc. by interpolating between existing topographic contour information.

[3] Elevations are measured in feet and reference Portland City Datum.

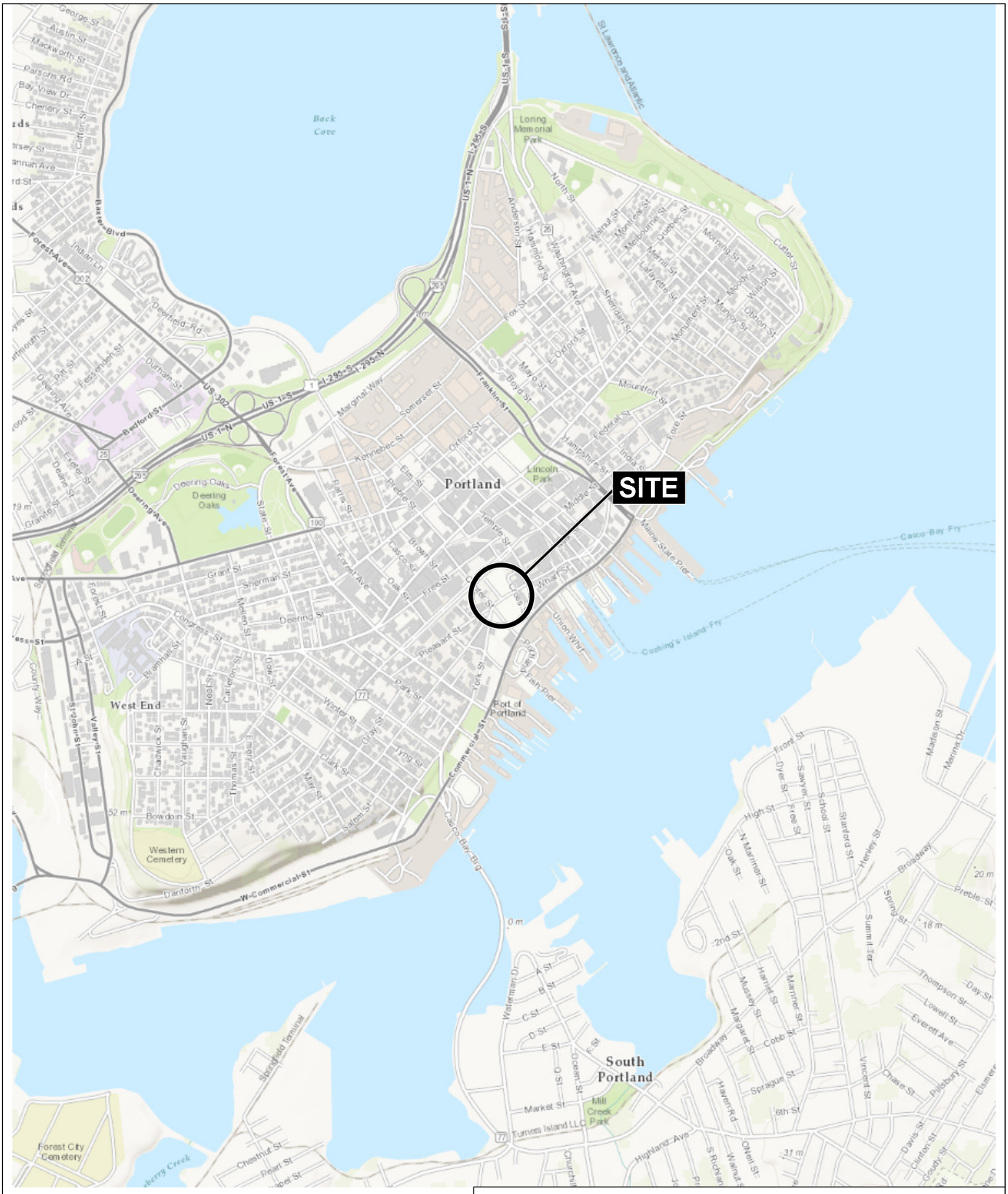
[4] "NE" indicates stratum was not encountered in test boring.

[5] "--" indicates test boring was not drilled deep enough to determine presence of stratum.

[6] "> 2.0" indicates test boring was not drilled deep enough to determine full thickness of stratum, which is greater than the value shown.

[7] Top of bedrock in test borings HA15-1(OW) through HA15-4(OW), HA16-5, HA16-9 and HA16-16 determined based on drill action and observation of wash water contents, coring/sampling not conducted.

	Individual	Date
Prepared By:	KAR	12/12/2016
Checked By:	BCS	12/21/2016
Reviewed By:	WAC	12/23/2016



MAP SOURCE: ESRI

SITE COORDINATES: 43°39'19"N, 70°15'23"W



HALEY ALDRICH

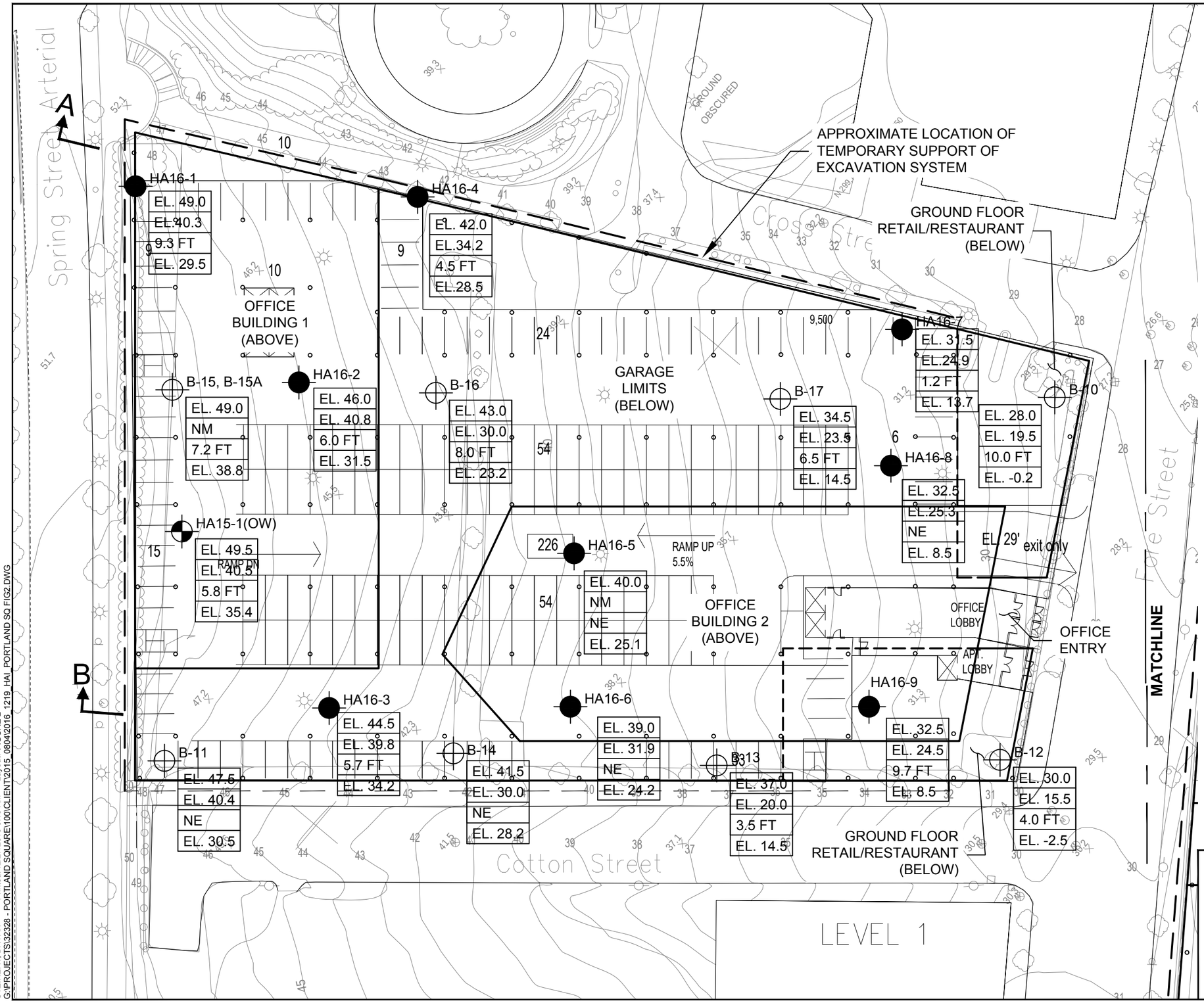
PRELIMINARY GEOTECHNICAL EVALUATION
PORTLAND SQUARE DEVELOPMENT
PORTLAND, MAINE

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
DECEMBER 2016

FIGURE 1

32328-100_1_LOCUS.PDF



LEGEND

HA16-1	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS OF LONDONDERRY, NEW HAMPSHIRE DURING THE PERIOD 3-17 OCTOBER 2016 UNDER THE DIRECTION OF HALEY & ALDRICH
HA15-1	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS OF HERMON, MAINE DURING THE PERIOD 10-12 AUGUST 2015 UNDER THE DIRECTION OF HALEY & ALDRICH
B-10	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NORTHEAST DIAMOND DRILLING COMPANY, INC. OF UNION, MAINE OR MAINE TEST BORINGS, INC. OF BREWER, MAINE ON 22 NOVEMBER 1985 AND 7-8 JULY AND 10 SEPTEMBER 1987.
(OW)	DENOTES OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE
NE	DENOTES STRATA NOT ENCOUNTERED
NM	DENOTES WATER LEVEL NOT MEASURED
EL. 49.5	APPROXIMATE GROUND SURFACE ELEVATION
EL. 40.4	APPROXIMATE WATER ELEVATION
5.8 FT	APPROXIMATE MARINE SILT/CLAY THICKNESS
EL. 30.5	APPROXIMATE TOP OF WEATHERED BEDROCK OR BEDROCK ELEVATION, WHICHEVER IS HIGHER
A A	DESIGNATION, LOCATION AND ORIENTATION OF SUBSURFACE PROFILE

NOTES

1. EXISTING SITE CONDITIONS, CONTOURS OF EXISTING GROUND SURFACE ELEVATIONS AND THE LOCATION AND ORIENTATION OF EXISTING AND PROPOSED SITE FEATURES ARE TAKEN FROM THE ELECTRONIC AUTOCAD FILE ENTITLED, "S1.1 L2 and L3.dwg." PROVIDED TO HALEY & ALDRICH, INC. BY WINTON SCOTT ARCHITECTS ON 4 AUGUST 2015.
2. THE PLAN LOCATION OF HISTORIC SUBSURFACE EXPLORATIONS IS APPROXIMATE AND WAS DETERMINED BY OVERLAYING HISTORIC TEST BORING LOCATION PLANS ON TO THE EXISTING CONDITIONS PLAN AND SHOULD BE CONSIDERED APPROXIMATE.
3. 2015 AND 2016 TEST BORING LOCATIONS SHOWN ARE APPROXIMATE AND WERE ESTIMATED BY HALEY & ALDRICH BY TAPING/PACING DISTANCES FROM EXISTING SITE FEATURES.
4. LIMITS AND PLAN LOCATION OF PROPOSED STRUCTURES TAKEN FROM PRELIMINARY CONCEPTUAL MASTER PLANS PROPOSED BY WINTON SCOTT ARCHITECTS DATED 21 AUGUST 2016 (SEE APPENDIX E).

N

0 40 80
SCALE IN FEET

HALEY ALDRICH

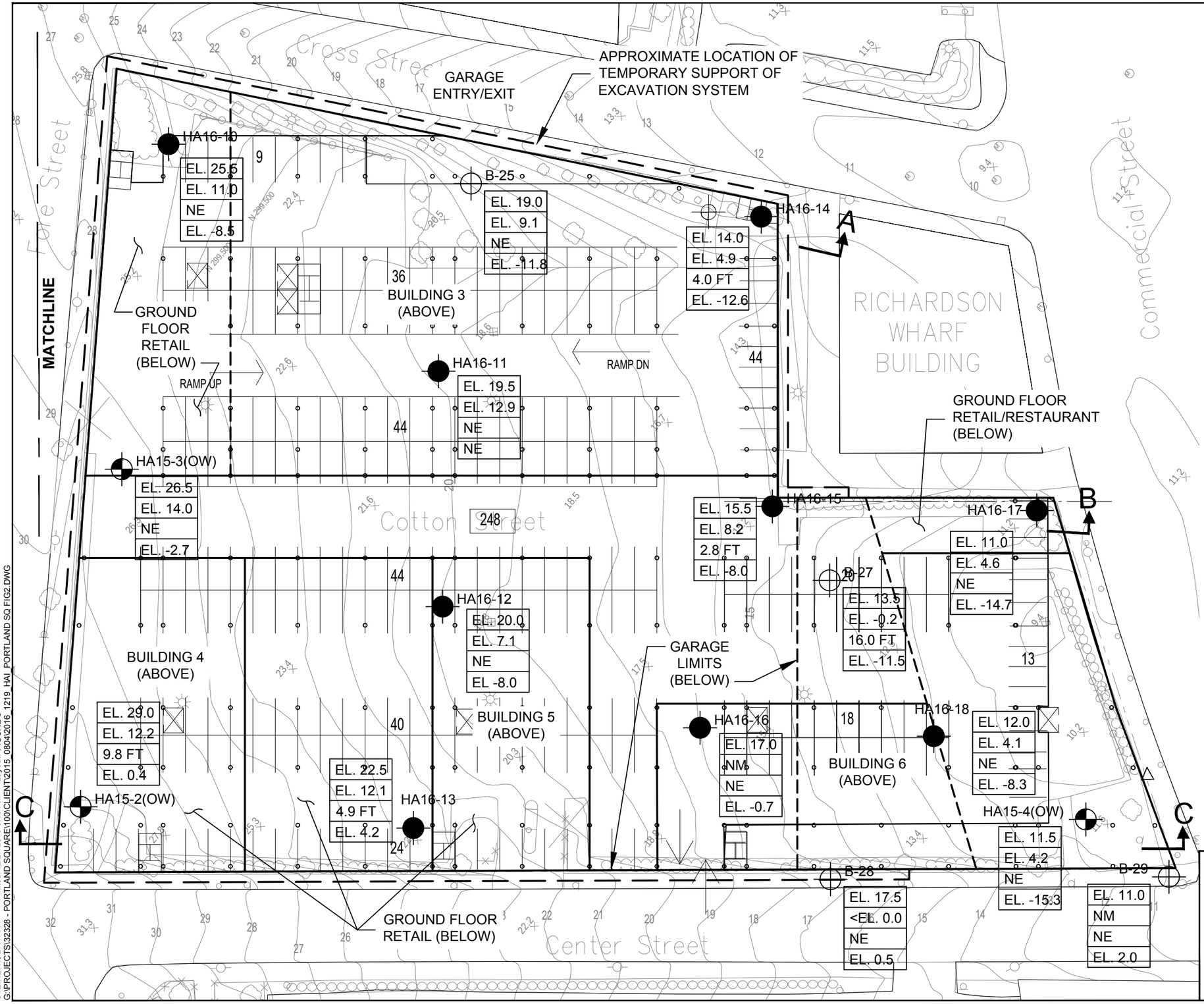
PRELIMINARY GEOTECHNICAL EVALUATION
PORTLAND SQUARE DEVELOPMENT
PORTLAND, MAINE

SITE AND SUBSURFACE EXPLORATION LOCATION PLAN UPPER LOT

SCALE: AS SHOWN
DECEMBER 2016

FIGURE 2

STEINERT, BRYAN Printed: 12/27/2016 9:15 AM Layout: FIGURE 2
G:\PROJECTS\32328 - PORTLAND SQUARE\100\CLIENT\2015_0804\2016_1219_HAI_PORTLAND SQ FIG2.DWG



LEGEND

HA16-1	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS OF LONDONDERRY, NEW HAMPSHIRE DURING THE PERIOD 3-17 OCTOBER 2016 UNDER THE DIRECTION OF HALEY & ALDRICH
HA15-1	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS OF HERMON, MAINE DURING THE PERIOD 10-12 AUGUST 2015 UNDER THE DIRECTION OF HALEY & ALDRICH
B-10	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NORTHEAST DIAMOND DRILLING COMPANY, INC. OF UNION, MAINE OR MAINE TEST BORINGS, INC. OF BREWER, MAINE ON 22 NOVEMBER 1985 AND 7-8 JULY AND 10 SEPTEMBER 1987.
(OW)	DENOTES OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE
NE	DENOTES STRATA NOT ENCOUNTERED
NM	DENOTES WATER LEVEL NOT MEASURED
EL. 49.5	APPROXIMATE GROUND SURFACE ELEVATION
EL. 40.4	APPROXIMATE WATER ELEVATION
5.8 FT	APPROXIMATE MARINE SILT/CLAY THICKNESS
EL. 30.5	APPROXIMATE TOP OF WEATHERED BEDROCK OR BEDROCK ELEVATION, WHICHEVER IS HIGHER
A A	DESIGNATION, LOCATION AND ORIENTATION OF SUBSURFACE PROFILE

NOTES

1. EXISTING SITE CONDITIONS, CONTOURS OF EXISTING GROUND SURFACE ELEVATIONS AND THE LOCATION AND ORIENTATION OF EXISTING AND PROPOSED SITE FEATURES ARE TAKEN FROM THE ELECTRONIC AUTOCAD FILE ENTITLED, "S1.1 L2 and L3.dwg." PROVIDED TO HALEY & ALDRICH, INC. BY WINTON SCOTT ARCHITECTS ON 4 AUGUST 2015.
2. THE PLAN LOCATION OF HISTORIC SUBSURFACE EXPLORATIONS IS APPROXIMATE AND WAS DETERMINED BY OVERLAYING HISTORIC TEST BORING LOCATION PLANS ON TO THE EXISTING CONDITIONS PLAN AND SHOULD BE CONSIDERED APPROXIMATE.
3. 2015 AND 2016 TEST BORING LOCATIONS SHOWN ARE APPROXIMATE AND WERE ESTIMATED BY HALEY & ALDRICH BY TAPING/PACING DISTANCES FROM EXISTING SITE FEATURES.
4. LIMITS AND PLAN LOCATION OF PROPOSED STRUCTURES TAKEN FROM PRELIMINARY CONCEPTUAL MASTER PLANS PROPOSED BY WINTON SCOTT ARCHITECTS DATED 21 AUGUST 2016 (SEE APPENDIX E).

N

0 40 80
SCALE IN FEET

HALEY ALDRICH

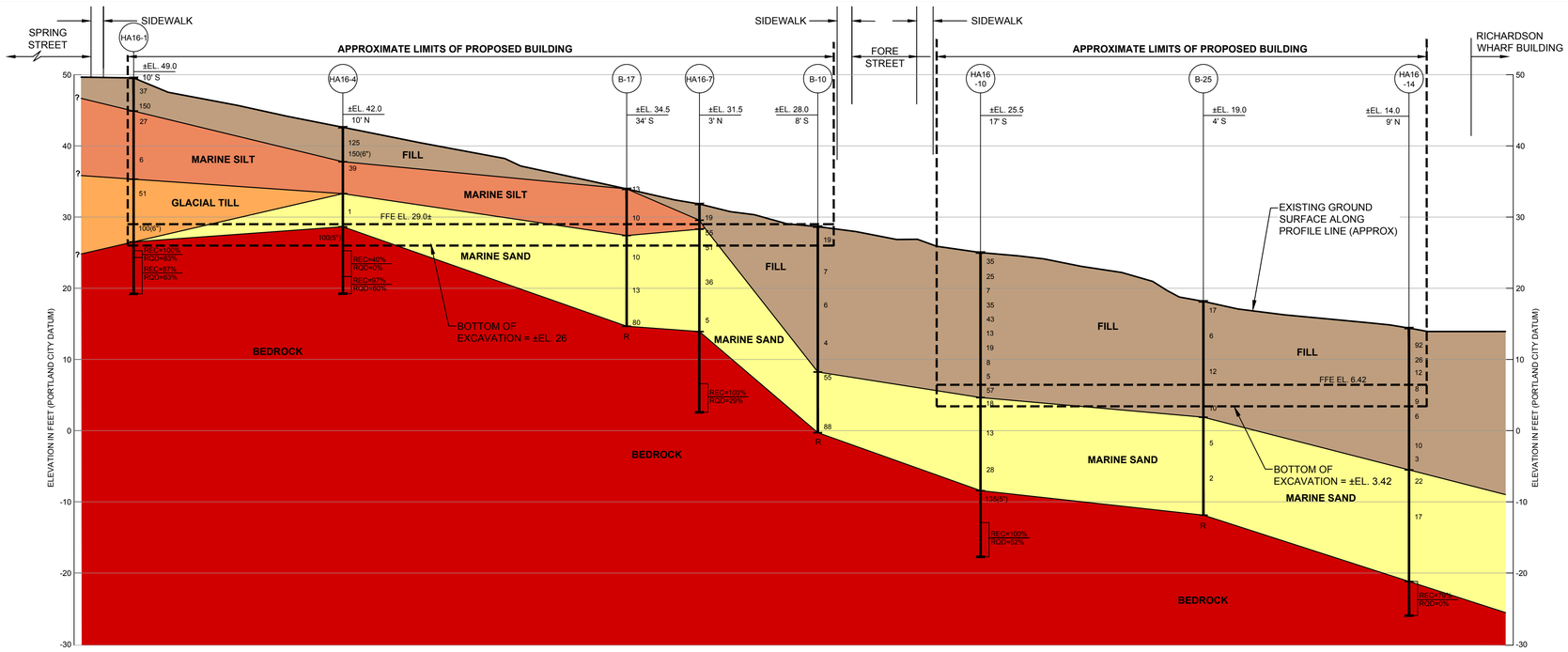
PRELIMINARY GEOTECHNICAL EVALUATION
PORTLAND SQUARE DEVELOPMENT
PORTLAND, MAINE

SITE AND SUBSURFACE EXPLORATION LOCATION PLAN LOWER LOT

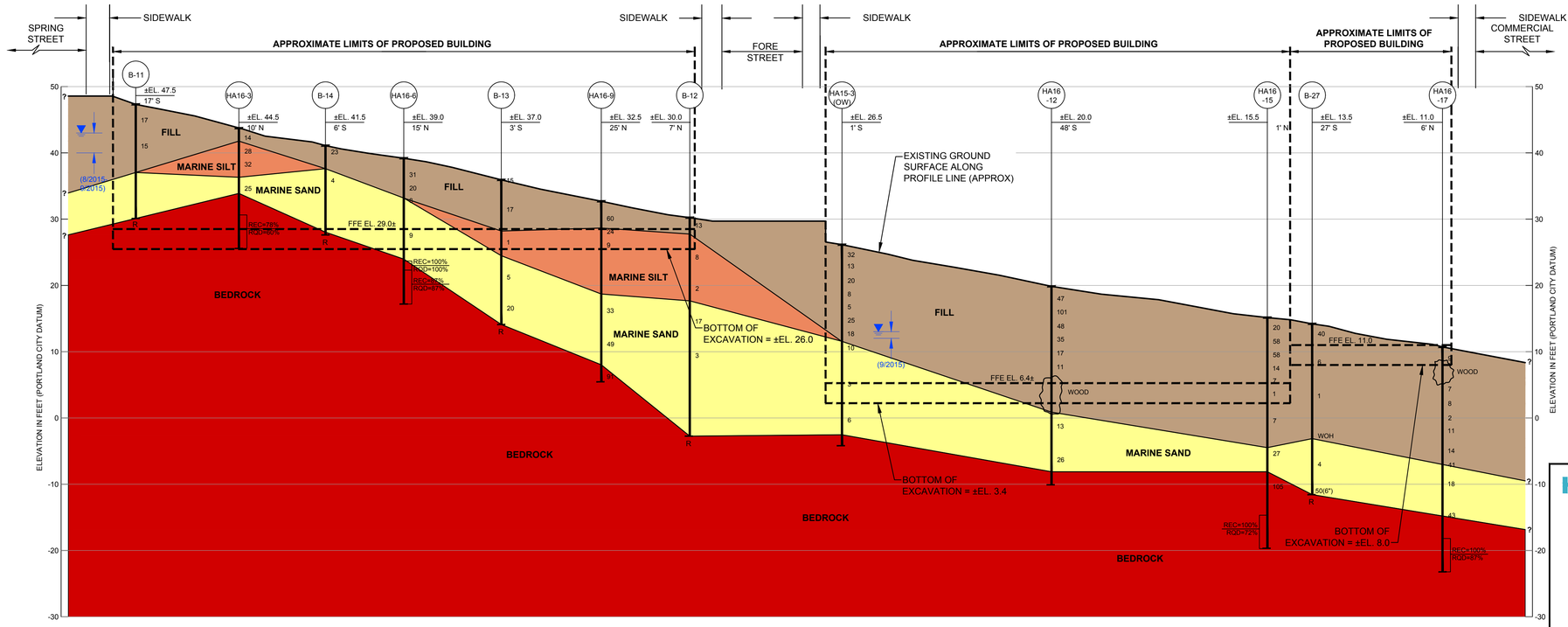
SCALE: AS SHOWN
DECEMBER 2016

FIGURE 3

STEINERT, BRYAN Printed: 12/27/2016 9:16 AM Layout: FIGURE 3
G:\PROJECTS\32328 - PORTLAND SQUARE\100\CLIENT\2015_0804\2016_1219_HAL_PORTLAND SQ FIG2.DWG



PROFILE A-A



PROFILE B-B

NOTES:

1. SEE FIGURES 2 AND 3 FOR PLAN LOCATION OF EXPLORATIONS SHOWN ON PROFILE AND FOR LOCATION / ORIENTATION OF SUBSURFACE PROFILE.
2. SEE FIGURE 6 FOR SUBSURFACE PROFILE LEGEND AND NOTES.
3. LIMITS AND PLAN LOCATION OF PROPOSED STRUCTURES TAKEN FROM PRELIMINARY CONCEPTUAL MASTER PLANS PREPARED BY WINTON SCOTT ARCHITECTS DATED 21 AUGUST 2016 (SEE APPENDIX E).

HORIZ. 0 40 80 120 160
VERT. 0 10 20 30 40
SCALE IN FEET

HALEY ALDRICH

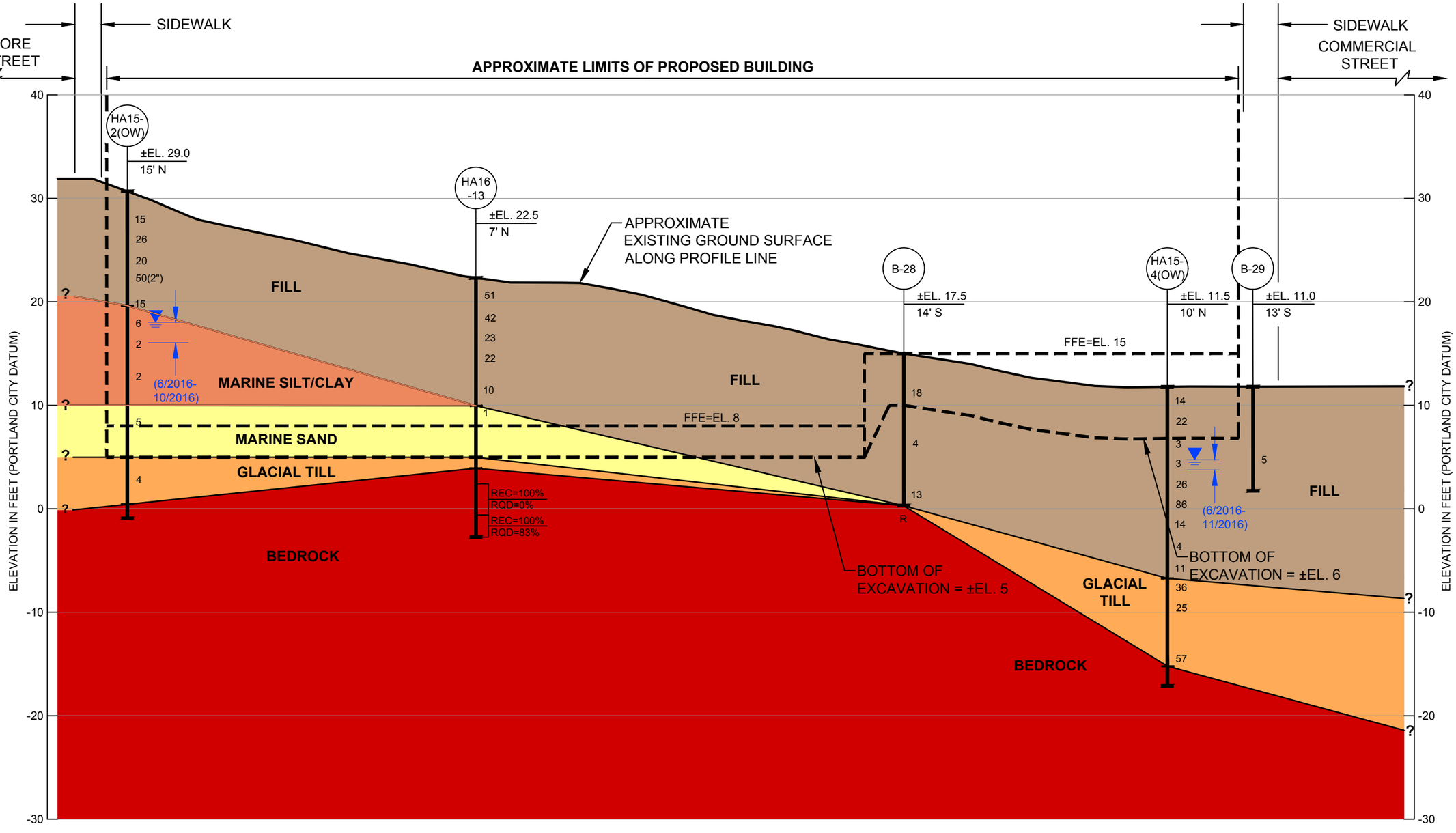
PRELIMINARY GEOTECHNICAL EVALUATION
PORTLAND SQUARE DEVELOPMENT
PORTLAND, MAINE

SUBSURFACE PROFILES A-A AND B-B

SCALE: AS SHOWN
DECEMBER 2016

FIGURE 4

STACEY, MICHELLE Printed: 12/23/2016 4:21 PM Layout: SECTION A-A AND B-B
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NOTES:

1. SEE FIGURE 3 FOR PLAN LOCATION OF EXPLORATIONS SHOWN ON PROFILE AND FOR LOCATION / ORIENTATION OF SUBSURFACE PROFILE.
2. SEE FIGURE 6 FOR SUBSURFACE PROFILE LEGEND AND NOTES.
3. LIMITS AND PLAN LOCATION OF PROPOSED STRUCTURES TAKEN FROM PRELIMINARY CONCEPTUAL MASTER PLANS PREPARED BY WINTON SCOTT ARCHITECTS DATED 21 AUGUST 2016 (SEE APPENDIX E).

HORIZ. 0 40 80
VERT. 0 10 20
SCALE IN FEET

HALEY ALDRICH

PRELIMINARY GEOTECHNICAL EVALUATION
PORTLAND SQUARE DEVELOPMENT
PORTLAND, MAINE

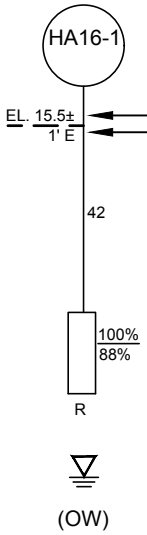
SUBSURFACE PROFILE C-C

SCALE: AS SHOWN
DECEMBER 2016

FIGURE 5

STACEY, MICHELLE Printed: 12/23/2016 4:14 PM Layout: SECTION C-C
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LEGEND:



DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED UNDER THE DIRECTION OF HALEY & ALDRICH, INC. IN 1985, 1987, 2015 AND 2016

APPROXIMATE GROUND SURFACE ELEVATION AT TEST BORING LOCATION DETERMINED BY INTERPOLATING BETWEEN ELEVATION CONTOURS

APPROXIMATE PERPENDICULAR OFFSET DISTANCE AND DIRECTION MEASURED FROM THE SUBSURFACE PROFILE LINE

STANDARD PENETRATION TEST (SPT) N-VALUE (BLOWS PER FOOT); WOR = WEIGHT OF RODS; WOH = WEIGHT OF HAMMER

PERCENT RECOVERY
PERCENT ROCK QUALITY DESIGNATION (RQD)

DENOTES SPLIT-SPOON OR AUGER REFUSAL ENCOUNTERED, JUDGED TO BE BEDROCK

GROUNDWATER LEVEL MEASURED IN COMPLETED BOREHOLE OR OBSERVATION WELL ON DATE SPECIFIED

DENOTES OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE

NOTES:

1. SEE FIGURES 2 AND 3 FOR LOCATION AND ORIENTATION OF SUBSURFACE PROFILES.
2. EXISTING GROUND SURFACE ELEVATIONS AT TEST BORING LOCATIONS ARE APPROXIMATE AND WERE DETERMINED BY INTERPOLATION USING TOPOGRAPHIC CONTOUR INFORMATION PROVIDED BY WINTON SCOTT ARCHITECTS IN THE ELECTRONIC AUTOCAD FILE ENTITLED, "S1.1 L2 AND L3.dwg," ON 4 AUGUST 2015.
3. EXISTING AND PROPOSED SITE FEATURES AND CONTOURS OF EXISTING GROUND SURFACE ELEVATIONS ARE TAKEN FROM THE ELECTRONIC AUTOCAD FILE ENTITLED, "S1.1 L2 AND L3.dwg," PROVIDED BY WINTON SCOTT ARCHITECTS ON 4 AUGUST 2015.
4. LINES REPRESENTING CHANGES IN STRATA SHOWN ON THE SUBSURFACE PROFILES ARE BASED ON LINEAR INTERPOLATION BETWEEN SUBSURFACE EXPLORATIONS. THESE INTERPRETED STRATA LINES DO NOT REPRESENT ACTUAL FIELD CONDITIONS OTHER THAN AT SPECIFIC EXPLORATION LOCATIONS.
5. LOCATIONS OF THE 1958, 1987, 2015 AND 2016 TEST BORINGS ARE APPROXIMATE AND WERE DETERMINED IN THE FIELD BY TAPING/PACING DISTANCES FROM EXISTING SITE FEATURES.
6. ELEVATIONS ARE IN FEET AND REFERENCE PORTLAND CITY DATUM.
7. REFER TO APPENDIX A FOR LOGS OF THE 1985, 1987, 2015 AND 2016 TEST BORINGS COMPLETED UNDER THE DIRECTION OF HALEY & ALDRICH, INC.

HALEY ALDRICH

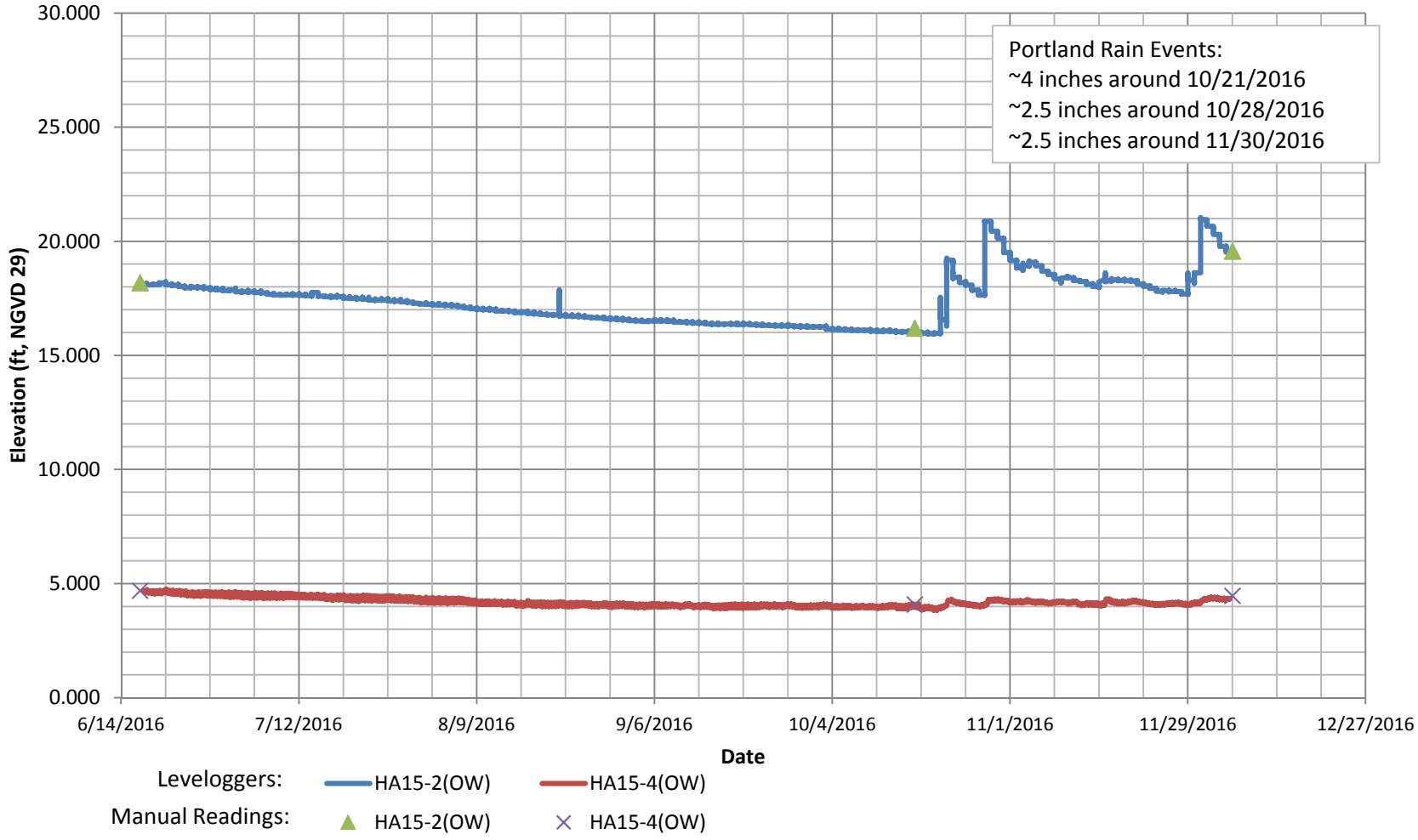
PRELIMINARY GEOTECHNICAL EVALUATION
PORTLAND SQUARE DEVELOPMENT
PORTLAND, MAINE

LEGEND AND NOTES

SCALE: AS SHOWN
DECEMBER 2016

FIGURE 6

STEINERT, BRYAN Printed: 12/23/2016 2:12 PM Layout: HA-FIG-A-P
G:\PROJECTS\32328 - PORTLAND SQUARE\GLOBAL\CAD\LEGEND AND NOTES.DWG



HALEY ALDRICH

PRELIMINARY GEOTECHNICAL EVALUATION
PORTLAND SQUARE DEVELOPMENT
PORTLAND, MAINE

OBSERVATION WELL MONITORING DATA
17 JUNE 2016 TO 5 DECEMBER 2016

FILE NO.: 32328-111 **FIGURE 7**

APPENDIX A

Test Boring Logs

2016 Haley & Aldrich, Inc.
Test Boring Logs

HALEY ALDRICH

TEST BORING REPORT

Boring No. HA16-1

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

File No.	32328-111
Sheet No.	1 of 3
Start	03 October 2016
Finish	03 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	49.0 +/-
Datum	Portland City
Location	See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 20.5 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3		-BITUMINOUS CONCRETE-										
	18 17 20 13	S1 12	1.0 3.0		SW	Dense brown to light brown well graded SAND with gravel (SW), mps 1.375 in., no odor, dry	5	10	20	35	30					
						-FILL-										
	11 100 50 10	S2 13	3.0 5.0	4.7	SW	Very dense light brown well graded SAND with gravel (SW), mps 1.375 in., no odor, moist, trace dark brown organic soil, contains glass fragments	10	5	20	35	25	5				
5	14 13 14 19	S3 13	5.0 7.0		ML	Very stiff olive-brown to gray SILT (ML), mps 1 mm, no odor, moist, mottled with occasional fine sand partings					10	90	S	L	L	L
						-MARINE DEPOSIT-										
10	4 4 2 1	S4 24	10.0 12.0		ML/SP	Medium stiff/loose olive-brown to gray interbedded SILT (ML) and poorly-graded SAND (SP), mps 0.5 in., no odor, wet				5	40	55	R	L	L	L
				14.0												
15	7 13 38 37	S5 6	15.0 17.0		SW	Very dense gray-brown well graded SAND with gravel (SW), mps 1.25 in., no odor, wet	10	15	25	25	20	5				
						-GLACIAL TILL-										
						Note: Drill action indicates stratum change at 19.5 ft.										
20				19.5												

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/3/16	11:50	-	20.5	30.0	8.75

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	24.0
Rock Cored (ft)	6.0
Samples	6S, 2C

Boring No. HA16-1

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-1
File No. 32328-111
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	100	S6 6	20.0 20.5		SM	Very dense olive-brown to gray silty SAND with gravel (SM), mps 0.75 in., no odor, wet, completely to highly weathered bedrock	5	15	25	20	15	20				
						-WEATHERED BEDROCK-										
				22.8		-BEDROCK-										
						Note: Advanced rollercone to 24.0 ft. Begin NX rock core at 24.0 ft.										
				24.0		SEE CORE BORING REPORT FOR ROCK DETAILS										
25																
30																

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-1

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. **HA16-1**
File No. 32328-111
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
25	1:35	C1	24.0 25.0	12 10	100 83	Fresh		Hard to moderately hard, fresh to slightly weathered, light gray, aphanitic to fine-grained PHYLLITE. Joints close to moderate. Primary joints moderately dipping. Secondary joints high angle to vertical, undulating, rough, slightly discolored to decomposed, tight to moderately wide, no infilling. Joints parallel to foliation.
	1:50	C2	25.0 30.0	52 38	87 63	Fresh to Moderate		Hard to moderately hard, fresh to slightly weathered, light gray, aphanitic to fine-grained PHYLLITE. Joints close to moderate. Primary joints moderately dipping. Secondary joints high angle to vertical, undulating, rough, slightly discolored to decomposed, tight to moderately wide, no infilling. Joints parallel to foliation.
	1:45							
	2:20							
	1:45							
	1:50							
30							30.0	BOTTOM OF EXPLORATION 30.0 FT
35								
40								
45								
50								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-2

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 18.7 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 3
Start	04 October 2016
Finish	04 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation Datum	46.0 +/- Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3		BITUMINOUS CONCRETE-										
	32 30 26 10	S1 3	1.0 3.0		SW	Very dense brown well graded SAND with gravel (SW), mps 1.375 in., no odor, dry, occasional 6 in. cobbles -FILL-	20	15	15	25	20	5				
				2.5												
	16 25 16 13	S2 3	3.0 5.0		SP	Dense tan poorly-graded SAND (SP), mps 0.5 in., no odor, dry -FILL-		5	5	20	70					
5 ▽	6 5 10 12	S3 10	5.0 7.0		SP	Medium dense tan poorly-graded SAND (SP), mps 0.5 in., no odor, dry, contains brick pieces		5	5	20	70					
				6.6												
	50/0	NR	7.0 7.0		SM	Medium dense dark brown silty SAND with gravel (SM), mps 1.375 in., no odor, wet, occasional cobble -FILL- Note: Split spoon refusal on probable cobble at 7.0 ft.	10	10	15	20	25	20				
				8.5												
10	20 18 17 12	S4 19	9.0 11.0		ML/SM	Dense olive-brown to yellow-brown and gray-brown interbedded SILT (ML) and silty SAND with gravel (SM) -MARINE DEPOSIT- Note: Drill action indicates change at 14.5 ft.	10	5	10	20	25	30				
				14.5												
15	70 83 84 44	S5 12	15.0 17.0		SM	Very dense olive-brown to gray-brown silty SAND with gravel (SM), mps 1 in., no odor, wet, completely weathered bedrock -WEATHERED BEDROCK-	5	15	25	20	15	20				
				18.7												
20						Note: Advanced rollercone to 20.0 ft. Split spoon refusal at 20.0 ft. -BEDROCK-										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/4/16	12:45	-	18.7	26.0	5.2

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	21.0
Rock Cored (ft)	5.0
Samples	5S, 1C

Boring No. HA16-2

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-2
File No. 32328-111
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	50/0	NR	20.0 20.0	21.0		Note: Advanced rollercone to 21.0 ft. Begin NX rock core at 21.0 ft.										
						SEE CORE BORING REPORT FOR ROCK DETAILS										
25																

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-2

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA16-2
File No. 32328-111
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
25	1:50 1:55 1:45 1:35 2:10	C1	21.0 26.0	60 46	100 77	Fresh		Hard to moderately hard, fresh, light gray, aphanitic to fine-grained PHYLLITE. Joints very close to close, low angle to moderately dipping, planar to undulating, rough, fresh to slightly discolored, open to moderately wide, no infilling.
							26.0	BOTTOM OF EXPLORATION 26.0 FT
30								
35								
40								
45								
50								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-3

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 11.0 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 2
Start	04 October 2016
Finish	05 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	44.5 +/-
Datum	Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3		-BITUMINOUS CONCRETE-										
	6 5 9 11	S1 21	1.0 3.0	1.7	SW	Medium dense brown well graded SAND (SW), mps 1.25 in., no odor, dry	15	10	20	30	25					
				2.3	OL	-FILL-					10	90				
	9 13 15 17	S2 16	3.0 5.0		ML	Medium dense dark brown ORGANIC SOIL (OL), mps <1 mm, no odor, moist -FILL- Very stiff gray-brown to olive-brown SILT (ML), mps 2 mm, no odor, moist, mottled				5	10	85	S	L	L	L
5						-MARINE DEPOSIT-										
	17 16 16 14	S3 13	5.0 7.0		ML	Hard olive-brown to gray-brown SILT (ML), mps 2 mm, no odor, moist, occasional fine sand partings				5	15	80	S	L	L	L
				8.0												
	18 8 17 50/0"	S4 15	9.0 10.5		SM	Medium dense olive-gray silty SAND (SM), mps 0.75 in. -MARINE DEPOSIT-		5	20	20	25	30				
10				10.3		Note: Split spoon refusal at 10.3 ft on moderately weathered bedrock.										
						-WEATHERED BEDROCK-										
				13.5		Note: Advanced rollercone to 13.5 ft. Begin NX rock core at 13.5 ft. SEE CORE BORING REPORT FOR ROCK DETAILS										
15																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/5/16	9:40	-	11.0	18.3	3.5
10/5/16	9:50	-	Open	18.3	4.7

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	13.5
Rock Cored (ft)	4.8
Samples	4S, 1C

Boring No. HA16-3

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA16-3
File No. 32328-111
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
15	3:05 3:15 4:05 7:10 7:00/10"	C1	13.5 18.3	57 35	98 60	Fresh		Hard to moderately hard, fresh to slightly weathered, light gray, aphanitic to fine-grained PHYLLITE. Joints very close to moderate, moderately dipping to vertical, undulating, rough, fresh to slightly discolored, open to moderately wide, no infilling.
							18.3	BOTTOM OF EXPLORATION 18.3 FT
20								
25								
30								
35								
40								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HA_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-4

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 15.0 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 2
Start	03 October 2016
Finish	04 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation Datum	42.0 +/- Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3		-BITUMINOUS CONCRETE-										
	18 54 71 30	S1 8	1.0 3.0		SW	Very dense brown well graded SAND with gravel (SW), mps 1.375 in., no odor, dry, with occasional cobbles -FILL-	15	10	20	25	30					
	100 50/0	S2 6	3.0 3.5		SW	Very dense brown to light brown well graded SAND with gravel (SW), mps 1.375 in., no odor, dry, with occasional cobble Note: Wash through cobble, stratum change at 4.5 ft.	20	10	20	25	25					
5	13 16 23 32	S3 24	5.0 7.0	4.5	ML	Hard olive-brown to light brown SILT (ML), mps 2 mm, no odor, moist, mottled, possibly reworked -MARINE DEPOSIT-			5	5	10	80	S	L	L	L
				9.0												
10	1 WOH 1 WOH	S4 24	10.0 12.0		SM	Very loose olive-gray silty SAND (SM), mps 1 in., no odor, wet -MARINE DEPOSIT- Note: Drill action indicates stratum change at 13.5 ft.	5	5	10	25	30	25				
				13.5												
15	100/5'	S5 5	15.0 15.4		GM	Very dense olive-brown to gray silty GRAVEL (GM), mps 1.375 in., no odor, wet, completely to highly weathered bedrock. -WEATHERED BEDROCK- Note: Advanced rollercone to 17.0 ft. Begin NX rock core at 17.0 ft.										
				17.0		SEE CORE BORING REPORT FOR ROCK DETAILS										
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/4/16	8:55	-	15.0	23.0	5.9
10/4/16	9:05	-	Open	23.0	7.8

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	17.0
Rock Cored (ft)	6.0
Samples	5S, 2C

Boring No. HA16-4

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA16-4
File No. 32328-111
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
	1:10	C1	17.0	17	40	Fresh		Hard to moderately hard, fresh to slightly weathered, light gray, aphanitic to fine-grained PHYLLITE. Highly fractured zone. Note: Very poor recovery and RQD.
	2:20		20.5	0	0			
	1:55							
20	2:10/6"							
	2:10	C2	20.5	29	97	Fresh		
	2:45		23.0	18	60			Hard to moderately hard, fresh to slightly weathered, light gray, aphanitic to fine-grained PHYLLITE. Joints close to moderate, low angle to moderately dipping, undulating, rough, fresh to slightly discolored, tight to open, no infilling. Joints parallel to foliation. Very poor RQD.
	1:50/6"							
							23.0	BOTTOM OF EXPLORATION 23.0 FT
25								
30								
35								
40								
45								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-5

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

File No.	32328-111
Sheet No.	1 of 1
Start	05 October 2016
Finish	05 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	40.0 +/-
Datum	Portland City
Location	See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	--	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	--	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 14.7 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
						Dense brown well graded SAND with gravel (SW), mps 1 in., no odor, dry	10	10	20	35	25					
	15 15 24 25	S1 14	1.0 3.0	1.6	SM	-FILL-										
						Dense dark brown to brown silty SAND with gravel (SM), mps 1.375 in., no odor, dry to moist, with brick pieces	20	10	10	15	25	20				
	46 38 30 32	S2 14	3.0 5.0		SM	-FILL-										
						Very dense olive-brown silty SAND with gravel (SM), mps 1.25 in., slight musty odor, moist, possibly reworked naturally-deposited soil	10	10	15	20	30	15				
						-FILL-										
5	43 46 38 23	S3 11	5.0 7.0	5.0	SM	Very dense olive-brown silty SAND with gravel (SM), mps 1.375 in., strong musty odor, moist	10	10	15	20	30	15				
						-MARINE DEPOSIT-										
						Note: Drill action indicates stratum change at 8.5 ft.										
				8.5												
10	7 5 6 6	S4 20	10.0 12.0		SM	Medium dense gray-brown silty SAND with gravel (SM), mps 1.375 in., no odor, wet	10	10	15	20	30	15				
						-MARINE DEPOSIT-										
15				14.9		Note: Casing refusal at 14.9 ft. Advanced rollercone to 15.0 ft; slightly weathered bedrock chips in wash water return.										
				15.0		BOTTOM OF EXPLORATION 15.0 FT										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/5/16	14:30	--	Open	Caved @14.5	0.6
		Water level dropping slowly			

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	15.0
Rock Cored (ft)	0.0
Samples	4S

Boring No. HA16-5

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Plasticity**: N - Nonplastic L - Low M - Medium H - High
Toughness: L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-6

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 14.8 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 2
Start	05 October 2016
Finish	05 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	39.0 +/-
Datum	Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	18 21 10 7	S1 15	1.0 3.0			Dense brown well graded SAND with gravel (SW), mps 1 in., no odor, dry	5	15	25	30	25					
						-FILL-										
				2.0	SM	Medium dense dark brown silty SAND with gravel (SM), mps 1.375 in., no odor, moist, contains brick pieces	15	10	15	20	25	15				
				3.0	ML/OL	-FILL-										
	11 15 5 7	S2 12	3.0 5.0			Very stiff to stiff olive-brown to yellow-brown SILT with sand (ML) with layer of dark brown ORGANIC SOIL (OL), mps 1.25 in., slight organic odor, moist	5	5	5	10	10	65				
						-FILL-										
5	4 4 4 5	S3 9	5.0 7.0	5.0	ML	Medium stiff olive-brown to yellow-brown sandy SILT with gravel (ML), mps 1 in., no odor, moist to wet, possibly reworked naturally-deposited soil	10	5	5	10	20	50				
				6.5	SM	-FILL-										
						Loose gray silty SAND (SM), mps 2 mm, no odor, wet				10	60	30				
						-MARINE DEPOSIT-										
10	4 2 7 8	S4 17	10.0 12.0		SM	Loose to medium dense gray-brown silty SAND with gravel (SM), mps 1.25 in., no odor, wet	15	10	15	20	25	15				
						Note: Drill action indicates stratum change at 14.8 ft; moderately weathered bedrock observed in wash.										
15				14.8		-WEATHERED BEDROCK-										
				15.0		Note: Advanced rollercone to 15.0 ft. Begin NX rock core at 15.0 ft.										
						SEE CORE BORING REPORT FOR ROCK DETAILS										
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/5/16	13:00	--	14.8	21.5	5.8
10/5/16	13:10	--	Open	Caved @14.2	7.1

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	15.0
Rock Cored (ft)	6.5
Samples	4S, 2C

Boring No. HA16-6

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAL_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA16-6
File No. 32328-111
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
15	3:05	C1	15.0 16.5	18 18	100 100	Fresh		Hard to moderately hard, fresh, light gray to gray, aphanitic to fine-grained PHYLLITE. Joints moderate, moderately dipping to high angle primarily along foliation, undulating, rough, fresh, tight, no infilling. Easily broken along foliation planes.
	2:50							
	2:45	C2	16.5 21.5	52 52	87 87	Fresh		Hard to moderately hard, fresh, light gray to gray, aphanitic to fine-grained PHYLLITE. Joints moderate, moderately dipping to high angle primarily along foliation, undulating, rough, fresh, tight, no infilling. Easily broken along foliation planes.
	2:50							
	3:00							
	3:00							
20	3:10							
							21.5	BOTTOM OF EXPLORATION 21.5 FT
25								
30								
35								
40								
45								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-7

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 17.8 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 3
Start	07 October 2016
Finish	07 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation Datum	31.5 +/- Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	15 9 10 10	S1 17	1.0 3.0			Medium dense brown well graded SAND with gravel (SW), mps 1 in., no odor, dry	10	10	20	30	30					
						-FILL-										
				2.1	ML	Very stiff yellow-brown to olive-brown and gray-brown SILT (ML), mps 1 mm, no odor, moist, mottled with frequent fine sand partings				5	10	85	S	L	L	L
	22 22 33 29	S2 14	3.0 5.0	3.3	SM	-MARINE DEPOSIT- Very dense yellow-brown to light brown and gray-brown silty SAND with gravel (SM), mps 1 in., slight musty odor, moist, mottled	5	10	15	25	20	25				
5	38 32 19 30	S3 4	5.0 7.0		SM	-MARINE DEPOSIT- Very dense yellow-brown to light brown and gray-brown silty SAND with gravel (SM), mps 1.375 in., slight musty odor, moist, slightly mottled	10	10	15	20	20	25				
				9.0		-MARINE DEPOSIT-										
10	20 19 17 26	S4 5	10.0 12.0		GW-GM	Dense gray-brown well graded GRAVEL with silt and sand (GW-GM), mps 1.375 in., no odor, wet	40	20	5	10	15	10				
						-MARINE DEPOSIT-										
15	6 2 3 6	S5 13	15.0 17.0		SM	Loose gray-brown silty SAND with gravel (SM), mps 1 in., no odor, wet	5	10	20	25	25	15				
				17.8		Note: Casing refusal at 17.8 ft.										
20						Note: Advanced rollercone to 25.0 ft; wash indicates highly to moderately weathered bedrock. -WEATHERED BEDROCK-										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/7/16	10:45	--	17.8	29.0	6.6

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	25.0
Rock Cored (ft)	5.0
Samples	5S, 1C

Boring No. HA16-7

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAL_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

TEST BORING REPORT

Boring No. HA16-7
File No. 32328-111
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20						-WEATHERED BEDROCK-										
				24.3		-BEDROCK-										
25				25.0		SEE CORE BORING REPORT FOR ROCK DETAILS										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-7

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA16-7
File No. 32328-111
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
25	2:45 3:10 4:00 4:10	C1	25.0 29.0	48 14	100 29	Moder-ate to Slight		Moderately hard to medium, moderately to slightly weathered, light brown and light gray to gray, aphanitic to fine-grained PHYLLITE. Joints very close to moderate, low angle to vertical, undulating, rough, highly discolored to disintegrated, open to very wide, some silt infilling, occasional quartz veins. Note: Core barrel blocking at 29.0 ft.
							29.0	BOTTOM OF EXPLORATION 29.0 FT
30								
35								
40								
45								
50								
55								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HA_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-8

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

File No.	32328-111
Sheet No.	1 of 3
Start	06 October 2016
Finish	06 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	32.5 +/-
Datum	Portland City
Location	See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 22.2 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	16 13 14 14	S1 19	1.0 3.0			Medium dense brown well graded SAND with gravel (SW), mps 1.375 in., no odor, dry	10	10	20	35	25					
				1.7	ML	-FILL-										
						Very stiff dark brown to red-brown SILT with sand (ML), mps 1 in., musty odor, moist, contains coal fragments				5	10	85	S	L	L	L
	12 14 24 25	S2 12	3.0 5.0	3.2	ML	-FILL-										
						Hard olive-gray to yellow-brown sandy SILT (ML), mps 1.25 in., slight musty odor, moist, contains wood particles, reworked naturally-deposited soil	5	5	5	10	20	55				
5				5.0		-FILL-										
	15 11 7 6	S3 6	5.0 7.0		SM	Medium dense gray-brown silty SAND with gravel (SM), mps 1 in., no odor, wet	10	10	15	25	25	15				
						-MARINE DEPOSIT-										
10	10 12 12 15	S4 7	10.0 12.0		SM	Medium dense gray-brown silty SAND with gravel (SM), mps 1.375 in., no odor, wet	5	10	15	30	20	20				
						-MARINE DEPOSIT-										
15	1 2 7 23	S5 18	15.0 17.0		SM	Loose gray-brown silty SAND with gravel (SM), mps 1.25 in., no odor, wet	10	10	15	25	20	20				
						-MARINE DEPOSIT-										
				16.7		-GLACIAL TILL-										
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/6/16	14:30	--	21.2	31.0	7.2

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	25.0
Rock Cored (ft)	6.0
Samples	6S, 2C

Boring No. HA16-8

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAL_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-8
File No. 32328-111
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	33 51 55 50/1"	S6 10	20.0 21.6		SW	Very dense gray-brown well graded SAND with gravel (SW), mps 1.375 in., no odor, moist, slightly bonded -GLACIAL TILL- Note: Casing refusal at 21.2 ft. Wash ahead to 25.0 ft. Drilling indicates strata change at 24.0 ft.	15	10	15	30	25	5				
				24.0		-WEATHERED BEDROCK-										
25	~~50/0"~~	~~S7~~	~~25.0~~	25.0		Note: Advanced rollercone to 25.0 ft. Begin NX rock core at 25.0 ft. SEE CORE BORING REPORT FOR ROCK DETAILS										
30																

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-8

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA16-8
File No. 32328-111
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
25	2:05	C1	25.0 26.0	10 8	83 67			Moderately hard to medium, slightly to moderately weathered, tan to light brown, aphanitic to fine-grained QUARTZITE. Joints very close, low angle to vertical, rough, undulating, discolored to decomposed, open to very wide, some silt infilling. Note: Very poor RQD, recovered core mostly rubble.
	1:45	C2	26.0 31.0	38 0	63 0			Moderately hard to medium, slightly to moderately weathered, tan to light brown, aphanitic to fine-grained QUARTZITE. Joints very close, low angle to vertical, rough, undulating, discolored to decomposed, open to very wide, some silt infilling. Note: Very poor RQD, recovered core mostly rubble.
	2:40							
	2:20							
	2:40							
30	2:50							
							31.0	BOTTOM OF EXPLORATION 31.0 FT
35								
40								
45								
50								
55								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-9

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	--	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	--	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 10.0 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 2
Start	06 October 2016
Finish	06 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	32.5 +/-
Datum	Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	23 41 19 10	S1 13	1.0 3.0			Very dense brown well graded SAND with gravel (SW), mps 1.25 in., no odor, dry	10	10	20	30	30					
				1.8		-FILL-										
					SP	Medium dense tan poorly-graded SAND (SP), mps 1 in., no odor, dry	5		5	15	70	5				
						-FILL-										
	9 9 15 9	S2 17	3.0 5.0	3.4	SM	Medium dense olive-brown to black silty SAND with gravel (SM), mps	5	10	15	25	25	20				
				3.8	ML/SM	0.75 in., no odor, moist, with coal fragments and ash					10	90	S	L	L	L
						-FILL-				10	70	20				
5	4 4 5 7	S3 22	5.0 7.0			Stiff olive-brown to yellow-brown SILT (ML) with frequent SAND seams (SM), mps 2 mm, no odor, moist										
					ML/SM	-MARINE DEPOSIT-					10	90	S	L	L	L
						Stiff gray-brown to gray interbedded SILT (ML) and silty SAND (SM), mps 2 mm, no odor, moist to wet				10	70	20				
						-MARINE DEPOSIT-										
10	WOR WOR WOH WOH	S4 24	10.0 12.0		ML/SM	Very soft gray-brown to gray interbedded sandy SILT (ML) to silty SAND (SM), mps 0.75 in., no odor, wet				10	10	80	S	L	L	L
								5	10	25	35	25				
						-MARINE DEPOSIT-										
				13.5												
15	9 13 20 8	S5 8	15.0 17.0		SM	Dense to medium dense gray-brown silty SAND with gravel (SM), mps 1.25 in., no odor, wet	10	10	15	20	30	15				
						-MARINE DEPOSIT-										
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/6/16	9:35	--	10.0	26.7	7.2
10/6/16	9:50	--	Open	Caved @22.8	8.0

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	26.7
Rock Cored (ft)	0.0
Samples	7S

Boring No. HA16-9

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAL_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-9
File No. 32328-111
Sheet No. 2 of 2

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	22 20 29 19	S6 12	20.0 22.0		SM	Dense gray-brown silty SAND with gravel (SM), mps 1.375 in., no odor, wet -MARINE DEPOSIT- Note: Drill action indicates stratum change at 24.0 ft.	15	10	15	20	25	15				
				24.0												
25	33 45 46 100/2"	S7 6	25.0 26.7		GM	Very dense yellow-brown to gray-brown silty GRAVEL (GM), mps 1.375 in., no odor, wet, completely to highly weathered bedrock -WEATHERED BEDROCK- Note: Split-spoon refusal at 26.7 ft.	30	20	15	10	5	20				
				26.7		BOTTOM OF EXPLORATION 26.7 FT										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-9

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-10

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 34.5 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 3
Start	07 October 2016
Finish	10 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	25.5 +/-
Datum	Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	12 16 19 21	S1 16	1.0 3.0		SW	Dense brown well-graded SAND with gravel (SW), mps 1.375 in., no odor, dry	10	10	20	35	25					
				2.6		-FILL-										
	26 14 11 11	S2 16	3.0 5.0		SW	Medium dense to dense dark brown to black well graded SAND with gravel (SW), mps 1.25 in., moderate organic odor, dry to moist, contains brick, coal and concrete fragments	5	10	25	35	20	5				
						-FILL-										
5	13 4 3 9	S3 12	5.0 7.0		SW	Loose brown to dark brown well graded SAND with gravel (SW), mps 1.375 in., slight organic odor, moist, contains brick, wood, coal and glass fragments	15	10	20	30	20	5				
	39 27 8 11	S4 9	7.0 9.0	7.0	GP	Dense dark brown poorly-graded GRAVEL with sand (GP), mps 1.375 in., no odor, moist, contains concrete and brick fragments	50	15	15	15	5					
						-FILL-										
	20 40 9 5	S5 12	9.0 11.0	8.7	SW	Dense medium brown to yellow-brown well graded SAND with gravel (SW), mps 1.375 in., no odor, moist, contains concrete, brick, coal and ceramic fragments	15	10	20	30	20	5				
10						-FILL-										
	8 7 6 8	S6 19	11.0 13.0	11.4	ML	Stiff olive-brown to brown SILT (ML), mps 0.75 in., no odor, moist, contains brick and coal particles		5		5	10	80	S	L	L	L
						-FILL-										
	29 7 12 7	S7 5	13.0 15.0	13.0	GW	Medium dense brown well graded GRAVEL with sand (GW), mps 1.375 in., no odor, wet, contains concrete and brick fragments	35	25	15	10	10	5				
						-FILL-										
15	7 4 4 7	S8 5	15.0 17.0		GW	Loose olive-brown to gray-brown well graded GRAVEL with silt and sand (GW), mps 1 in., no odor, wet, contains brick particles	20	30	20	10	10	10				
	4 2 3 3	S9 15	17.0 19.0	17.0	SM	Loose dark brown to gray-brown silty SAND (SM), mps 0.5 in., no odor, wet, contains brick, coal and glass particles, reworked naturally-deposited soil		10	20	25	25	20				
						-FILL-										
	6 30	S10 12	19.0 21.0		SM	Very dense dark brown silty SAND with gravel (SM), mps 1 in., no odor, wet, contains wood fragments and brick and glass particles	10	10	15	25	20	20				
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/10/16	8:25	--	24.0	23.0	6.6
10/10/16	11:05	--	Open	Caved @33.0	14.5

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	38.5
Rock Cored (ft)	4.7
Samples	14S, 1C

Boring No. HA16-10

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAL_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-10
File No. 32328-111
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	27 28															
	22 11 7 4	S11 8	21.0 23.0	21.0 21.5	GW SM	Dense yellow-brown well graded GRAVEL with sand (GW), mps 1.375 in., no odor, wet -MARINE DEPOSIT- Medium dense gray-brown silty SAND (SM), mps 0.25 in., no odor, wet	20	30	20 15	15 20	10 25	5 40				
25	6 5 8 6	S12 16	25.0 27.0		SM/ML	-MARINE DEPOSIT- Medium dense gray-brown silty SAND (SM) with occasional SILT (ML) layers, mps 0.75 in., no odor, wet		10	20	25 10	30 10	25 80				
				28.5		Note: Drill action indicates stratum change at 28.5 ft.										
30	13 11 17 23	S13 13	30.0 32.0		SM/ML/ SW	Medium dense gray-brown to olive-brown interbedded silty SAND with gravel (SM), SILT (ML), and well graded SAND with gravel (SW), mps 1.25 in., no odor, wet -MARINE DEPOSIT-	5 15	10 10	20 25	20 10 35	25 10 15	20 80 5				
				34.0		Note: Drill action indicates stratum change at 34.0 ft; casing refusal at 34.5 ft.										
35	135/5"	S14 5	35.0 35.4			Note: Split-spoon refusal at 35.4 ft on highly to moderately weathered bedrock. -WEATHERED BEDROCK-										
				38.5		Note: Advanced rollercone to 38.5 ft. Begin NX rock core at 38.5 ft. SEE CORE BORING REPORT FOR ROCK DETAILS										
40																

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-10

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAL_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. **HA16-10**
File No. 32328-111
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
40	1:40 2:30 1:35 6:50 3:20	C1	38.5 43.2	56 29	100 52	Fresh to Slight		Hard to medium, fresh to slightly weathered, light gray to gray, aphanitic to fine-grained PHYLLITE. Joints close to moderate, low to high angle, primarily moderately dipping, undulating, rough, slightly discolored to slightly decomposed, tight to moderately wide, no infilling. Joints primarily along foliation. Note: Core barrel blocked at 43.2 ft.
							43.2	BOTTOM OF EXPLORATION 43.2 FT
45								
50								
55								
60								
65								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-11

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	--	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	--	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 5.0 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 2
Start	11 October 2016
Finish	12 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	19.5 +/-
Datum	Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	9 11 22 21	S1 12	1.0 3.0			Dense brown well graded SAND with gravel (SW), mps 1 in., no odor, dry	10	15	20	25	30					
				2.2		-FILL-										
	20 30 25 190/5"	S2 21	3.0 4.9	3.0	SM/SW	Dense dark brown to light brown and gray-brown interbedded silty SAND with gravel (SM) and well graded SAND with gravel (SW), mps 1.25 in., no odor, moist, contains ceramic and brick fragments	15	10	15	20	20	20				
					SW/SM	-FILL-	15	10	15	20	20	20				
5				4.9		Very dense gray-brown to dark brown interbedded well graded SAND with gravel (SW) and silty SAND with gravel (SM), mps 1.375 in., no odor, moist, contains concrete, brick, and glass fragments -FILL- Note: Split-spoon refusal at 4.9 ft.										
	22 13 10 5	S3 6	6.5 8.5	6.5	SW/SM	Note: Advance rollercone through concrete to 6.5 ft. Encountered steel, probable rebar, unable to advance boring. Moved rig approximately 2 ft east and continued drilling. -CONCRETE-	15	10	15	20	25	15				
	6 10 13 12	S4 5	8.5 10.5		SW/SM	Medium dense dark brown to brown interbedded well graded SAND with gravel (SW) and silty SAND with gravel (SM), mps 1.357 in., slight organic odor, wet, contains brick and concrete fragments	15	10	15	20	20	20				
10						Medium dense dark brown to brown interbedded well graded SAND with gravel (SW) and silty SAND with gravel (SM), mps 1.357 in., slight organic odor, wet, contains brick and concrete fragments										
	13 15 19 21	S5 8	10.5 12.5		SW/SM	-FILL- Dense dark brown to brown interbedded well graded SAND with gravel (SW) and silty SAND with gravel (SM), mps 1.357 in., slight organic odor, wet, contains brick and concrete fragments	15	10	15	20	20	20				
	27 16 9 13	S6 9	12.5 14.5		SW/SM	Medium dense dark brown to brown interbedded well graded SAND with gravel (SW) and silty SAND with gravel (SM), mps 1.357 in., slight organic odor, wet, contains brick and concrete fragments	20	10	10	15	20	25				
15	15 6 4 14	S7 15	14.5 16.5		SM	Loose to medium dense dark brown silty SAND with gravel (SM), mps 1 in., no odor, wet, with shell fragments, contains brick	5	15	15	20	25	20				
				15.3	SM	Loose to medium dense gray-brown silty SAND (SM), mps 0.25 in., no odor, wet, contains brick and concrete particles, reworked naturally-deposited soil			20	30	25	25				
	9 6 5 9	S8 24	16.5 18.5		SM	-FILL- Medium dense gray-brown silty SAND (SM), mps 1.25 in., no odor, wet, contains wood and ash fragments	5	5	20	25	25	20				
				17.9	ML	Very stiff gray-brown to gray sandy SILT with gravel (ML), mps 1 in., no odor, wet, reworked naturally-deposited soil -FILL-	5	10	5	10	10	60	S	L	L	L
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/12/16	10:35	--	5.0	Caved @33.5	7.1

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	35.5
Rock Cored (ft)	0.0
Samples	10S

Boring No. HA16-11

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-11
File No. 32328-111
Sheet No. 2 of 2

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	28 21 17 55	S9 10	20.0 22.0	20.0	SM/OL	Dense dark brown to black silty SAND (SM) with ORGANIC SOIL (OL), mps 0.5 in., anaerobic odor, wet, with shells, contains brick, coal and rubber fragments and particles, reworked naturally-deposited soil -FILL- Note: Drill action indicates stratum change at 24.0 ft.		10	25	20	15	30				
25	5 6 5 7	S10 24	25.0 27.0	24.0	SM/ML/CL	Medium dense/stiff gray-brown to gray interbedded silty SAND (SM), SILT (ML), and lean CLAY (CL), mps 0.25 in., slight anaerobic odor, wet -MARINE DEPOSIT- Note: Wash ahead open hole with rollercone, hole collapsing, unable to take sample at 30.0 ft. Note: Attempted to wash ahead with rollercone to find bedrock refusal, losing drilling water at 35.5 ft.										
30																
35				35.5		BOTTOM OF EXPLORATION 35.5 FT (No Refusal) Note: Drilled three borings several feet apart, encountered concrete at 5 ft, and rebar at 6 ft at each location. Used 3-in. rollerbit to advance past rebar and drilled open hole in the third boring.										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-11

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-12

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	--	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	--	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 25.0 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 2
Start	10 October 2016
Finish	10 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation Datum	20.0 +/- Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	14 23 24 17	S1 22	1.0 3.0			Dense brown well graded SAND with gravel (SW), mps 1 in., no odor, dry	10	10	20	25	35					
				1.5	SP-SM	-FILL-										
						Dense dark brown to light brown interbedded poorly-graded SAND with gravel (SP) and silty SAND with gravel (SM), mps 1.375 in., no odor, moist, contains brick fragments	10 5	10 10	5 10	10 25	60 30	5 20				
				2.7	ML	-FILL-										
	17 11 90 29	S2 9	3.0 5.0			Hard olive-brown to dark brown SILT with sand (ML), mps 1 in., no odor, moist, contains brick, coal and ash particles	5	5	5	10	10	65	S	L	L	L
5						-FILL-										
	27 29 19 17	S3 14	5.0 7.0	5.0	SM/SW	Very dense dark brown to black interbedded silty SAND (SM) and well graded SAND with gravel (SW), mps 1.375 in., no odor, moist, contains concrete, wood, brick and slag fragments	15	5 10	20 20	25 30	30 20	20 5				
						-FILL-										
	35 18 17 12	S4 12	7.0 9.0	7.0	SM	Dense dark brown to black silty SAND with gravel (SM), mps 1.375 in., no odor, moist, contains brick, coal, and ceramic fragments	20	10	10	20	25	15				
						-FILL-										
	14 7 10 7	S5 7	9.0 11.0	9.0	SM	Medium dense dark brown silty SAND with gravel (SM), mps 1.25 in., slight organic odor, moist, contains brick and ceramic particles, trace organic soil	10	5	15	25	30	15				
10						-FILL-										
	6 4 7 6	S6 16	11.0 13.0		SM	Medium dense brown to dark brown silty SAND with gravel (SM), mps 1.375 in., slight wood ash odor, moist, contains wood, coal, brick, glass and ash fragments and particles	10	5	15	25	30	15				
						-FILL-										
				12.7	SP	Medium dense gray-brown poorly-graded SAND (SP), mps 4 mm, no odor, moist, contains brick particles, reworked naturally-deposited soil										
				14.0		-FILL-										
						Note: Wood encountered at 14.0 ft.										
15						-WOOD-										
	78 100/3"	S7 9	15.0 15.8													
				19.0		Note: Wash ahead with rollercone through wood at 19.0 ft. Wash at 19.0 ft turned gray-brown.										
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/10/16	14:25	--	Open	Caved @26.5	12.9

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	30.0
Rock Cored (ft)	0.0
Samples	9S

Boring No. HA16-12

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-12
File No. 32328-111
Sheet No. 2 of 2

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	3 7 6 7	S8 22	20.0 22.0	20.4	SW ML/SM	Loose gray-brown well graded SAND with gravel (SW), mps 1.375 in., no odor, wet -MARINE DEPOSIT- Medium dense gray-brown to gray interbedded SILT (ML) and silty SAND (SM), mps 2 mm, no odor, wet -MARINE DEPOSIT-				5 15	15 70	80 15	R	L	N	N
25	7 11 15 21	S9 17	25.0 27.0		SM/SW	Medium dense gray-brown interbedded silty SAND (SM) and well graded SAND with gravel (SW), mps 1.25 in., no odor, wet	15	10	5 20	20 30	60 20	15 5				
				28.0		Note: Drill action and contents of wash water return indicates stratum change at 28.0 ft to highly weathered bedrock. -WEATHERED BEDROCK-										
30				30.0		BOTTOM OF EXPLORATION 30.0 FT										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-12

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-13

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 19.0 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 3
Start	11 October 2016
Finish	11 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation Datum	22.5 +/- Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	23 25 26 35	S1 11	1.0 3.0			Very dense brown well graded SAND with gravel (SW), mps 1 in., no odor, dry -FILL-	10	10	25	30	25					
	43 25 17 25	S2 14	3.0 5.0	2.3	SW	Very dense to dense dark brown to black well graded SAND with gravel (SW), mps 1.25 to 1.375 in., slight to strong petroleum-like odor, moist, contains asphalt, brick and ash fragments -FILL-	10	10	20	25	30	5				
5	12 10 13 9	S3 6	5.0 7.0	5.0	GW	Medium dense dark brown to black well graded GRAVEL with sand (GW), mps 1.375 in., strong petroleum-like odor, moist, contains asphalt, brick and slag fragments -FILL-	20	10	20	20	25	5				
	5 10 12 100/3"	S4 11	7.0 8.7	7.0	SW-SM	Medium dense dark brown to brown well graded SAND with silt and gravel (SW-SM), mps 1.375 in., strong petroleum-like odor, wet, contains concrete, brick and wood fragments -FILL-	35	20	10	15	15	5				
10	44 7 3 2	S5 10	10.0 12.0	10.0	SW-SM	Medium dense dark brown to brown well graded SAND with silt and gravel (SW-SM), mps 1.375 in., strong petroleum-like odor, wet, contains concrete, brick and wood fragments	20	15	15	20	20	10				
				10.7	OL					10	10	80				
				11.2	ML	Dark brown ORGANIC SOIL layer with wood -FILL-	5		5	10	10	70				
	1 WOH 1 WOH	S6 24	12.0 14.0	12.3	ML/SM	Medium stiff olive-brown to gray-brown SILT (ML), mps 1 in., no odor, wet, contains trace brick and ash, reworked naturally-deposited soil -FILL-				5 5	5 70	90 25	S	L	L	L
15						Very soft/very loose olive-gray to gray-brown interbedded SILT (ML) and silty SAND (SM), mps 2 mm, no odor, wet -MARINE DEPOSIT- Note: Drill action and wash indicates stratum change at 17.2 ft.										
				17.2	SW	Note: Gray-brown well graded SAND with gravel (SW) observed in wash water.										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/11/16	11:15	--	19.0	25.0	8.4
10/11/16	11:30	--	Open	Caved @17.0	10.4

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	20.0
Rock Cored (ft)	5.0
Samples	6S, 1C

Boring No. HA16-13

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-13
File No. 32328-111
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
				18.3		-PROBABLE GLACIAL TILL- Note: Drill action and wash indicates stratum change to moderately weathered bedrock at 18.3 ft.										
						-WEATHERED BEDROCK- Note: Advanced rollercone to 20.0 ft. Begin NX rock core at 20.0 ft.										
20				20.0		SEE CORE BORING REPORT FOR ROCK DETAILS										
25																

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-13

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

CORE BORING REPORT

Boring No. HA16-13
File No. 32328-111
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weathering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
20	2:55	C1A	20.0 23.0	36 0	100 0	Moder-ate to Slight		Moderately hard to medium, slightly to moderately weathered, gray, aphanitic to fine-grained PHYLLITE. Joints very close to close, low angle to high angle, undulating, rough, moderately discolored to decomposed, open to very wide, moderately pitted, some silt infilling. Highly fractured zone, very poor RQD.
	3:45							
	2:50							
	3:15	C1B	23.0 25.0	24 20	100 83	Fresh	23.0	Hard, fresh, light gray, aphanitic QUARTZITE. Joints moderate, moderately dipping, planar, smooth, fresh, tight, no infilling.
	3:20							
25							25.0	BOTTOM OF EXPLORATION 25.0 FT
30								
35								
40								
45								
50								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-14

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 31.0 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 3
Start	14 October 2016
Finish	17 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	14.0 +/-
Datum	Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE- Very dense brown well graded SAND with gravel (SW), mps 1.25 in., no odor, dry	10	10	20	30	30					
	20 34 58 26	S1 16	1.0 3.0	1.3	SW-SM	-FILL- Very dense brown to dark brown and black well graded SAND with silt and gravel (SW-SM), mps 1.375 in., no odor, dry, contains brick, coal and ash fragments	15	10	15	25	25	10				
	15 13 13 10	S2 15	3.0 5.0	3.0	SW	-FILL- Medium dense dark brown well graded SAND (SW), mps 1 in., slight burnt odor, dry to moist, contains concrete and brick fragments, glass, coal and wood particles	5	5	20	35	30	5				
5	13 8 4 2	S3 5	5.0 7.0		SW	-FILL- Medium dense to loose brown to dark brown well graded SAND with gavel (SW), mps 1.25 in., no odor, moist, contains concrete, brick and coal particles	10	10	25	35	20					
	1 3 5 5	S4 8	7.0 9.0	6.5	SM	Loose brown silty SAND (SM), mps 0.5 in., no odor, moist to wet, contains concrete, brick, glass and wood particles		5	15	25	30	25				
						-FILL-										
	5 3 6 6	S5 4	9.0 11.0	8.7	SP-SM	Loose gray-brown poorly-graded SAND with silt (SP-SM), mps 2 mm, no odor, wet				10	80	10				
10				9.0	SM	-FILL- Loose gray-brown to brown silty SAND (SM), mps 4 mm, no odor, wet			10	15	60	15				
						-FILL-										
	2 3 3 2	S6 8	11.0 13.0	11.0	SW-SM	Loose olive-brown to dark brown well graded SAND with silt and gravel (SW-SM), mps 1.25 in., slight burnt odor, wet, contains concrete, brick, slag and foam particles	15	15	15	20	25	10				
						-FILL-										
						Note: Drill action indicates stratum change at 14.0 ft.										
				14.0												
15	6 5 5 2	S7 16	15.0 17.0		ML	Stiff gray-brown to olive-gray SILT with sand (ML), mps 0.25 in., no odor, wet, contains brick and glass particles, reworked naturally-deposited soils			5	5	10	80				
						-FILL-										
	1 1 2 2	S8 17	17.0 19.0		ML	Soft gray-brown SILT with sand (ML), mps 0.75 in., no odor, wet, occasional brown sand layers, contains brick particles		5	10	10	15	60				
				19.5												
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/14/16	14:15	--	31.0	39.7	9.1

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	35.0
Rock Cored (ft)	4.7
Samples	10S, 1C

Boring No. HA16-14

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-14
File No. 32328-111
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	10 12 10 8	S9 19	20.0 22.0		ML/SW	Medium dense dark brown to gray-brown sandy SILT (ML), mps 0.5 in., slight anaerobic odor, wet, contains wood, brick and shell fragments, brown well graded sand layer		5	5 30	10 40	20 25	60 5				
						-MARINE DEPOSIT-										
						Note: Drill action indicates stratum change at 23.5 ft.										
				23.5												
25	9 8 9 14	S10 13	25.0 27.0		SM	Medium dense gray-brown silty SAND with gravel (SM), mps 1.25 in., no odor, wet, slightly bonded	10	15	15	25	20	15				
						-MARINE DEPOSIT-										
				26.6												
30	9 8 31 100	S11 15	30.0 32.0			Dense gray-brown WEATHERED ROCK with silt and well graded rock fragments	35	5	10	10	10	10				
35				35.0		SEE CORE BORING REPORT FOR ROCK DETAILS										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-14

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. **HA16-14**
File No. 32328-111
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
35	2:20	C1	35.0	44	79			Hard to moderately hard, moderately to highly weathered, light brown to light gray, aphanitic to fine-grained QUARTZITE. Joints very close, low angle to vertical, undulating, rough, slightly decomposed to disintegrated, moderately wide to very wide, some pitting, some sand and silt infilling. Very poor RQD, highly fractured/jointed zone.
	2:30		39.7	0	0			
	2:45							
	2:50							
	3:00/0.7'							
							39.7	BOTTOM OF EXPLORATION 39.7 FT
40								
45								
50								
55								
60								
65								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-15

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

File No.	32328-111
Sheet No.	1 of 3
Start	13 October 2016
Finish	13 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	15.5 +/-
Datum	Portland City
Location	See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 27.0 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	2 6 14 43	S1 14	1.0 3.0			Medium dense brown well graded SAND with gravel (SW), mps 1.375 in., no odor, dry	15	10	20	30	25					
				1.9		-FILL-										
	47 33 25 16	S2 8	3.0 5.0		SW/SM	Very dense brown to dark brown interbedded well graded SAND with gravel (SW) and silty SAND with gravel (SM), mps 1.375 in., no odor, moist, contains brick particles	10	10	20	25	20	15				
					SW-SM	Very dense brown to dark brown well graded SAND with silt and gravel (SW-SM), mps 1 in., no odor, moist contains brick and wood particles	10	10	20	25	25	10				
						-FILL-										
5	24 27 31 23	S3 8	5.0 7.0		SW-SM	Very dense brown to dark brown well graded SAND with silt and gravel (SW-SM), mps 1.375 in., no odor, moist, contains brick fragments	10	5	20	30	25	10				
	15 9 5 7	S4 12	7.0 9.0	7.2	SP/SW	Medium dense yellow-brown to tan interbedded poorly-graded SAND (SP) and well graded SAND with gravel (SW), mps 1 in., no odor, moist, contains brick and ceramic fragments	10	10	15	25	35	5				
				8.8		-FILL-										
10	7 3 4 2	S5 18	9.0 11.0		SM	Loose gray-brown to dark brown silty SAND with gravel (SM), mps 0.75 in., slight anaerobic odor, wet, contains brick, metal, glass and ceramic fragments	5	10	15	20	20	30				
						-FILL-										
	1 WOH 1 WOH	S6 0	11.0 13.0		SM	No recovery, wash indicates similar to S5										
				14.0		Note: Drill action indicates stratum change at 14.0 ft.										
15	2 4 3 4	S7 4	15.0 17.0		GM	Loose gray-brown silty GRAVEL with sand (GW), mps 1 in., slight anaerobic odor, wet, contains occasional wood fragments, reworked naturally-deposited soil	40	20	10	5	5	20				
						-FILL-										
				18.0		Note: Drill wash water indicates stratum change at 18.0 ft. Dark brown wash water contains wood, brick and leather fragments.										
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/13/16	12:00	--	27.0	35.0	7.3

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	30.0
Rock Cored (ft)	5.0
Samples	9S, 1C

Boring No. HA16-15

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-15
File No. 32328-111
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	18 15 12 18	S8 15	20.0 22.0	20.7	SM/SW	Medium dense dark brown to gray-brown interbedded silty SAND (SM) and well graded SAND with gravel (SW), mps 1 in., slight anaerobic odor, wet, contains wood fragments and brick particles	15	10	15	20	20	20				
					ML/SM	Medium dense gray-brown interbedded SILT with sand (ML) and silty SAND (SM), mps 2 mm, no odor, wet -MARINE DEPOSIT-				5 5	10 65	85 30				
				23.5		Note: Drill action indicates stratum change at 23.5 ft.										
25	36 23 82 64	S9 15	25.0 27.0		GC	Very dense gray-brown clayey GRAVEL with sand (GC), mps 1.375 in., no odor, wet, completely to highly weathered bedrock (phyllite) -WEATHERED BEDROCK-	40	20	10	10	5	15				
30				30.0		Note: Advanced rollercone to 30.0 ft. Begin NX rock core at 30.0 ft. SEE CORE BORING REPORT FOR ROCK DETAILS										
35																

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-15

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. **HA16-15**
File No. 32328-111
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
30	4:20 3:55 3:50 4:15 4:45	C1	30.0 35.0	60 43	100 72	Fresh to Slight		Hard, fresh to slightly weathered, light brown to light gray, aphanitic to fine-grained QUARTZITE. Joints close to wide, low to high angle, undulating, rough, slightly discolored to moderately disintegrated, partly open to moderately wide, moderate pitting from 30.0 to 30.8 ft, no infilling.
35							35.0	BOTTOM OF EXPLORATION 35.0 FT
40								
45								
50								
55								
60								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-16

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	--	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	--	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 14.0 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 2
Start	12 October 2016
Finish	12 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	17.0 +/-
Datum	Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	8 40 57 31	S1 17	1.0 3.0			Medium dense brown well graded SAND with gravel (SW), mps 1.375 in., no odor, dry	15	10	20	25	30					
				1.5	SW	-FILL-										
						Very dense dark brown to brown well graded SAND with gravel (SW), mps 1 in., no odor, dry, contains brick, concrete and coal fragments	10	10	15	30	30	5				
	24 20 16 14	S2 6	3.0 5.0		SW	Dense brown well graded SAND (SW), mps 0.5 in., dry		5	25	35	30	5				
						-FILL-										
5				4.8	SM	Medium dense dark brown silty SAND (SM), mps 0.5 in., no odor, dry		5	15	25	35	20				
	14 200/5"	S3 11	5.0 5.9	5.5		-FILL-										
						-CONCRETE-										
						Note: Advanced rollercone to 7.0 ft.										
	12 24 50/0"	S4 8	7.0 8.0	7.0	GW	Dense gray-brown well graded GRAVEL with sand (GW), mps 1.375 in., no odor, dry, contains brick, concrete and coal fragments	50	25	10	10	5					
						-FILL-										
						Note: Drilled through obstruction at 8.0 ft with 6-in. rollerbit, possible cobble-stones (granite).										
10				10.0		Layer of red-brown oxidized iron fragments										
	27 10 5 5	S5 12	10.0 12.0	10.5	SM	Medium dense olive-brown to yellow-brown silty SAND (SM), mps 1.25 in., slight organic odor, wet	5	5	15	25	35	15				
	9 7 11 13	S6 12	12.0 14.0		SM	Medium dense olive-brown to brown silty SAND with gravel (SM), mps 1.25 in., no odor, wet, contains brick particles	5	10	15	25	30	15				
						-FILL-										
				13.7												
	22 10 18 40	S7 9	14.0 16.0		SW/ML	Dense to medium dense olive-brown to gray-brown and dark brown interbedded well graded SAND (SW) and SILT (ML), mps 1 in., slight anaerobic odor, wet, contains wood fragments and brick particles, reworked naturally-deposited soil	5	5	20	35	30	5				
15											10	90	S	L	L	L
						-FILL-										
						Note: Drill action indicates stratum change at 17.7 ft, highly weathered bedrock.										
				17.7												

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/12/16	14:45	--	Open	Caved @11.3	2.4

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	20.0
Rock Cored (ft)	0.0
Samples	7S

Boring No. HA16-16

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAL_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-16
File No. 32328-111
Sheet No. 2 of 2

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
						-WEATHERED BEDROCK-										
						Note: Advanced rollercone to 20.0 ft into moderately weathered bedrock.										
20				20.0		BOTTOM OF EXPLORATION 20.0 FT										
						Note: Unable to core rock due to damaged casing shoe.										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-16

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-17

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 21.0 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 3
Start	17 October 2016
Finish	17 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	11.0 +/-
Datum	Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	2 3 6 100/3"	S1 15	1.0 2.8	1.0	SW	Brown well graded SAND with gravel (SW), mps 1.5 in., no odor, dry	10	10	20	35	25		S	L	L	L
						-FILL-										
					ML	Stiff dark brown to gray-brown sandy SILT (ML), mps 1 in., slight organic odor, moist to wet, contains brick, concrete and glass particles										
				2.4		-FILL-										
						Note: Drive casing and wash through wood from 2.4 to 5.5 ft.										
5						-WOOD-										
	4 4 3 5	S2 0	5.5 7.5	5.5	SM	Note: Wash indicates loose dark brown to gray silty SAND (SM), contains wood and brick particles.										
	7 5 3 8	S3 1	7.5 9.5		SM	Loose gray-brown to gray silty SAND (SM), mps 4 mm, strong burnt wood/ash odor, wet, contains wood and brick particles			20	40	25	15				
						-FILL-										
10	6 1 1 1	S4 11	10.0 12.0		SM/OL	Very loose gray-brown to black interbedded silty SAND with gravel (SM) and ORGANIC SOIL (OL), mps 1.25 in., strong burnt wood/ash odor, wet, contains wood, ash and brick particles	10	5	10	30	25	20				
										10	10	80	S	L	L	L
	6 5 6 12	S5 24	12.0 14.0		SM/OL	Medium dense gray-brown to black interbedded silty SAND with gravel (SM) and ORGANIC SOIL (OL), mps 1.25 in., strong burnt wood/ash odor, wet, contains wood, ash and brick particles	10	5	10	30	25	20				
										10	10	80	S	L	L	L
				12.8	SP	Medium dense black to gray brown poorly-graded SAND (SP), mps 4 mm, moderate burnt wood/ash odor, wet, contains brick, wood and shell particles			5	15	75	5				
15	13 6 8 16	S6 12	15.0 17.0		SP/ML	Medium dense olive-brown to gray-brown and black interbedded poorly-graded SAND (SP) and sandy SILT (ML), mps 4 mm, moderate burnt wood/ash odor, wet to moist, contains brick and wood particles, reworked naturally-deposited soil			5	10	80	5				
									5	10	20	65				
						-FILL-(Reworked Marine Deposit)										
	18 16 25 13	S7 17	17.0 19.0		SP/ML	Dense gray-brown to black interbedded poorly-graded SAND with gravel (SP) and sandy SILT (ML), mps 1.25 in., moderate burnt wood/ash odor, wet to moist, contains brick, wood and shell particles	10	5	5	10	65	5				
				18.0					5	10	20	65				
					ML/SP	Dense gray to gray-brown interbedded sandy SILT (ML) and poorly-graded SAND (SP), mps 2 mm, no odor, moist to wet				10	10	80	S	L	L	L
										5	90	5				

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/17/16	12:40	--	21.0	34.0	6.4
10/17/16	13:15	--	Open	Caved @22.1	6.4

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	29.0
Rock Cored (ft)	5.0
Samples	9S, 1C

Boring No. HA16-17

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAL_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-17
File No. 32328-111
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
						-MARINE DEPOSIT-										
20	11 9 9 8	S8 8	20.0 22.0	20.0	SW	Medium dense gray-brown well graded SAND with gravel (SW), mps 1.25 in., no odor, wet	10	25	30	20	15					
						-MARINE DEPOSIT-										
25	20 23 50/2"	S9 9	25.0 26.2	25.7	SW	Dense gray-brown well graded SAND with gravel (SW), mps 1.25 in., no odor, wet	20	15	15	25	20	5				
						Highly to moderately weathered BEDROCK										
						-WEATHERED BEDROCK-										
				29.0		Note: Advanced rollercone to 29.0 ft. Begin NX rock core at 29.0 ft.										
30						SEE CORE BORING REPORT FOR ROCK DETAILS										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

CORE BORING REPORT

Boring No. HA16-17
File No. 32328-111
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
30	2:50 6:45 6:10 8:05 4:40	C1	29.0 34.0	60 52	100 87			Moderately hard to very hard, fresh to moderately weathered, light gray to gray, aphanitic to very coarse-grained PHYLLITE and QUARTZ. Joints close to moderate, high angle to vertical primarily along foliation, undulating, rough, fresh to slightly discolored, tight to open, no infilling.
							34.0	BOTTOM OF EXPLORATION 34.0 FT
35								
40								
45								
50								
55								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-18

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 17.8 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 3
Start	13 October 2016
Finish	14 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	12.0 +/-
Datum	Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	4 12 15 16	S1 13	1.0 3.0			Medium dense brown well graded SAND with gravel (SW), mps 1.25 in., no odor, dry	15	10	20	30	25					
				2.0		-FILL-										
					SW	Dense dark brown well graded SAND with gravel (SW), mps 1.375 in., slight organic odor, moist, contains brick, concrete and coal fragments	10	10	20	30	30					
	13 6 5 4	S2 5	3.0 5.0	3.0	GW	-FILL- Medium dense dark brown to red-brown well graded GRAVEL with sand (GW), mps 1.375 in., no odor, moist, contains brick and concrete fragments	40	25	15	10	10					
5						-FILL-										
	2 3 2 14	S3 9	5.0 7.0	5.0	GW/OL	Loose tan to dark brown and yellow-brown well graded GRAVEL with sand (GW) with layer of ORGANIC SOIL (OL), mps 1.25 in., strong moldy odor, wet, contains brick concrete, coal and ash fragments	40	25	15	10	10					
						-FILL-					10	90				
	24 34 24 20	S4 8	7.0 9.0	7.0	GW	Very dense tan to brown well graded GRAVEL with sand (GW), mps 1.375 in., organic odor, wet, contains concrete, brick and wood fragments	40	30	15	10	5					
						-FILL-										
				9.0		Note: Advanced rollercone through wood layer from 9.0 to 10.0 ft.										
				10.0		-WOOD-										
10	6 4 4 5	S5 11	10.0 12.0		SP/SW/ ML	Loose black to gray-brown interbedded poorly-graded SAND (SP), well graded SAND (SW), and SILT (ML), mps 0.5 in., slight anaerobic odor, wet, reworked naturally-deposited soil		5	10 20	10 40	80 30	5				
						FILL-					10	90	S	L	L	L
	8 8 12 14	S6 13	12.0 14.0		SP/SW/ ML	Medium dense black to gray-brown interbedded poorly-graded SAND (SP), well graded SAND (SW), and SILT (ML), mps 0.75 in., slight anaerobic odor, wet, contains coal, slag and metal fragments, brick, ceramic and wood particles		5	10 20	10 40	80 30	5				
											10	90	S	L	L	L
15	11 10 9 17	S7 17	15.0 17.0		SW/ML/ OL	Medium dense black to gray-brown and olive-gray interbedded well-graded SAND (SW), SILT (ML), and ORGANIC SOIL (OL), mps 0.75 in., anaerobic odor, wet, contains brick, ceramic, coal and metal fragments, brick and wood particles	5	5	20	35 10	30 10	5 80	S	L	L	L
	20 28 22 18	S8 11	17.0 19.0	17.0	SW-SM	Dense gray-brown to dark brown well graded SAND with silt and gravel (SW-SM), mps 1.25 in., no odor, wet, contains brick, wood and metal particles, reworked naturally-deposited soil	20	10	15	20	25	10				
						-FILL-										
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/14/16	10:00	--	21.0	30.0	7.9

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	25.0
Rock Cored (ft)	5.0
Samples	9S, 1C

Boring No. HA16-18

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAL_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-18
File No. 32328-111
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	57 100	S9 9	20.0 21.0	20.3		Highly weathered BEDROCK -WEATHERED BEDROCK- Note: Advanced rollercone to 25.0 ft. Begin NX rock core at 25.0 ft.										
25				25.0		SEE CORE BORING REPORT FOR ROCK DETAILS										
30																

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-18

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. **HA16-18**
File No. 32328-111
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
25	1:20 2:10 4:05 3:40 3:35	C1	25.0 30.0					Hard to moderately hard, fresh to slightly weathered, light gray, aphanitic to fine-grained QUARTZITE with quartz veins. Joints close to moderate, low angle to moderately dipping, planar to undulating, smooth to rough, tight to moderately wide, fresh to slightly discolored, no infilling.
30							30.0	BOTTOM OF EXPLORATION 30.0 FT
35								
40								
45								
50								
55								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

2015 Haley & Aldrich, Inc.
Test Boring Logs

HALEY ALDRICH

TEST BORING REPORT

Boring No. HA15-1(OW)

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

File No. 32328-100
Sheet No. 1 of 2
Start 11 August 2015
Finish 11 August 2015
Driller C. Dupuis
H&A Rep. K. Russ
Elevation 49.5
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	NQ	Rig Make & Model: Mobile B53
Inside Diameter (in.)	3.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: NW Drive to 14.1 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0						49.2		-BITUMINOUS CONCRETE-										
	5 10 18	S1 10	0.5 2.2			0.3	SW	Medium dense brown well graded SAND (SW), mps 0.75 in., no odor, dry, contains several brick fragments -FILL-		10	20	30	35	5				
	13 8 7 5 5	S1A 3 S2 12	2.2 2.5 2.5 4.5			47.3 2.2	SM	Medium dense dark brown to black silty SAND (SM), mps 1 in., mulch-like odor, dry, contains wood, brick, glass, ash and coal -FILL-	5	5	15	15	45	15				
						45.0	SM	Medium dense dark brown silty SAND (SM), mps 1.25 in., sulfur-like odor, dry, contains wood, brick, glass and coal	5	5	5	10	50	25				
5	2 3 5 7	S3 7	4.5 6.5			4.5	ML	Medium stiff olive-gray SILT with sand (ML), mps 0.5 in., no odor, dry, probable reworked naturally-deposited soil -FILL-					15	85				
	10 10	S4 9	6.5 7.2			42.3	ML	Very stiff olive-brown sandy SILT (ML), mps 0.75 in., no odor, dry, contains brick fragments, probable reworked naturally-deposited soil		5	10	10	15	60				
	13 13	S4A 13	7.2 8.5			7.2	ML	Very stiff olive-gray SILT with sand (ML), mps 0.42 mm, no odor, dry, frequent fine sand layers (0.5 in. thick) -MARINE DEPOSIT-					25	75				
10	10 4 4 3	S5 15	10.0 12.0				ML	Medium stiff light brown to olive-gray SILT with sand (ML), mps 1.25 in., no odor, wet, frequent 1 in. fine sand layers, clay content increasing with depth	5				20	75				
						36.5 13.0		Note: Likely strata change at approximately 13.0 ft based on increased casing blows. -PROBABLE GLACIAL TILL- Note: Casing refusal at 14.1 ft. SEE CORE BORING REPORT FOR ROCK DETAILS										
15																		

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
8/11/15	13:30	0	--	14.0 In Well	6.8

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	14.1
Rock Cored (ft)	4.4
Samples	5S, 1C

Boring No. HA15-1(OW)

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 PID HA-LIB09.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 24 Sep 15

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA15-1(OW)
File No. 32328-100
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weathering	Well Diagram	Elev./ Depth (ft)	Visual Description and Remarks
									SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
15		C1	14.1 18.5	50 31	95 59	Fresh to Mod.		35.4 14.1	Hard to medium hard, fresh, greenish gray aphanitic PHYLLITE. Joints moderately dipping to high angle with depth, moderately close to close grading to extremely close from 18.0-18.5 ft, planar to undulating, smooth to rough, tight to open. Foliation parallel to high angle joints. Slight silt infilling on some joint surfaces.
								31.0 18.5	BOTTOM OF EXPLORATION 18.5 FT
20									Notes: 1. No elevated PID readings detected during drilling. 2. Observation well installed in completed borehole. See Groundwater Observation Well Installation Report HA15-1(OW) for details.
25									
30									
35									
40									

H+A_CORE+WELL07-1 HA-LIB09.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 24 Sep 15

TEST BORING REPORT

Boring No. HA15-2(OW)

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

File No. 32328-100
Sheet No. 1 of 2
Start 11 August 2015
Finish 12 August 2015
Driller C. Dupuis
H&A Rep. K. Russ
Elevation 29.0
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	NQ	Rig Make & Model: Mobile B53
Inside Diameter (in.)	3.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: NW Drive to 28.6 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	1	S1	0.0			28.7	SM	Medium dense dark brown silty SAND (SM), mps 0.5 in.,			5	20	55	20				
	7	4	0.3			0.3	SW-SM	organic odor, wet, contains roots	5	10	15	40	20	10				
	8	S1A	0.3					-TOPSOIL-										
	9	12	2.0					Medium dense brown well graded SAND with silt and gravel (SW-SM), no odor, moist, single 1.5 in. lens of silt										
						27.0												
	13	S2	2.0			2.0	SM	-FILL-	10	5	5	15	35	30				
	15	17	4.0					Medium dense olive-brown silty SAND with gravel (SM), mps 1.5 in., sulfur-like odor, moist, contains large fragments of brick and occasional coal										
	11																	
	7																	
	5	S3	4.0				SW-SM	Medium dense olive-brown well graded SAND with silt and	15	10	20	25	20	10				
5	10	8	6.0					gravel (SW-SM), mps 1.5 in., petroleum-like odor, moist, contains brick, concrete, styrofoam and coal										
	10							-FILL-										
	6																	
	5	S4	6.0				SP-SM	Very dense olive-brown poorly-graded SAND with silt and	15	15	10	20	30	10				
	50/2"	7	6.8					gravel (SP-SM), mps 1.75 in., no odor, moist, contains brick and coal										
								Note: Augered from 6.8 to 8.2 ft with moderate resistance.										
		*S5	7.4					*Sample S5 taken from flights of auger with probable concrete in sample.										
			8.2															
	56	S6	8.2				GW	Medium dense olive-brown well graded GRAVEL with sand	35	25	20	10	5	5				
	12	6	9.2					(GW), mps 1.5 in., cement-like odor, wet, contains brick										
						19.8												
	3	S6A	9.2			9.2	ML	Stiff olive SILT (ML), mps 0.075 mm, slight chemical odor, wet						100				
	3	8	10.0															
10	4	S7	10.0				ML	Medium stiff olive SILT (ML), mps 4.75 mm, no odor, wet			5			95				
	3	1	12.0															
	3							-MARINE DEPOSIT-										
	2					17.5												
						11.5												
	WOH	S8	12.0				CL	Very soft olive-gray lean CLAY (CL), mps 0.42 mm, no odor,					5	95				
	WOH	24	14.0					wet, occasional 0.25 in. layers of fine sand										
	2																	
	1							-MARINE DEPOSIT-										
15																		
	1	S9	15.0				CL	Very soft olive-gray lean CLAY (CL), mps 0.42 mm, no odor,					5	95				
	1	2	17.0					wet										
	1																	
	1																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
8/12/15	16:50	0	--	18.0 In Well	10.7

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	28.6
Rock Cored (ft)	0.0
Samples	11S

Boring No. HA15-2(OW)

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 PID HA-LIB09.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 24 Sep 15

TEST BORING REPORT

Boring No. HA15-2(OW)
File No. 32328-100
Sheet No. 2 of 2

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
								Note: Drill action indicates strata change at approximately 19.0 ft below ground surface.										
						10.0 19.0												
20	7 4	S10 7	20.0 20.6			8.4	SC	Loose olive-gray clayey SAND with gravel (SC), mps 0.75 in., no odor, wet	5	10	5	20	30	30				
	1 2	S10A 13	20.6 21.4			20.6	ML	-MARINE DEPOSIT- Medium stiff olive-gray SILT with sand (ML), mps 0.75 in., no odor, wet	5				25	70				
								-MARINE DEPOSIT-										
						5.0 24.0												
25	2 2 2 3	S11 10	25.0 27.0				SM	Very loose olive-gray silty SAND with gravel (SM), mps 1 in., no odor, wet, loosely bonded	10	5	10	15	30	30				
								-GLACIAL TILL-										
								Note: Casing refusal at 28.6 ft.										
						0.4 28.6		Note: Advanced roller bit through probable bedrock from 28.6 to 29.9 ft.										
						-0.9 29.9		-PROBABLE BEDROCK- BOTTOM OF EXPLORATION 29.9 FT										
								Notes: 1. No elevated PID readings detected during drilling. 2. Observation well installed in completed borehole. See Groundwater Observation Well Installation Report HA15-2(OW) for details.										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA15-2(OW)

H&A-TEST BORING-07-1 PID HA-LIB09.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 24 Sep 15

TEST BORING REPORT

Boring No. HA15-3(OW)

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

File No. 32328-100
Sheet No. 1 of 2
Start 12 August 2015
Finish 12 August 2015
Driller C. Dupuis
H&A Rep. K. Russ
Elevation 26.5
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	NQ	Rig Make & Model: Mobile B53
Inside Diameter (in.)	3.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: NW Drive to 29.2 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0						26.1		-BITUMINOUS CONCRETE-										
	8 19	S1 10	0.5 1.3			0.4 25.2	SW	Dense brown well graded SAND with gravel (SW), mps 1.75 in., no odor, dry	10	5	15	30	40					
	13 13	S1A 6	1.3 2.5			1.3	SM	-FILL- / Dense dark brown silty SAND with gravel (SM), mps 1.5 in., no odor, dry, contains brick fragments	15	10	15	15	30	15				
	5 7	S2 11	2.5 3.4				SM	Medium dense dark brown silty SAND with gravel (SM), mps 1.75 in., slight sulfur-like odor, dry, contains brick and coal	10	15	20	20	15	20				
	6 8	S2A 6	3.4 4.5			23.1 3.4	ML	Stiff olive-brown sandy SILT (ML), mps 0.75 in., sulfur-like odor, dry, contains brick, ash, wood, and coal		5	5	10	20	60				
	3 11	S3 9	4.5 5.2				ML	-FILL- / Very stiff dark brown sandy SILT with gravel (ML), mps 1.25 in., sulfur-like odor, dry, contains iron, ash, brick, wood and coal	5	10	10	10	15	50				
5	9 5	S3A 7	5.2 6.5			21.3 5.2	SP	Medium dense red-brown poorly-graded SAND (SP), mps 0.5 in., no odor, dry			5	30	65					
	3 4 4 4	S4 15	6.5 8.5				SP	Loose brown poorly-graded SAND (SP), mps 1 in., no odor, dry, contains one wood fragment piece / -FILL-	5	5	5	25	55	5				
	2 2 3 5	S5 13	8.5 10.5			18.0 8.5	ML	Medium stiff olive-brown sandy SILT (ML), mps 1 in., no odor, moist, contains ceramic, wood, brick and concrete / -FILL-			5	5	15	75				
10	30	S6 7	10.5 11.1			16.0 10.5 15.4	GM	Dense dark brown silty GRAVEL with sand (GM), mps 1.5 in., creosol-like odor, wet, contains brick, concrete, ceramic, and wood	40	10	10	10	15	15				
	34 10 15	S6A 4 / S6B 5	11.1 11.4 / 11.4 12.3			11.1 15.1 11.4	ML	CONCRETE / Hard olive-brown SILT with gravel (ML), mps 1.25 in., sulfur-like odor, dry, contains ash, wood, shells, and brick	10	5	5		5	75				
	3 6 12 9	S7 6	12.5 14.5			14.0 12.5	SM	-FILL- / Medium dense brown silty SAND with gravel (SM), mps 1.25 in., no odor, wet, contains ceramics, brick, ash, and steel wire (1/8 in. diameter)	5	10	5	20	30	30				
15	4 4 6 7	S8 12	14.5 16.5			12.0 14.5	SM	-FILL- / Loose olive-gray silty SAND with gravel (SM), mps 2 in., no odor, wet, silt content decreases with depth	15	10	10	5	30	30				
								-MARINE DEPOSIT-										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
8/12/15	17:50	0	--	18.0 In Well	11.4

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	29.2
Rock Cored (ft)	0.0
Samples	10S

Boring No. HA15-3(OW)

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 PID HA-LIB09.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 24 Sep 15

TEST BORING REPORT

Boring No. HA15-3(OW)
File No. 32328-100
Sheet No. 2 of 2

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	11 1 2 4	S9 16	20.0 22.0				SM	Very loose olive-gray silty SAND (SM), mps 1 in., no odor, wet	5	5			55	35				
								-MARINE DEPOSIT-										
25	1 2 4 4	S10 24	25.5 27.5				SM	Loose olive-gray silty SAND (SM), mps 1 in., no odor, wet Note: Drill wash becomes more coarse grained at approximately 27.0 ft.		5	5		55	35				
						-0.5 27.0		-PROBABLE GLACIAL TILL- Note: Casing refusal at 28.9 ft.										
						-2.4 28.9		-PROBABLE WEATHERED BEDROCK-										
30						-2.7 29.2		Note: Top of probable bedrock at 29.2 ft. Advanced roller bit to 30.3 ft.										
						-3.8 30.3		-PROBABLE BEDROCK- BOTTOM OF EXPLORATION 30.3 FT										

Notes:
1. No elevated PID readings detected during drilling.
2. Observation well installed in completed borehole. See Groundwater Observation Well Installation Report HA15-3(OW) for details.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA15-3(OW)

H&A-TEST BORING-07-1 PID HA-LIB09.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 24 Sep 15

TEST BORING REPORT

Boring No. HA15-4(OW)

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

File No. 32328-100
Sheet No. 1 of 2
Start 10 August 2015
Finish 10 August 2015
Driller C. Dupuis
H&A Rep. K. Russ
Elevation 11.5
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	NQ	Rig Make & Model: Mobile B53
Inside Diameter (in.)	3.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: NW Drive to 26.4 1 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	5	S1	0.0	0.0		11.0	SM	Medium dense dark brown to brown silty SAND with gravel (SM), mps 0.75 in., no odor, dry, trace roots	10	5	5	5	60	15				
	7	6	0.5	1.7		0.5	SW	-TOPSOIL-	5	15	15	20	40	5				
	7	S1A	0.5					Medium dense brown well graded SAND with gravel (SW), mps 0.75 in., no odor, dry										
	6	8	2.0			9.5												
	10	S2	2.0	3.8		2.0	SP-SM	-FILL-	10	10	10	5	55	10				
	12	15	4.0					Medium dense brown poorly-graded SAND with silt and gravel (SP-SM), mps 1 in., no odor, dry, contains coal, ash, and brick										
	10																	
	11																	
	5	S3	4.0	0.0			SM	Very loose brown to red-brown silty SAND with gravel (SM), mps 1 in., no odor, dry, contains ash and brick	10	10	20	30	15	15				
5	2	16	6.0					-FILL-										
	1																	
	2																	
	6	S4	6.0	0.0			SM	Very loose dark brown silty SAND with gravel (SM), mps 1.5 in., no odor, wet, contains brick, ash, and iron oxide, 2 in. layer of silty fine sand at 7.5 ft	20	10	10	15	30	15				
	1	15	8.0															
	2																	
	3																	
	4	S5	8.0	6.0			SM	Medium dense brown silty SAND with gravel (SM), mps 0.75 in., no odor, wet, 2 in. layer of silt	5	10	10	10	25	40				
	19	3	9.2			2.3												
	7	S5A	9.2	0.1		9.2	SP-SM	Medium dense dark gray poorly-graded SAND with silt and gravel (SP-SM), mps 1.25 in., sulfur-like odor, wet, possible concrete, ash, and coal	10	5	10	40	25	10				
10	33	9	10.0															
	21	S6	10.0	1.0			SW-SM	Very dense black well graded SAND with silt and gravel (SW-SM), mps 1 in., sulfur-like odor, wet, possible concrete, ash and coal, 2 in. layer of silty fine sand at bottom of sample	5	20	20	25	20	10				
	56	15	12.0															
	30																	
	28																	
	13	S7	12.0	10.9			SW-SM	Medium dense black well graded SAND with silt and gravel (SW-SM), mps 1.5 in., sulfur-like odor, wet, contains coal throughout sample	15	10	30	20	15	10				
	7	11	14.0					-FILL-										
	7																	
	4																	
	5	S8	14.0	2.1			SM	Very loose black silty SAND with gravel (SM), mps 1 in., sulfur-like odor, wet, contains coal throughout sample	10	20	20	20	15	15				
15	2	6	16.0															
	2																	
	2																	
	2	S9	16.0	0.3			SM	Medium dense black silty SAND with gravel (SM), mps 1 in., sulfur-like odor, wet, contains coal and brick fragments	10	20	20	20	15	15				
	4	9	17.4															
	7					-5.9												
	13	S9A	17.4	0.0		17.4	SM	Medium dense olive-gray silty SAND (SM), mps 0.5 in., no		5	20	35	15	25				

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
8/10/15	~12:00	0	8.0	8.0	7.0

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	26.8
Rock Cored (ft)	0.0
Samples	12S

Boring No. HA15-4(OW)

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

*Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 PID HA-LIB09.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 25 Sep 15

TEST BORING REPORT

Boring No. HA15-4(OW)
File No. 32328-100
Sheet No. 2 of 2

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
	22 20 16 21	8 S10 6	18.0 18.0 20.0			-6.5 18.0	SW-SM	odor, wet, probable reworked naturally-deposited soil -FILL- Dense olive-gray well graded SAND with silt and gravel (SW-SM), mps 1.5 in., no odor, wet, moderately to well bonded	20	10	10	20	30	10				
20	30 18 7 4	S11 8	20.0 22.0	0.3			SP-SM	Medium dense gray-brown poorly-graded SAND with silt (SP-SM), mps 0.5 in., no odor, wet, well bonded to loosely bonded with depth		5	10	5	70	10				
								-GLACIAL TILL-										
25	34 23 27/5"	S12 5	25.0 26.4	1.2			SP-SM	Dense gray-brown poorly-graded SAND with silt and gravel (SP-SM), mps 1.25 in., no odor, wet, medium to well bonded	15	10	10	5	50	10				
	50/5"	S12A 5	26.4 26.8			-14.9 26.4 -15.3 26.8		-WEATHERED BEDROCK- -PROBABLE BEDROCK-										
						-16.8 28.3		BOTTOM OF EXPLORATION 28.3 FT Notes: 1. No elevated PID readings detected during drilling. 2. Observation well installed in completed borehole. See Groundwater Observation Well Installation Report HA15-4(OW) for details.										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA15-4(OW)

H&A-TEST BORING-07-1 PID HA-LIB09.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 25 Sep 15

1985 and 1987 Haley & Aldrich, Inc.
Test Boring Logs

HALEY ALDRICH

NORTHEAST DIAMOND DRILLING CO., INC.

P. O. BOX 617 UNION, MAINE 04862

SHEET 1 OF 1
DATE 11-22-85
HOLE NO. B-10
LINE & STA.
OFFSET
SURF. ELEV.

TO Haley & Aldrich
PROJECT NAME Proposed Office Building
REPORT SENT TO
SAMPLES SENT TO Taken

ADDRESS Portland, Maine
LOCATION Portland, Maine
PROJ. NO.
OUR JOB NO. M-86-37

GROUND WATER OBSERVATIONS
At 3:10PM 11-22-85 8.5' after Hours
At after Hours

	CASING	SAMPLER	CORE BAR.
Type	BW	SS	
Size I.D.	2.5	1-5/8	
Hammer Wt.	300	140	
Hammer Fall	24	30	BIT

	Date	Time
START		
COMPLETE		
TOTAL HRS.		

BORING FOREMAN G Wright
INSPECTOR C Nickerson
SOILS ENGR.

LOCATION OF BORING:

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist.	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc.	SAMPLE No.	Pen	Rec
0	7	0-1.5	d	10	10	9	damp		Br sand& Gravel	1	1.5	1.0
	10											
	9											
	6											
5	4	5-6.5'	d	3	1	6	wet		Sand & Gravel brick Frag	2	1.5	.4
	3								sand ,silt small cobbles trace Clay			
	21											
	130											
	32											
10	26	10-11.5	d	3	3	3	moist		Gray Marine deposits sand silt	3	1.5	1.5
	2								small cobbles trace of clay			
	5											
	6											
	8											
15	6	15-16.5	d	4	2	2				4	1.5	1.5
	7											
	9											
	12											
	17											
20	23	20-21.5	d	16	22	33			Gray Br silt	5	1.5	1.5
	(Roller	Bit ahead)										
25												
		27.2-28.2	d	100	88				Br till or Decomposed Rock	6	1.5	8
									Refusal @ 28.2			
30												

GROUND SURFACE TO 27' USED BW "CASING: THEN

Sample Type
D=Dry C=Cored W=Washed
UP=Undisturbed Piston
TP=Test Pit A=Auger V=Vane Test
UT=Undisturbed Thinwall

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

140 lb Wt. x 30" fall on 2" O.D. Sampler

Cohesionless Density
0-10 Loose
10-30 Med. Dense
30-50 Dense
50 + Very Dense

Cohesive Consistency
0-4 Soft
4-8 M/Stiff
8-15 Stiff
15-30 V-Stiff
30 + Hard

SUMMARY:
Earth Boring 27'
Rock Coring
Samples 6

HOLE NO. B-10

TOWN PRESS · EAST PROVIDENCE — (401) 434-4086

NORTHEAST DIAMOND DRILLING CO., INC.

P. O. BOX 617 UNION, MAINE 04862

SHEET 1 OF 1
DATE 11-22-85
HOLE NO. B-11
LINE & STA.
OFFSET
SURF. ELEV.

TO Haley & Aldrich
PROJECT NAME Proposed Office Building
REPORT SENT TO
SAMPLES SENT TO Taken

ADDRESS Portland, Maine
LOCATION Portland, Maine
PROJ. NO.
OUR JOB NO. M-86-37

GROUND WATER OBSERVATIONS
At 10:17 AM 11-22-85 after 7.1' Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR.
Type	BW	SS	
Size I.D.	2.5	1-5/8	
Hammer Wt.	300	140	BIT
Hammer Fall	24	30	

	Date	Time
START	11-22-85	7:00
COMPLETE	11-22-85	10:30
TOTAL HRS.		
BORING FOREMAN	G Wright	
INSPECTOR	C Nickerson	
SOILS ENGR.		

LOCATION OF BORING:

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist.	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc.	SAMPLE No.	Pen	Re
0		1.4-2.9	d	12	10	7	damp		Drilled through Pavement with Roller bit- 0'-1.4'	1	1.5	.4
	5/6								Sand heavy Gray . Brick peices (Fill)			
	8											
	10											
5	10	5'-6.5	d	7	5	10				2	1.5	0
	16											
	10											
	8											
	4											
10	10	10'-11.5'	d				wet		Gray sand & Gravel Cobbles	3	1.5	1.
	14											
	23											
	18											
	19											
15	47	15'-16.5'	d						soft Grsy fine sand small Cobbles	4	1.5	1.
	7											
	4											
	10/0 pen								Refusal @ 17' 50 Blows no Pen			

GROUND SURFACE TO 17' USED BW "CASING: THEN

Sample Type
D=Dry C=Cored W=Washed
UP=Undisturbed Piston
TP=Test Pit A=Auger V=Vane Test
UT=Undisturbed Thinwall

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

140 lb Wt. x 30" fall on 2" O.D. Sampler

Cohesionless Density		Cohesive Consistency	
0-10	Loose	0-4	Soft
10-30	Med. Dense	4-8	M/Stiff
30-50	Dense	8-15	Stiff
50+	Very Dense	15-30	V-Stiff
		30+	Hard

SUMMARY:
Earth Boring 17'
Rock Coring
Samples 4

HOLE NO. B-11

TOWN PRESS • EAST PROVIDENCE — (401) 434-4086

MAINE TEST BORINGS, INC. BREWER, MAINE 04412	CLIENT Northland	SHEET 1 OF 1 HOLE NO. B-12
DRILLER Darrel McKeen	PROJECT NAME Portland Square	LINE & STATION
M.T.B. JOB NUMBER 87-159	LOCATION Portland, Maine	OFFSET

GROUND WATER OBSERVATIONS

AT _____ FT. AFTER _____ HOURS

AT _____ FT. AFTER _____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT.		140	
HAMMER FALL		30"	

DATE START 7/8/87 DATE FIN. 7/8/8

SURFACE ELEV. _____

GROUND WATER ELEV. _____

CASING BLOWS PER FOOT	SAMPLE NO.	O.D.	PEN.	REC.	DEPTH @ BOT	BLOWS PER 6" ON SAMPLER 0-6	6-12	12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
	1D	2"	18"		1.5	4	5	8		2.0	Brown silty gravelly sand w/trace of brick
	2D	2"	24"		6.0	2	3	4	4	8.0	Gray brown silty mottled clay
	3D	2"	18"		11.0	0	1	1		12.0	Gray silty clay w/sand layers
	4D	2"	18"		16.0	4	7	10			Gray silty sand w/trace of gravel trace of cla
	D	2"	24"	0	21.0	3	1	2	2		
	5D	2"	18"		23.8	3	4	5			
	6D	2"	18"		26.0	2	3	4		27.5	Brown coarse sand w/trace of silt
	7D	2"	18"		31.0	13	25	45		30.5	Brown gravelly sandy silt
	D	2"	0	0	32.5	50				32.5	Refusal @ 32.5' Water @ 14.5 w/auger Caved @ 10.5'

SAMPLES
- D = Split Spoon
- C = 2" Shelby Tube
- U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
- [X] Driller Visually
- [ ] Soil Technician Visually
- [ ] Laboratory Tests

REMARKS

HOLE NO. B-12

MTB-14

MAINE TEST BORINGS, INC.
BREWER, MAINE 04412

CLIENT: Northland

SHEET 1 OF 1
HOLE NO. B-13

DRILLER: Darrel McKeen
M.T.B. JOB NUMBER: 87-159

PROJECT NAME: Portland Square
LOCATION: Portland, Maine

LINE & STATION:
OFFSET:

GROUND WATER OBSERVATIONS
AT ____ FT. AFTER ____ HOURS
AT ____ FT. AFTER ____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT		140	
HAMMER FALL		30"	

DATE START 7/8/87 DATE FIN. 7/8/
SURFACE ELEV.
GROUND WATER ELEV.

CASING BLOWS PER FOOT	SAMPLE NO.	O.D.	PEN.	REC.	DEPTH @ BOT	BLOWS PER 6" ON SAMPLER 0-6	6-12	12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
	1D	2"	18"		1.5	2	4	11		0.5	Brown gravelly sand
	2D	2"	18"		6.0	4	9	8		8.5	Gray brown silty mottled clay
	3D	2"	18"		11.0	1	WOH	1		12.0	Gray sandy silty clay w/trace of gravel
	4D	2"	18"		16.0	2	2	3		22.5	Gray silty sand w/trace of gravel trace of cl
	5D	2"	18"		21.0	8	10	10			
	D	2"	0	0	22.5	50					Refusal @ 22.5' Water @ 17.0 w/auger Caved @ 6.5'

SAMPLES
D = Splite Spoon
C = 2" Shelby Tube
U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
[X] Driller - Visually
[ ] Soil Technican - Visually
[ ] Laboratory Tests

REMARKS:

HOLE NO. B-13

MTB-14

MAINE TEST BORINGS, INC. BREWER, MAINE 04412	CLIENT Northland	SHEET 1 OF 1 HOLE NO. B-14
DRILLER Darrel McKeen	PROJECT NAME Portland Square	LINE & STATION
M.T.B. JOB NUMBER 87-159	LOCATION Portland, Maine	OFFSET

GROUND WATER OBSERVATIONS

AT _____ FT. AFTER _____ HOURS

AT _____ FT. AFTER _____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT.		140	
HAMMER FALL		30"	

DATE START 7/7/87 DATE FIN 7/7/8

SURFACE ELEV. _____

GROUND WATER ELEV. _____

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE O.D.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT.	BLOWS PER 6" ON SAMPLER 0-6	BLOWS PER 6" ON SAMPLER 6-12	BLOWS PER 6" ON SAMPLER 12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
	1D	2"	18"		1.5	10	11	12		3.5	Brown silty gravelly sand w/trace of black
	2D	2"	18"		6.0	1	2	2		13.2	Gray silty sand w/trace of gravel
	3D	2"	1"		13.3	50				13.3	Weathered rock

Refusal @ 13.3'
Water @ 11.7' w/auger
Caved @ 12.3'
Water @ 11.3' w/out auger

SAMPLES
D = Splite Spoon
C = 2" Shelby Tube
U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
[X] Driller - Visually
[ ] Soil Technican - Visually
[ ] Laboratory Tests

REMARKS

HOLE NO. B-14

MAINE TEST BORINGS, INC.
BREWER, MAINE 04412

CLIENT: Northland

SHEET 1 OF 1
HOLE NO. B-15

DRILLER: Darrel McKeen
M.T.B. JOB NUMBER: 87-159

PROJECT NAME: Portland Square
LOCATION: Portland, Maine

LINE & STATION:
OFFSET:

GROUND WATER OBSERVATIONS
AT ____ FT. AFTER ____ HOURS
AT ____ FT. AFTER ____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT.		140	
HAMMER FALL		30"	

DATE START 7/7/87 DATE FIN. 7/7/
SURFACE ELEV.
GROUND WATER ELEV.

CASING BLOWS PER FOOT	SAMPLE NO.	O.D.	PEN.	REC.	DEPTH @ BOT.	BLOWS PER 6" ON SAMPLER 0-6	6-12	12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
										0.2	Pavement
	1D	2"	18"		2.5	3	4	7		3.0	Brown silty sandy gravel w/trace of black
	2D	2"	18"		6.0	5	7	11			Gray brown silty mottled clay w/fine sand lay
	D	2"	8"	0	10.2	3	52			10.2	
											Refusal @ 10.2'
											Caved @ 8.4'

SAMPLES
D = Split Spoon
C = 2" Shelby Tube
U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
[X] Driller - Visually
[ ] Soil Technican - Visually
[ ] Laboratory Tests

REMARKS

HOLE NO. B-15

MTB-14

MAINE TEST BORINGS, INC. BREWER, MAINE 04412	CLIENT Northland	SHEET 1 OF 1 HOLE NO. B-15A
DRILLER Darrel McKeen	PROJECT NAME Portland Square	LINE & STATION
M.T.B. JOB NUMBER 87-159	LOCATION Portland, Maine	OFFSET

GROUND WATER OBSERVATIONS

AT _____ FT. AFTER _____ HOURS

AT _____ FT. AFTER _____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT.		140	
HAMMER FALL		30"	

DATE START 7/7/87 DATE FIN. 7/7/8

SURFACE ELEV. _____

GROUND WATER ELEV. _____

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE O.D.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	BLOWS PER 6" ON SAMPLER 0-6	BLOWS PER 6" ON SAMPLER 6-12	BLOWS PER 6" ON SAMPLER 12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
										0.2	Pavement
										3.5	Brown silty sandy gravel w/trace of black
										8.0	Gray brown silty mottled clay w/sand layers
	1D	2"	11"		10.4	3	53			10.4	Brown silty sand w/trace of gravel
											Refusal @ 10.4' Caved @ 7.7'

SAMPLES
D = Split Spoon
C = 2" Shelby Tube
U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
[X] Driller Visually
[ ] Soil Technican - Visually
[ ] Laboratory Tests

REMARKS:

HOLE NO. B-15A

MTB-14

MAINE TEST BORINGS, INC.
BREWER, MAINE 04412

CLIENT: Northland

SHEET 1 OF 1
HOLE NO. B-16

DRILLER: Darrel McKeen
PROJECT NAME: Portland Square
LINE & STATION:
M.T.B. JOB NUMBER: 87-159
LOCATION: Portland, Maine
OFFSET:

GROUND WATER OBSERVATIONS
AT ____ FT. AFTER ____ HOURS
AT ____ FT. AFTER ____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT.		140	
HAMMER FALL		30"	

DATE START 7/7/87 DATE FIN. 7/7
SURFACE ELEV.
GROUND WATER ELEV.

CASING BLOWS PER FOOT	SAMPLE NO.	O.D.	PEN.	REC.	DEPTH @ BOT.	BLOWS PER 6" ON SAMPLER 0-6	6-12	12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
	1D	2"	18"		1.5	10	10	17		0.5	Brown silty sandy gravel
										0.8	Brown fine to coarse sand
										1.0	Brick
										3.5	Brown silty sandy gravel
	2D	2"	18"		6.0	7	8	13			Brown gray silty mottled clay w/trace of sand
										9.0	
										11.5	Gray silty clay
	D	2"	36"		12.5	0 - 1	1	1	1 - 1		
	3D	2"	18"		14.0	3	1	2			Gray silty sand
	4D	2"	18"		16.0	16	35	39		16.5	
										19.0	Gray silty sandy gravel
	5D	2"	3"		19.8	68				19.8'	Weathered rock

Refusal @ 19.8'
Water @ 15.9' w/auger
Caved @ 11.0'
Water @ 10.0' w/out auger

SAMPLES
D = Splite Spoon
C = 2" Shelby Tube
U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
[X] Driller Visually
[ ] Soil Technican - Visually
[ ] Laboratory Tests

REMARKS:

HOLE NO. B-16

MTB-14

MAINE TEST BORINGS, INC.
BREWER, MAINE 04412

CLIENT: Northland

SHEET 1 OF 1
HOLE NO. B-17

DRILLER: Darrel McKeen
M.T.B. JOB NUMBER: 87-159
PROJECT NAME: Portland Square
LOCATION: Portland, Maine
LINE & STATION:
OFFSET:

GROUND WATER OBSERVATIONS
AT ____ FT. AFTER ____ HOURS
AT ____ FT. AFTER ____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT.		140	
HAMMER FALL		30"	

DATE START 7/8/87 DATE FIN. 7/8/
SURFACE ELEV.
GROUND WATER ELEV.

CASING BLOWS PER FOOT	SAMPLE NO.	O.D.	PEN.	REC.	DEPTH @ BOT.	BLOWS PER 6" ON SAMPLER 0-6	6-12	12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
	1D	2"	18"		1.5	10	5	8		1.0	Brown silty gravelly sand
											Gray brown sandy silt w/mottled clay
	2D	2"	18"		6.0	6	4	6		7.5	
											Gray silty clayey sand
	3D	2"	18"		11.0	3	3	7		11.5	
											Gray silty sand w/trace of gravel
	4D	2"	18"		16.0	3	5	8		17.0	
										19.6	Brown coarse sand
	4D	2"	6"		20.0	80				20.0	Weathered rock
											Refusal @ 20.0' Water@ 10.6' w/auger Caved @ 15.0' Water@ 11.5' w/out auger

SAMPLES
D = Splite Spoon
C = 2" Shelby Tube
U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
[X] Driller - Visually
[ ] Soil Technican - Visually
[ ] Laboratory Tests

REMARKS:

HOLE NO. B-

MTB-14

MAINE TEST BORINGS, INC.
BREWER, MAINE 04412

CLIENT: Northland

SHEET 1 OF 1
HOLE NO. B-25

DRILLER: Darrel McKeen
PROJECT NAME: Portland Square
LINE & STATION:
M.T.B. JOB NUMBER: 87-159
LOCATION: Portland, Maine
OFFSET:

GROUND WATER OBSERVATIONS
AT ____ FT. AFTER ____ HOURS
AT ____ FT. AFTER ____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT.		140	
HAMMER FALL		30"	

DATE START 7/8/87 DATE FIN. 7/8/
SURFACE ELEV.
GROUND WATER ELEV.

CASING BLOWS PER FOOT	SAMPLE NO.	O.D.	PEN.	REC.	DEPTH @ BOT.	BLOWS PER 6" ON SAMPLER 0-6	6-12	12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
	1D	2"	18"		1.5	3	8	9			Brown silty sandy gravel Rubble
	–									5.5	
	2D	2"	18"		6.5	3	3	3			Gray brown sandy silty clayey gravel, brick
	3D	2"	18"		11.5	10	9	3			
	4D	2"	18"		16.5	2	3	7		16.5	
										17.0	Wood
	5D	2"	18"		21.5	2	1	4			Gray clayey silty sand w/trace of gravel
	6D	2"	18"		26.5	1	1	1			
										28.0	Gray silty sandy gravel
	7D	2"	9"		30.8	5	5			30.8'	
											Refusal @ 30.8' Water @ 11.0' w/auger Caved @ 14.7' Water @ 8.8' w/out auger

SAMPLES
D = Splite Spoon
C = 2" Shelby Tube
U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
[X] Driller - Visually
[ ] Soil Technican - Visually
[ ] Laboratory Tests

REMARKS:

HOLE NO. B-25

MTB-14

MAINE TEST BORINGS, INC. BREWER, MAINE 04412	CLIENT Northland	SHEET 1 OF 1 HOLE NO. B-27
DRILLER Darrel McKeen	PROJECT NAME Portland Square	LINE & STATION
M.T.B. JOB NUMBER 87-159	LOCATION Portland, Maine	OFFSET

GROUND WATER OBSERVATIONS

AT _____ FT. AFTER _____ HOURS

AT _____ FT. AFTER _____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT.		140	
HAMMER FALL		30"	

DATE START 7/8/87 DATE FIN. 7/8/

SURFACE ELEV. _____

GROUND WATER ELEV. _____

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE O.D.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT.	BLOWS PER 6" ON SAMPLER 0-6	6-12	12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
										0.5	Brwon gravelly sand
	1D	2"	18"		1.5	3	20	20			
											Black silty sandy gravel w/trace of brick, wo
										4.0	
	2D	2"	18"		6.0	3	3	3			Brown silty sandy gravel
										9.0	
	3D	2"	18"		11.0	0	0	1			Brown sandy organic silt
										16.5	
	4D	2"	24"		17.0	WOH	WOH	WOH	3		
											Gray sandy silty clay w/trace of gravel
	5D	2"	18"		21.0	2	2	2			
	D	2"	0	0	25.0	50				25.0	
											Refusal @ 25.0' Water@ 21.4' w/auger Caved @ 9.6' Water @ 6.0' w/out auger

SAMPLES
D - Splite Spoon
C = 2" Shelby Tube
U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
[X] Driller Visually
[ ] Soil Technican - Visually
[ ] Laboratory Tests

REMARKS

HOLE NO. B-27

MTB-14

BREWER, MAINE 04412

Northland

HOLE NO. B-2B

DRILLER: Jim Goody

PROJECT NAME: Portland Square Project

LINE & STATION:

M.T.B. JOB NUMBER: 87-159A

LOCATION: Portland, Maine

OFFSET:

GROUND WATER OBSERVATIONS

AT ____ FT. AFTER ____ HOURS

AT ____ FT. AFTER ____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT.		140	
HAMMER FALL		30"	

DATE START 9/10/87 DATE FIN. 9/1(

SURFACE ELEV.

GROUND WATER ELEV.

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE O.D.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	BLOWS PER 6" ON SAMPLER 0-6	6-12	12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
											Brown black silty gravelly sand w/brick, ash, mixed fill
										4.0	
	1D	2"	18"		6.5	6	9	9			
	2D	2"	18"		11.5	3	2	2			Black silty gravelly sand w/ash and mixed fi
	3D	2"	18"		16.5	3	6	7			
										17.0	
											Refusal @ 17.0'
											Hole dry @ 17.0' w/augers
											Caved dry @ 7.0'

SAMPLES
D = Splite Spoon
C = 2" Shelby Tube
U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
[X] Driller - Visually
[ ] Soil Technican - Visually
[ ] Laboratory Tests

REMARKS:

HOLE NO. B-

MTB-14

MAINE TEST BORINGS, INC.
BREWER, MAINE 04412

Northland

HOLE NO. B-29

DRILLER: Jim Goody
M.T.B. JOB NUMBER: 87-159A
PROJECT NAME: Portland Square Project
LOCATION: Portland, Maine
LINE & STATION:
OFFSET:

GROUND WATER OBSERVATIONS
AT ____ FT. AFTER ____ HOURS
AT ____ FT. AFTER ____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT.		140	
HAMMER FALL		30"	

DATE START 9/10/87 DATE FIN. 9/10/8
SURFACE ELEV.
GROUND WATER ELEV.

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE O.D.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT.	BLOWS PER 6" ON SAMPLER 0-6	6-12	12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
	1D	2"	18"		6.5	3	3	2			Black silty gravelly sand w/wood and mixed fi
										9.0	
											Refusal @ 9.0'

SAMPLES
D = Splite Spoon
C = 2" Shelby Tube
U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
[X] Driller - Visually
[ ] Soil Technican - Visually
[ ] Laboratory Tests

REMARKS:

HOLE NO. B-2

MTB-14

APPENDIX B

Laboratory Test Results

GeoTesting EXPRESS

Technologies to manage risk for infrastructure

Boston
Atlanta
Chicago
Los Angeles
New York

www.geotesting.com

Transmittal

TO:

Bryan Steinert

Haley & Aldrich, Inc.

75 Washington Avenue, Suite 203

Portland, ME 04101-2617

DATE: 11/30/2016	GTX NO: 305581
RE: Portland Square Development	

COPIES	DATE	DESCRIPTION
	11/30/2016	**November 2016 Laboratory Test Report**

REMARKS:

SIGNED:

Jonathan Campbell, Assistant Laboratory Manager

CC:

APPROVED BY:

Ethan Marro, Assistant Laboratory Manager

GeoTesting EXPRESS

Technologies to manage risk for infrastructure

Boston
Atlanta
Chicago
Los Angeles
New York
www.geotesting.com

November 30, 2016

Bryan Steinert
Haley & Aldrich, Inc.
75 Washington Avenue, Suite 203
Portland, ME 04101-2617

RE: Portland Square Development, Portland, ME (GTX-305581)

Dear Bryan:

Enclosed are the test results you requested for the above referenced project. GeoTesting Express, Inc. (GTX) received 16 samples from you on 11/4/2016. These samples were labeled as follows:

Boring	Sample	Depth
HA16-1	S1 + S2	1.0-5.0 ft
HA16-1	S3	5.0-7.0 ft
HA16-1	S4	10.0-12.0 ft
HA16-2	S4	9.0-11.0 ft
HA16-3	S2 + S3	3.0-7.0 ft
HA16-4	S1 + S2	1.0-3.5 ft
HA16-4	S3	5.0-7.0 ft
HA16-4	S4	10.0-12.0 ft
HA16-5	S4	10.0-12.0 ft
HA16-7	S2 + S3	3.0-7.0 ft
HA16-7	S5	15.0-17.0 ft
HA16-8	S5	15.0-17.0 ft
HA16-10	S2 + S3	3.0-7.0 ft
HA16-11	S2	3.0-4.9 ft
HA16-11	S5 + S6	10.5-14.5 ft
HA16-13	S2	3.0-5.0 ft

GTX performed the following test on each of these samples:

ASTM D422 - Grain Size Analysis - Sieve Only

A copy of your test request is attached.

The results presented in this report apply only to the items tested. This report shall not be reproduced except in full, without written approval from GeoTesting Express. The remainder of these samples will be retained for a period of sixty (60) days and will then be discarded unless otherwise notified by you. Please call me if you have any questions or require additional information. Thank you for allowing GeoTesting Express the opportunity of providing you with testing services. We look forward to working with you again in the future.

Respectfully yours,



Jonathan Campbell
Assistant Laboratory Manager

GeoTesting EXPRESS

Technologies to manage risk for infrastructure

Boston
Atlanta
Chicago
Los Angeles
New York

www.geotesting.com

Geotechnical Test Report **11/30/2016**

GTX-305581

Portland Square Development

Portland, ME

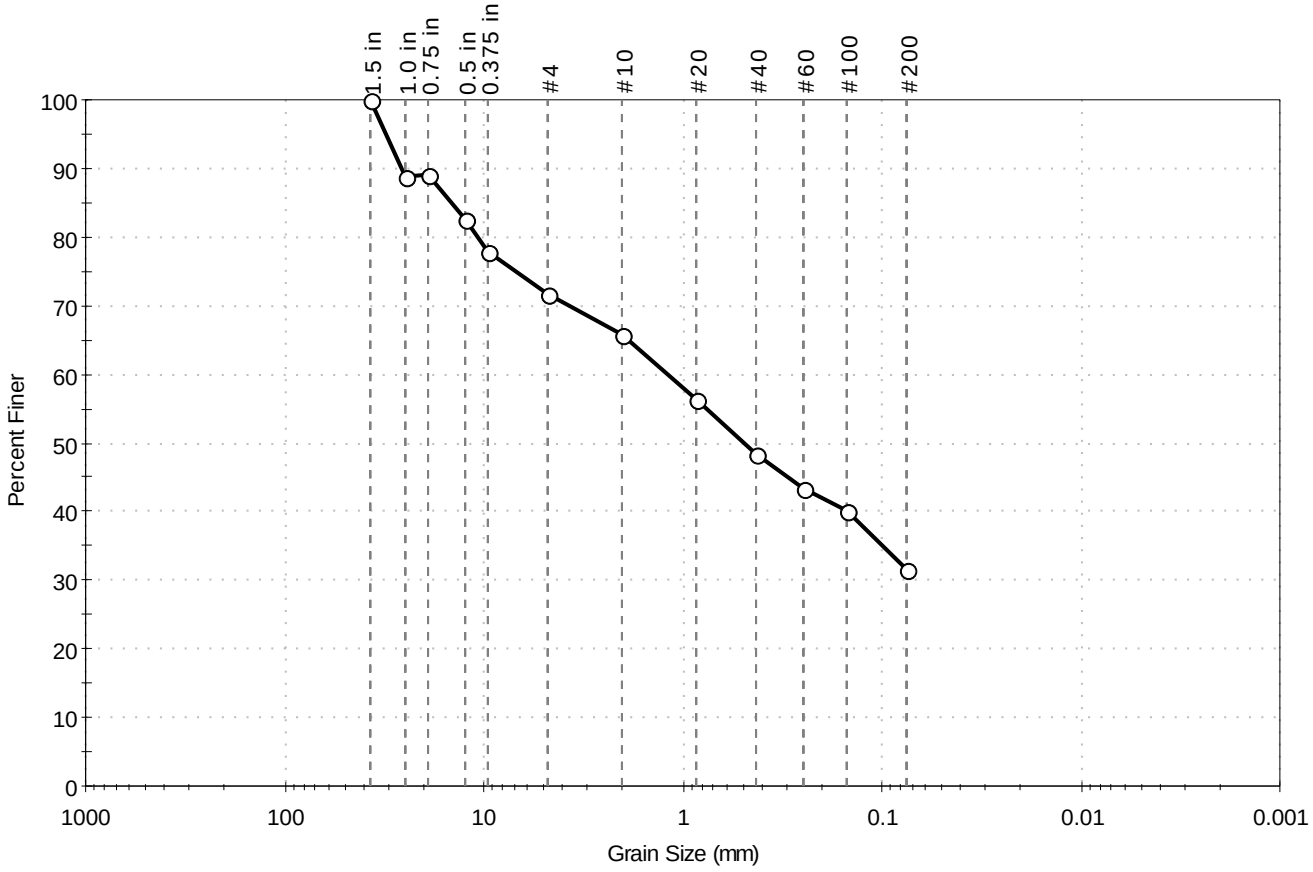
Client Project No.: 32328-111

Prepared for:

Haley & Aldrich, Inc.

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-1	Sample Type:	jar	Tested By:	GA
Sample ID:	S1 + S2	Test Date:	11/11/16	Checked By:	emm
Depth :	1.0-5.0 ft	Test Id:	397697		
Test Comment:	---				
Visual Description:	Moist, dark olive brown clayey sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	28.4	40.1	31.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1.0 in	25.00	89		
0.75 in	19.00	89		
0.5 in	12.50	83		
0.375 in	9.50	78		
#4	4.75	72		
#10	2.00	66		
#20	0.85	56		
#40	0.42	48		
#60	0.25	44		
#100	0.15	40		
#200	0.075	32		

Coefficients

D_{85} = 14.6438 mm D_{30} = N/A

D_{60} = 1.1816 mm D_{15} = N/A

D_{50} = 0.4932 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

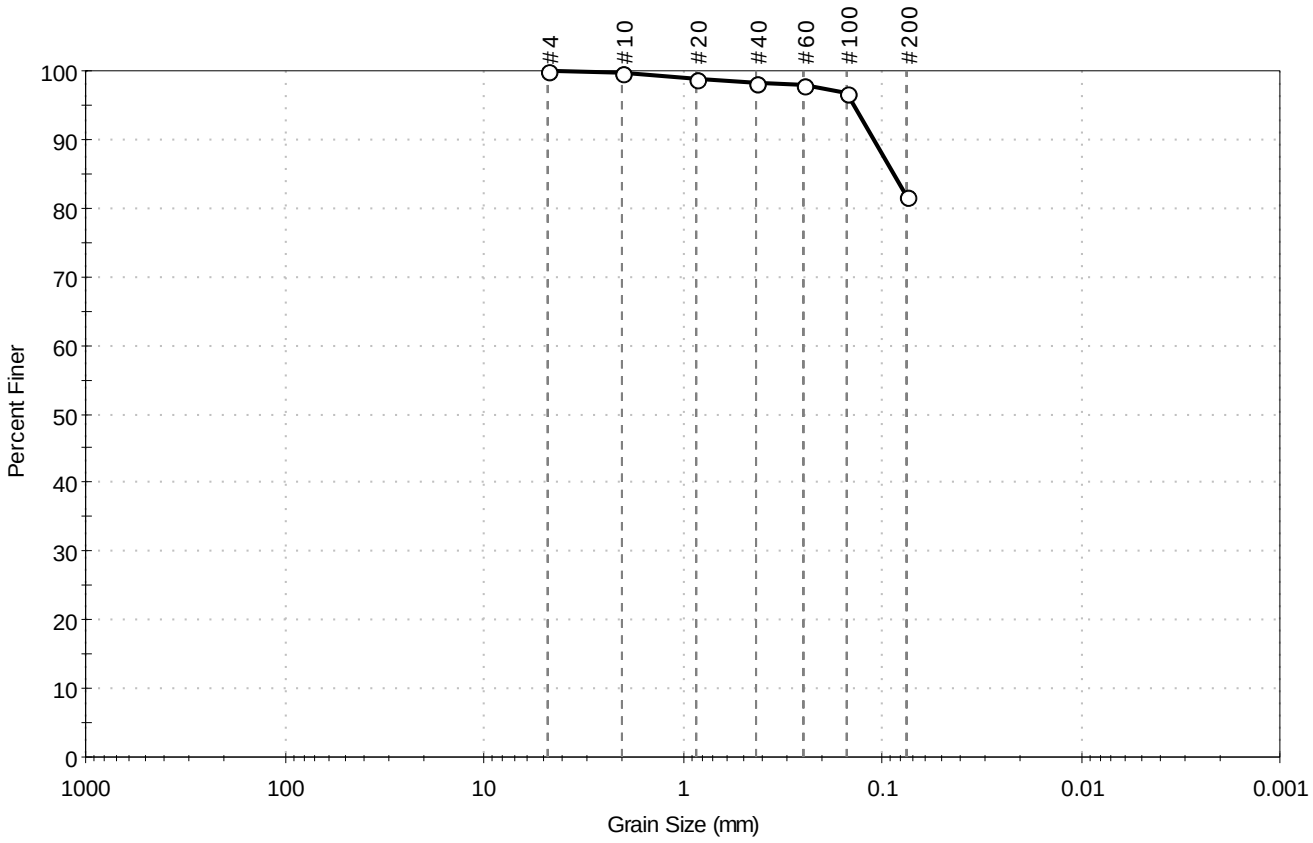
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-1	Sample Type:	jar	Tested By:	GA
Sample ID:	S3	Test Date:	11/11/16	Checked By:	emm
Depth :	5.0-7.0 ft	Test Id:	397706		
Test Comment:	---				
Visual Description:	Moist, olive gray clay with sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	0.0	18.2	81.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	98		
#60	0.25	98		
#100	0.15	97		
#200	0.075	82		

Coefficients

D_{85} = 0.0871 mm	D_{30} = N/A
D_{60} = N/A	D_{15} = N/A
D_{50} = N/A	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

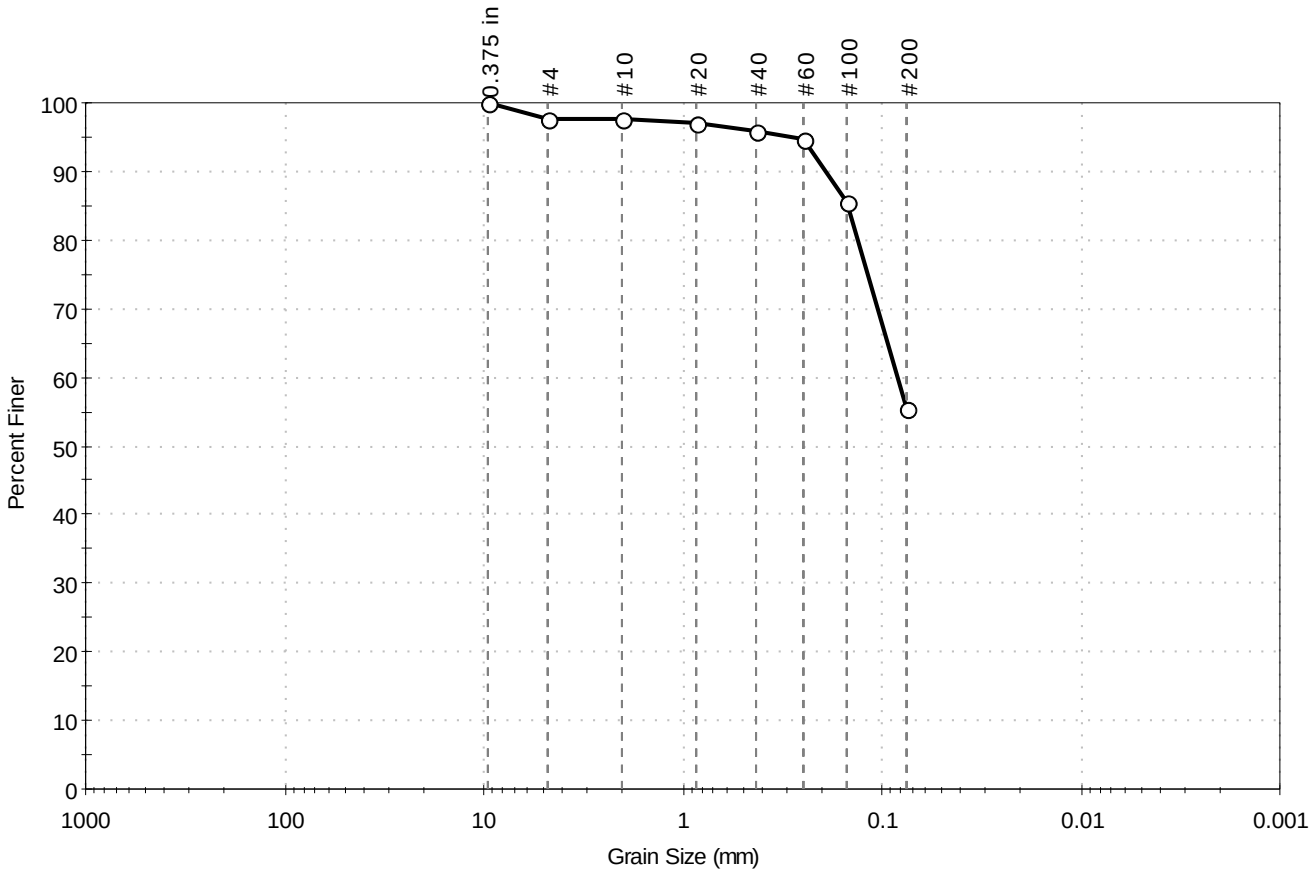
Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-1	Sample Type:	jar	Tested By:	GA
Sample ID:	S4	Test Date:	11/11/16	Checked By:	emm
Depth :	10.0-12.0 ft	Test Id:	397696		
Test Comment:	---				
Visual Description:	Moist, olive gray sandy silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	2.2	42.4	55.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	98		
#10	2.00	98		
#20	0.85	97		
#40	0.42	96		
#60	0.25	95		
#100	0.15	86		
#200	0.075	55		

Coefficients

D_{85} = 0.1477 mm	D_{30} = N/A
D_{60} = 0.0833 mm	D_{15} = N/A
D_{50} = N/A	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

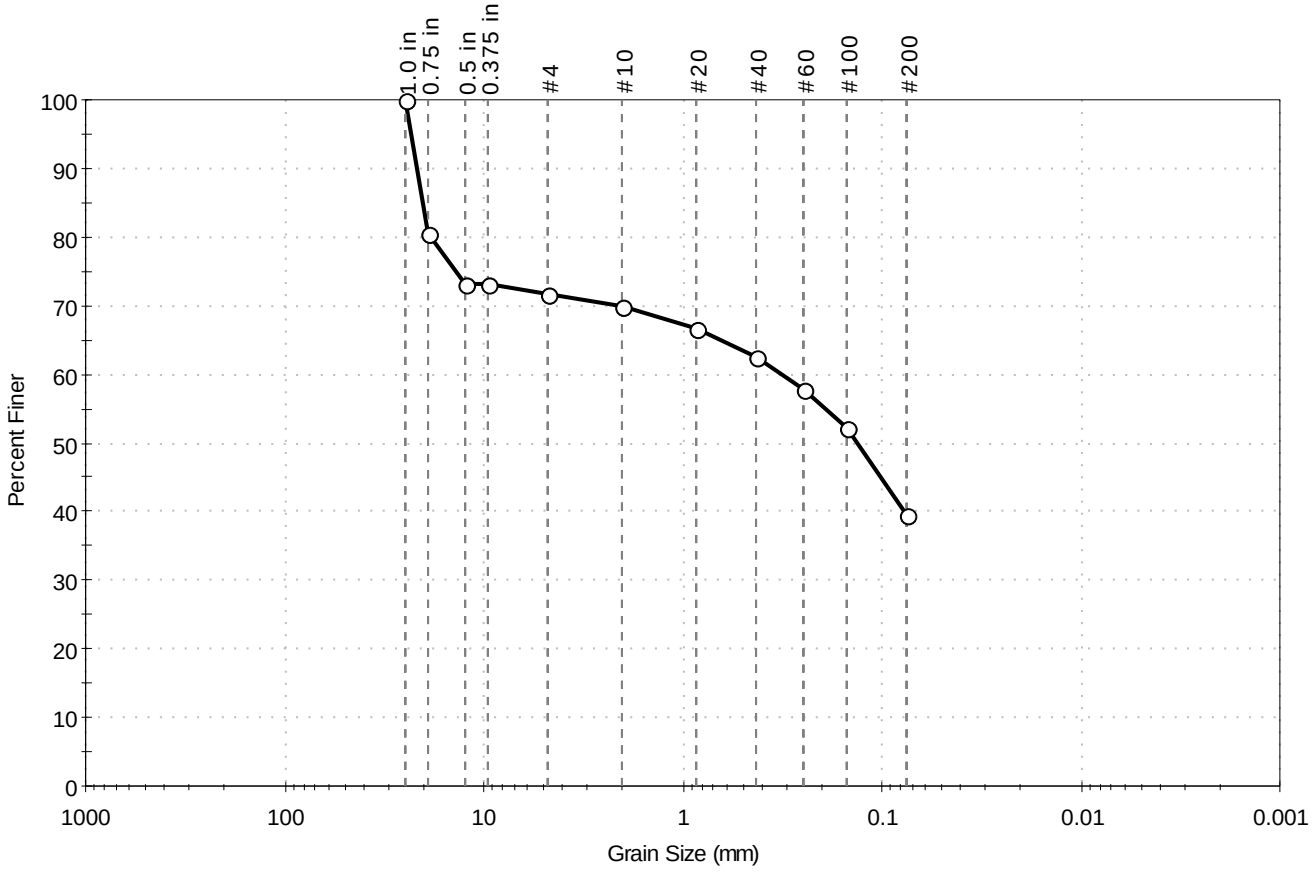
Sample / Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-2	Sample Type:	jar	Tested By:	GA
Sample ID:	S4	Test Date:	11/11/16	Checked By:	emm
Depth :	9.0-11.0 ft	Test Id:	397698		
Test Comment:	---				
Visual Description:	Moist, olive clayey sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	28.4	32.1	39.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.0 in	25.00	100		
0.75 in	19.00	81		
0.5 in	12.50	73		
0.375 in	9.50	73		
#4	4.75	72		
#10	2.00	70		
#20	0.85	67		
#40	0.42	63		
#60	0.25	58		
#100	0.15	52		
#200	0.075	39		

Coefficients

D_{85} = 20.2247 mm	D_{30} = N/A
D_{60} = 0.3170 mm	D_{15} = N/A
D_{50} = 0.1321 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

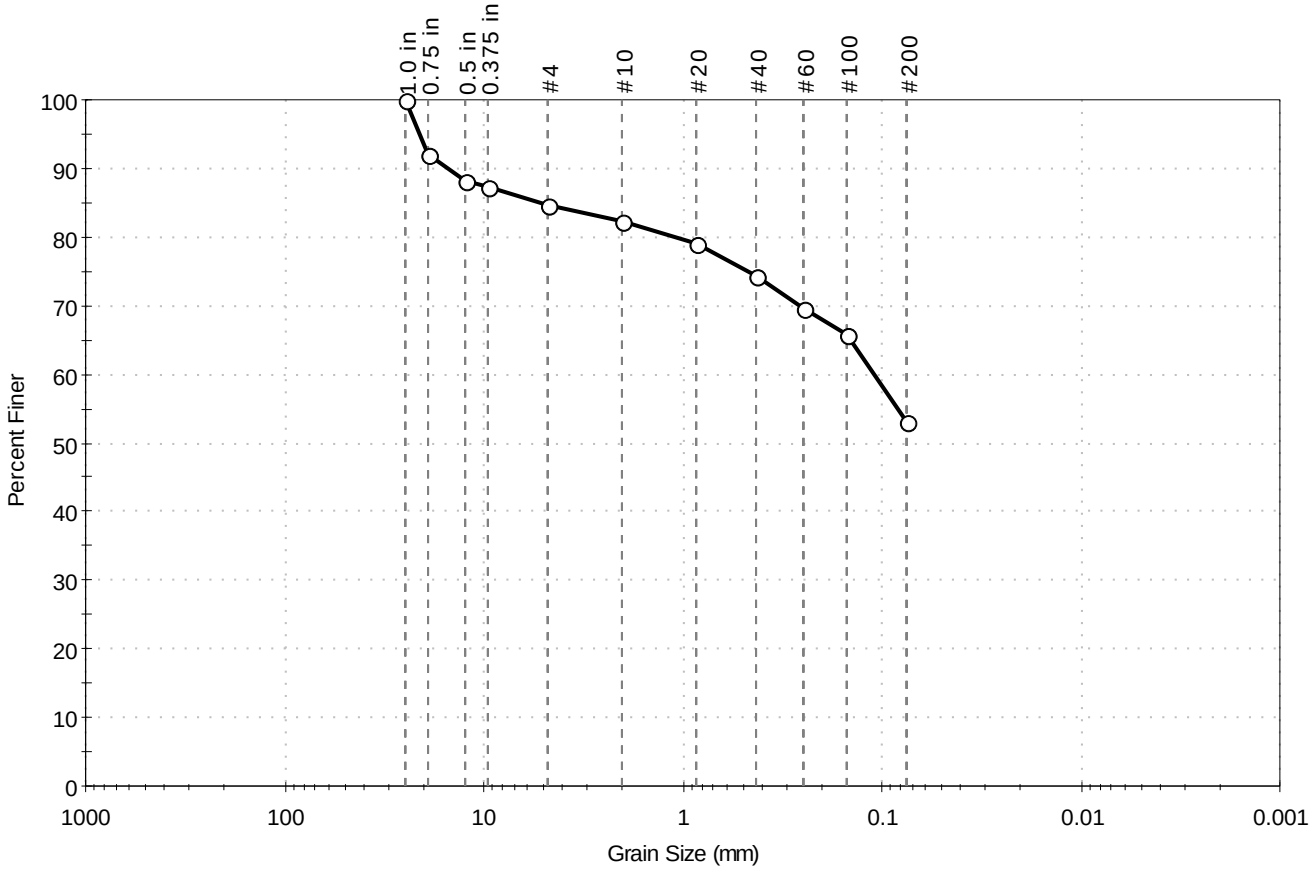
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-3	Sample Type:	jar	Tested By:	GA
Sample ID:	S2 + S3	Test Date:	11/11/16	Checked By:	emm
Depth :	3.0-7.0 ft	Test Id:	397707		
Test Comment:	---				
Visual Description:	Moist, dark olive gray sandy clay with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	15.4	31.5	53.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.0 in	25.00	100		
0.75 in	19.00	92		
0.5 in	12.50	88		
0.375 in	9.50	87		
#4	4.75	85		
#10	2.00	82		
#20	0.85	79		
#40	0.42	74		
#60	0.25	70		
#100	0.15	66		
#200	0.075	53		

Coefficients

D_{85} = 5.3336 mm D_{30} = N/A

D_{60} = 0.1097 mm D_{15} = N/A

D_{50} = N/A D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

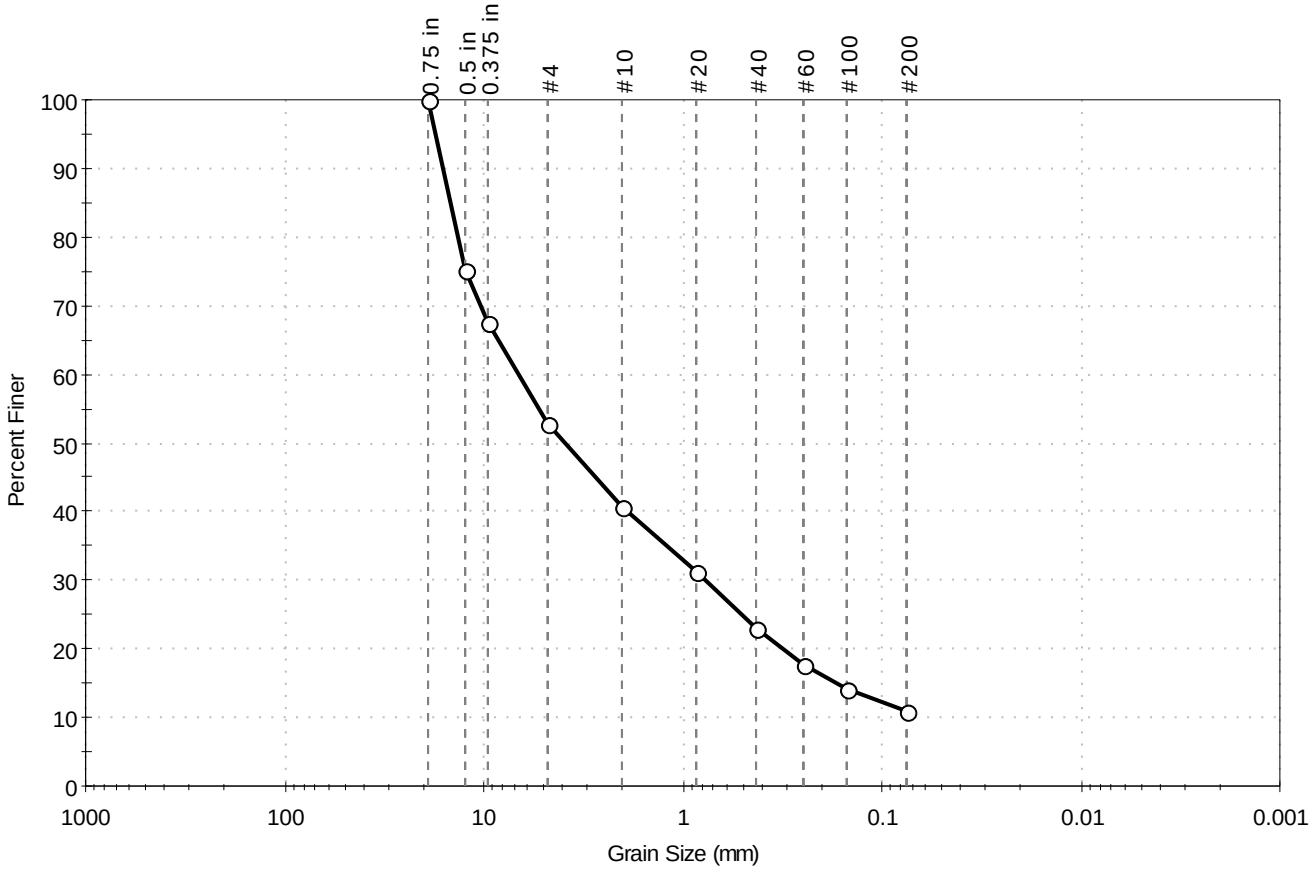
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-4	Sample Type:	jar	Tested By:	GA
Sample ID:	S1 + S2	Test Date:	11/11/16	Checked By:	emm
Depth :	1.0-3.5 ft	Test Id:	397708		
Test Comment:	---				
Visual Description:	Moist, gray gravel with silt and sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	47.3	41.9	10.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	75		
0.375 in	9.50	68		
#4	4.75	53		
#10	2.00	41		
#20	0.85	31		
#40	0.42	23		
#60	0.25	18		
#100	0.15	14		
#200	0.075	11		

Coefficients

D_{85} = 14.7454 mm D_{30} = 0.7642 mm

D_{60} = 6.6597 mm D_{15} = 0.1702 mm

D_{50} = 3.9077 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-a (0))

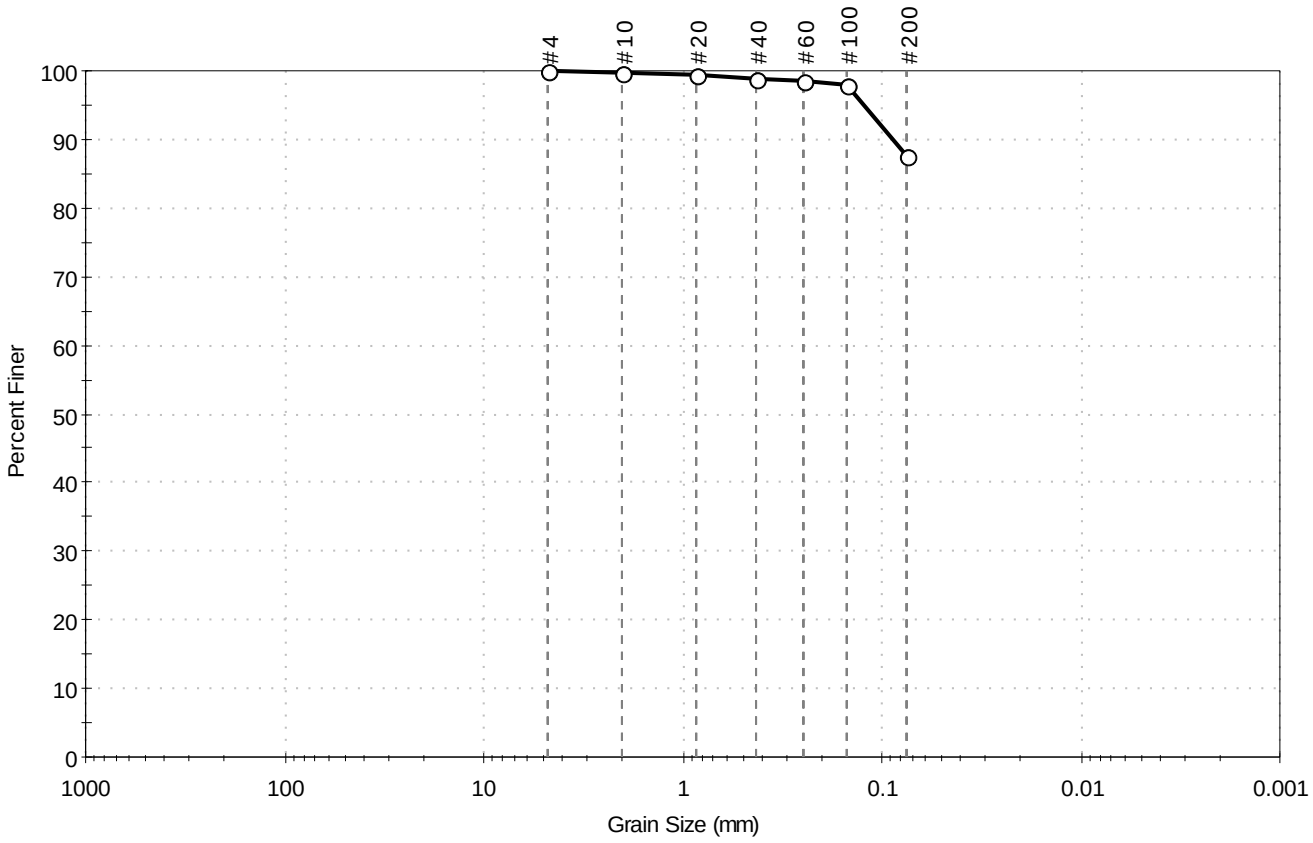
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-4	Sample Type:	jar	Tested By:	GA
Sample ID:	S3	Test Date:	11/11/16	Checked By:	emm
Depth :	5.0-7.0 ft	Test Id:	397709		
Test Comment:	---				
Visual Description:	Moist, olive gray clay				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	0.0	12.5	87.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	98		
#100	0.15	98		
#200	0.075	87		

Coefficients

D_{85} = N/A	D_{30} = N/A
D_{60} = N/A	D_{15} = N/A
D_{50} = N/A	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

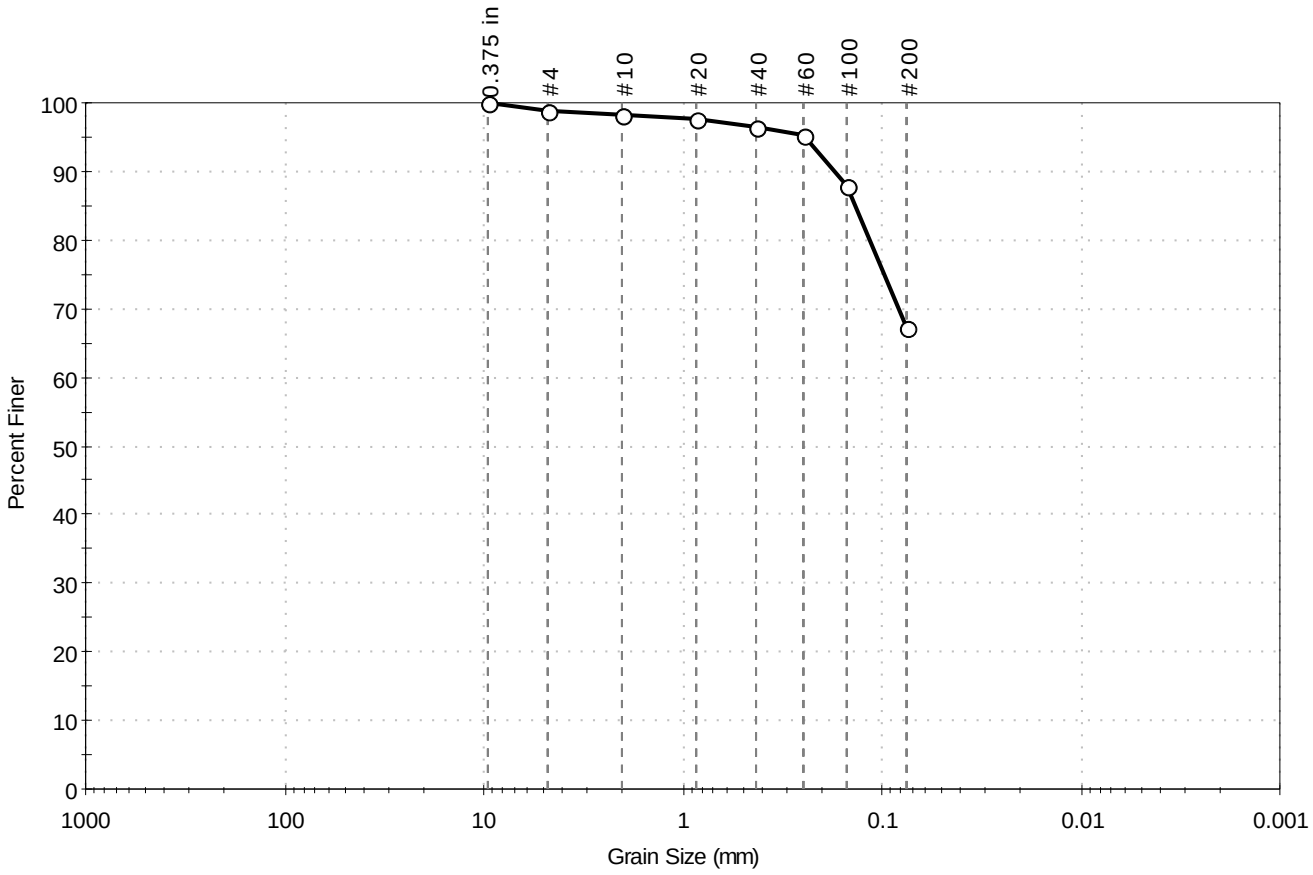
Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-4	Sample Type:	jar	Tested By:	GA
Sample ID:	S4	Test Date:	11/11/16	Checked By:	emm
Depth :	10.0-12.0 ft	Test Id:	397699		
Test Comment:	---				
Visual Description:	Moist, gray sandy clay				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	1.1	31.6	67.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	99		
#10	2.00	98		
#20	0.85	98		
#40	0.42	97		
#60	0.25	95		
#100	0.15	88		
#200	0.075	67		

Coefficients

D_{85} = 0.1355 mm	D_{30} = N/A
D_{60} = N/A	D_{15} = N/A
D_{50} = N/A	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

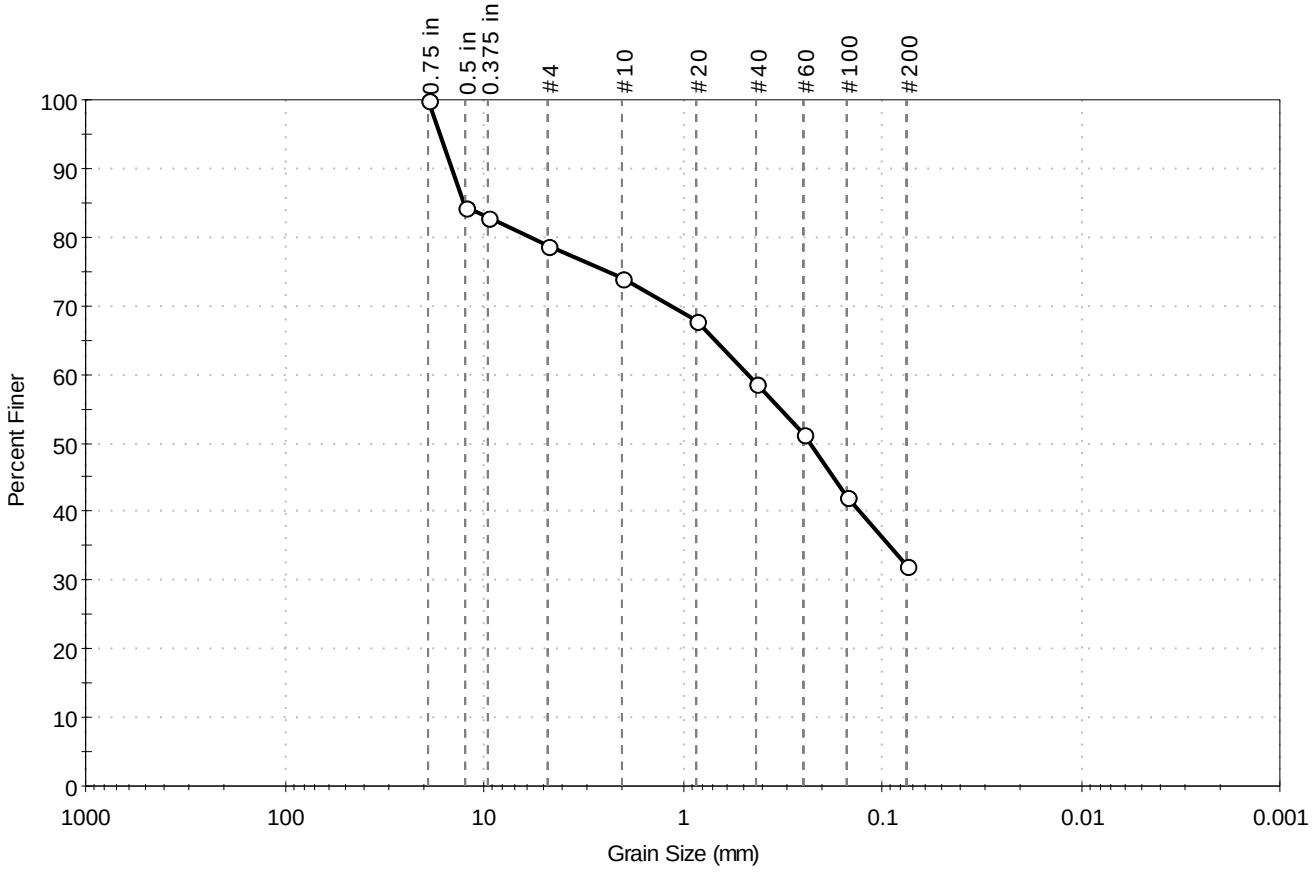
Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-5	Sample Type:	jar	Tested By:	GA
Sample ID:	S4	Test Date:	11/11/16	Checked By:	emm
Depth :	10.0-12.0 ft	Test Id:	397700		
Test Comment:	---				
Visual Description:	Moist, gray silty sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	21.1	46.8	32.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	84		
0.375 in	9.50	83		
#4	4.75	79		
#10	2.00	74		
#20	0.85	68		
#40	0.42	59		
#60	0.25	51		
#100	0.15	42		
#200	0.075	32		

Coefficients

D_{85} = 12.7356 mm D_{30} = N/A

D_{60} = 0.4644 mm D_{15} = N/A

D_{50} = 0.2325 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

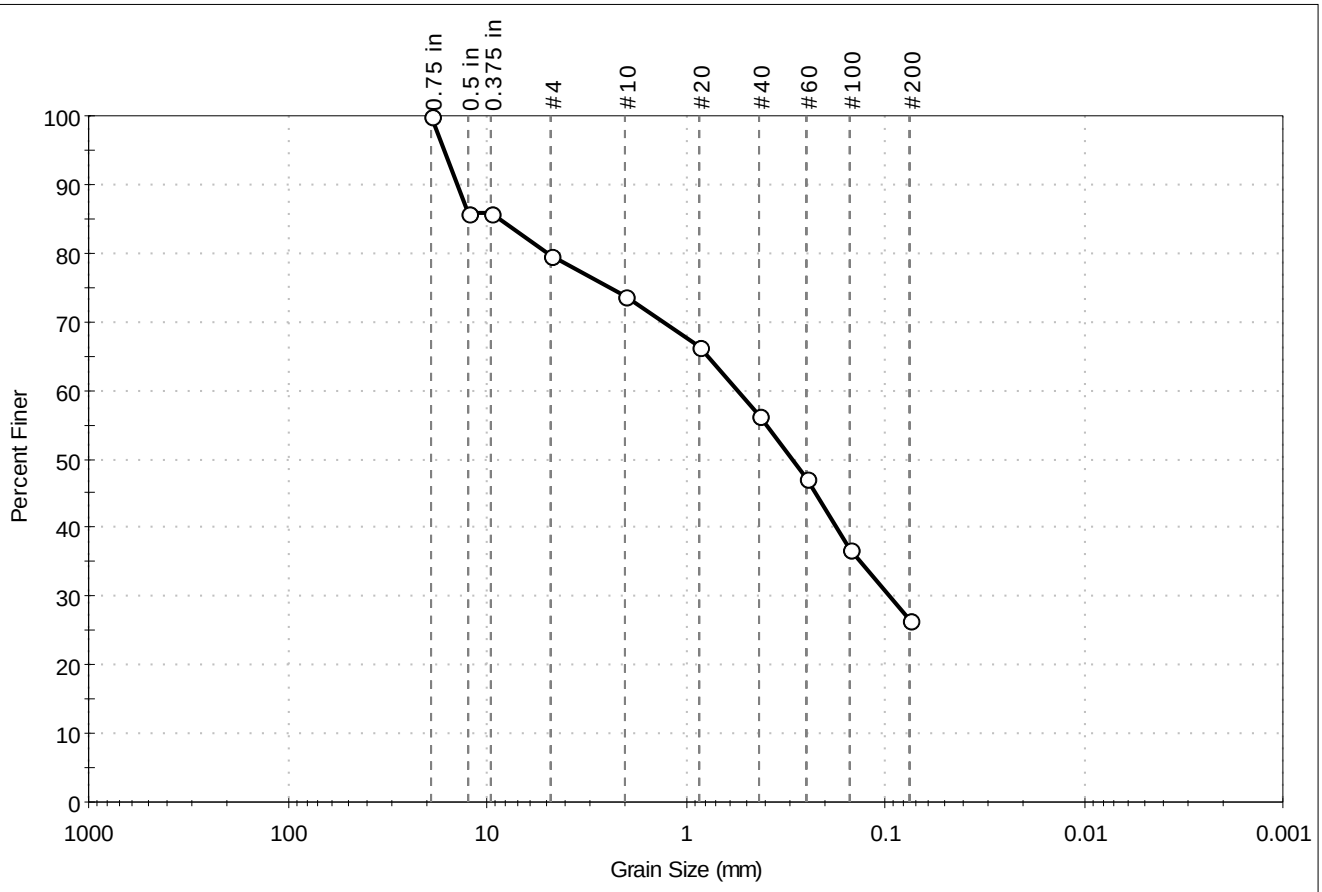
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-7	Sample Type:	jar	Tested By:	GA
Sample ID:	S2 + S3	Test Date:	11/11/16	Checked By:	emm
Depth :	3.0-7.0 ft	Test Id:	397711		
Test Comment:	---				
Visual Description:	Moist, dark olive brown clayey sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	20.5	53.0	26.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	86		
0.375 in	9.50	86		
#4	4.75	80		
#10	2.00	74		
#20	0.85	66		
#40	0.42	56		
#60	0.25	47		
#100	0.15	37		
#200	0.075	27		

Coefficients

D_{85} = 8.5801 mm D_{30} = 0.0949 mm

D_{60} = 0.5496 mm D_{15} = N/A

D_{50} = 0.2964 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

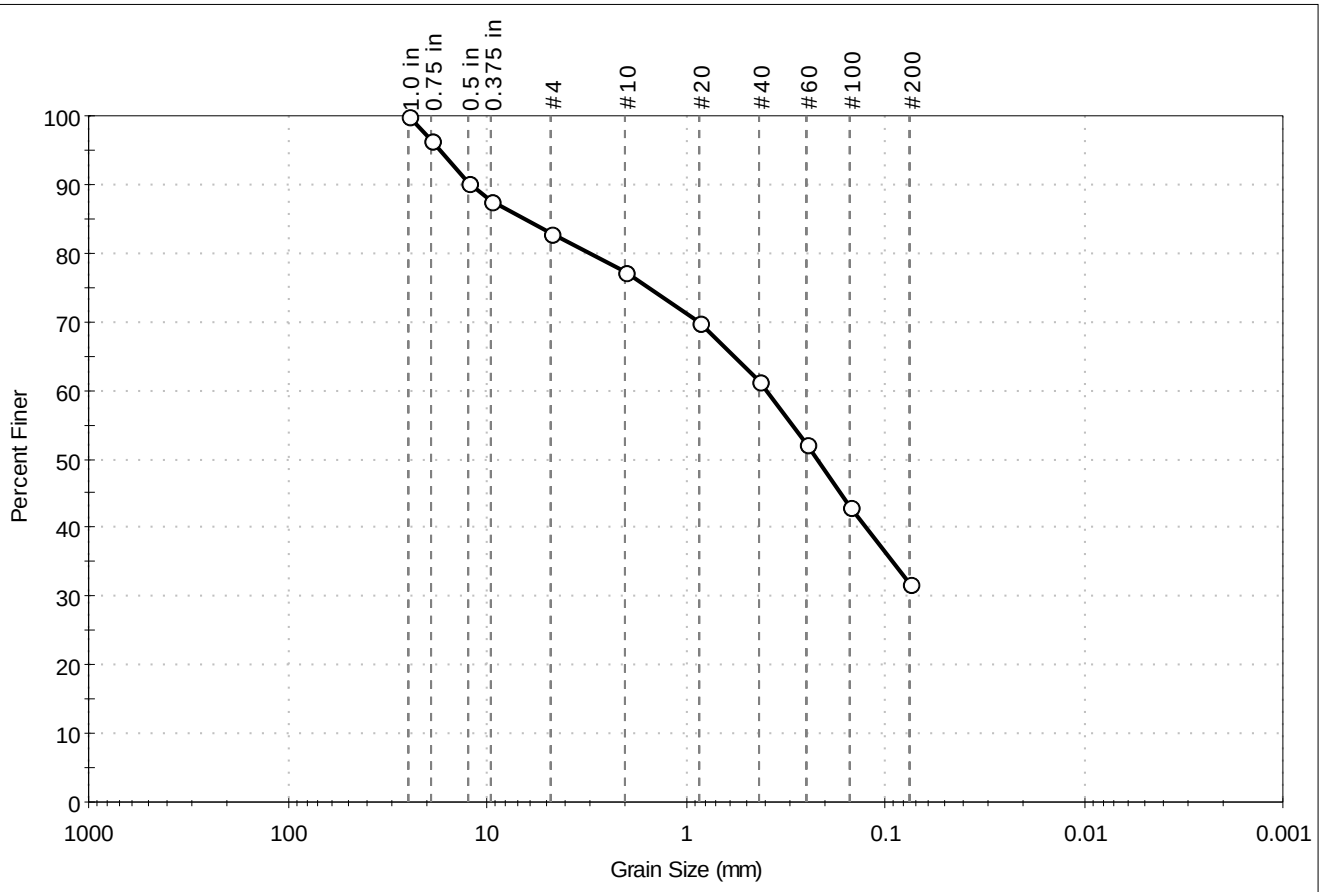
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-7	Sample Type:	jar	Tested By:	GA
Sample ID:	S5	Test Date:	11/11/16	Checked By:	emm
Depth :	15.0-17.0 ft	Test Id:	397710		
Test Comment:	---				
Visual Description:	Moist, gray silty sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	17.1	51.1	31.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.0 in	25.00	100		
0.75 in	19.00	96		
0.5 in	12.50	90		
0.375 in	9.50	88		
#4	4.75	83		
#10	2.00	77		
#20	0.85	70		
#40	0.42	61		
#60	0.25	52		
#100	0.15	43		
#200	0.075	32		

Coefficients

D_{85} = 6.4856 mm D_{30} = N/A

D_{60} = 0.3954 mm D_{15} = N/A

D_{50} = 0.2203 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

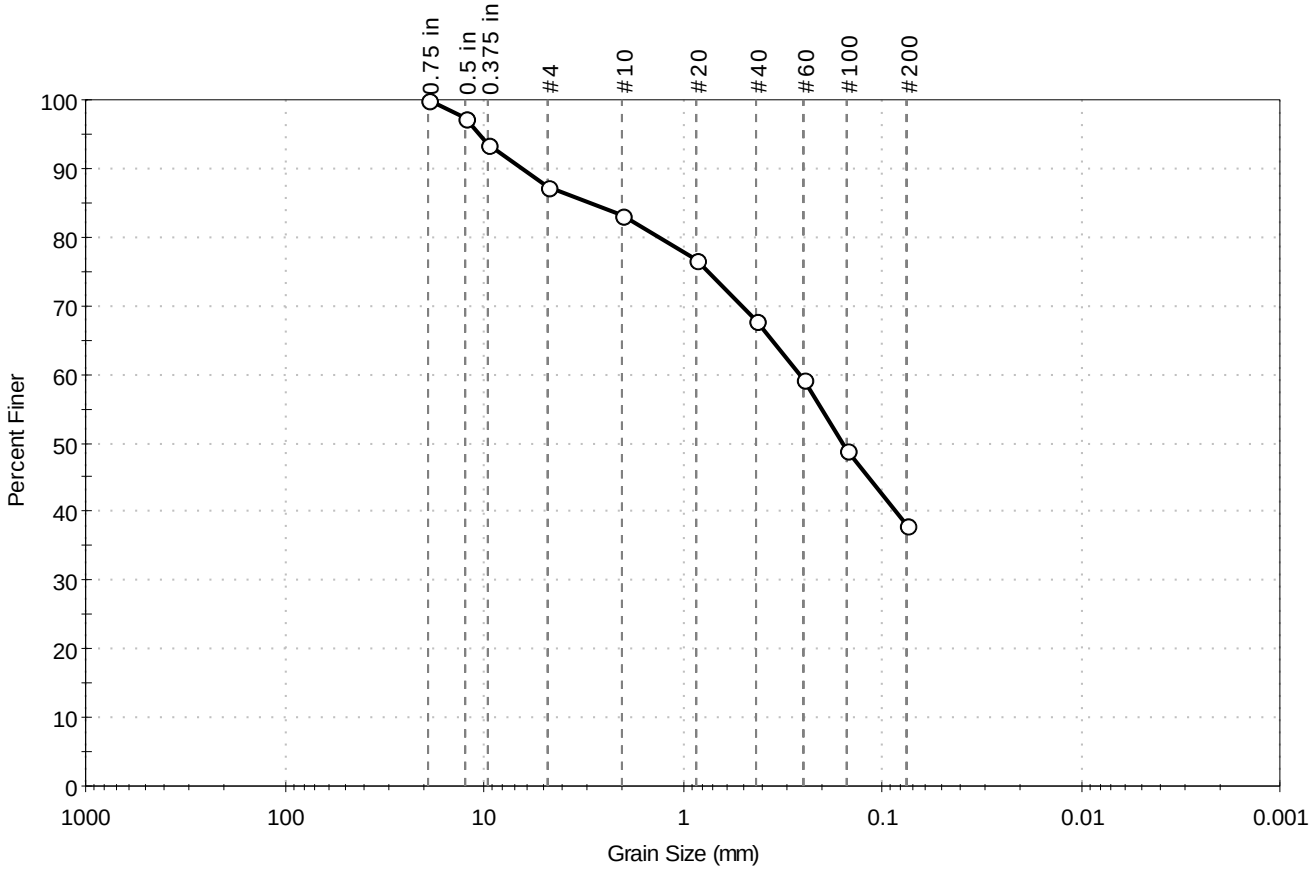
Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-8	Sample Type:	jar	Tested By:	GA
Sample ID:	S5	Test Date:	11/11/16	Checked By:	emm
Depth :	15.0-17.0 ft	Test Id:	397701		
Test Comment:	---				
Visual Description:	Moist, gray silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	12.7	49.3	38.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	97		
0.375 in	9.50	93		
#4	4.75	87		
#10	2.00	83		
#20	0.85	77		
#40	0.42	68		
#60	0.25	59		
#100	0.15	49		
#200	0.075	38		

Coefficients

D_{85} = 2.9536 mm D_{30} = N/A

D_{60} = 0.2633 mm D_{15} = N/A

D_{50} = 0.1580 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

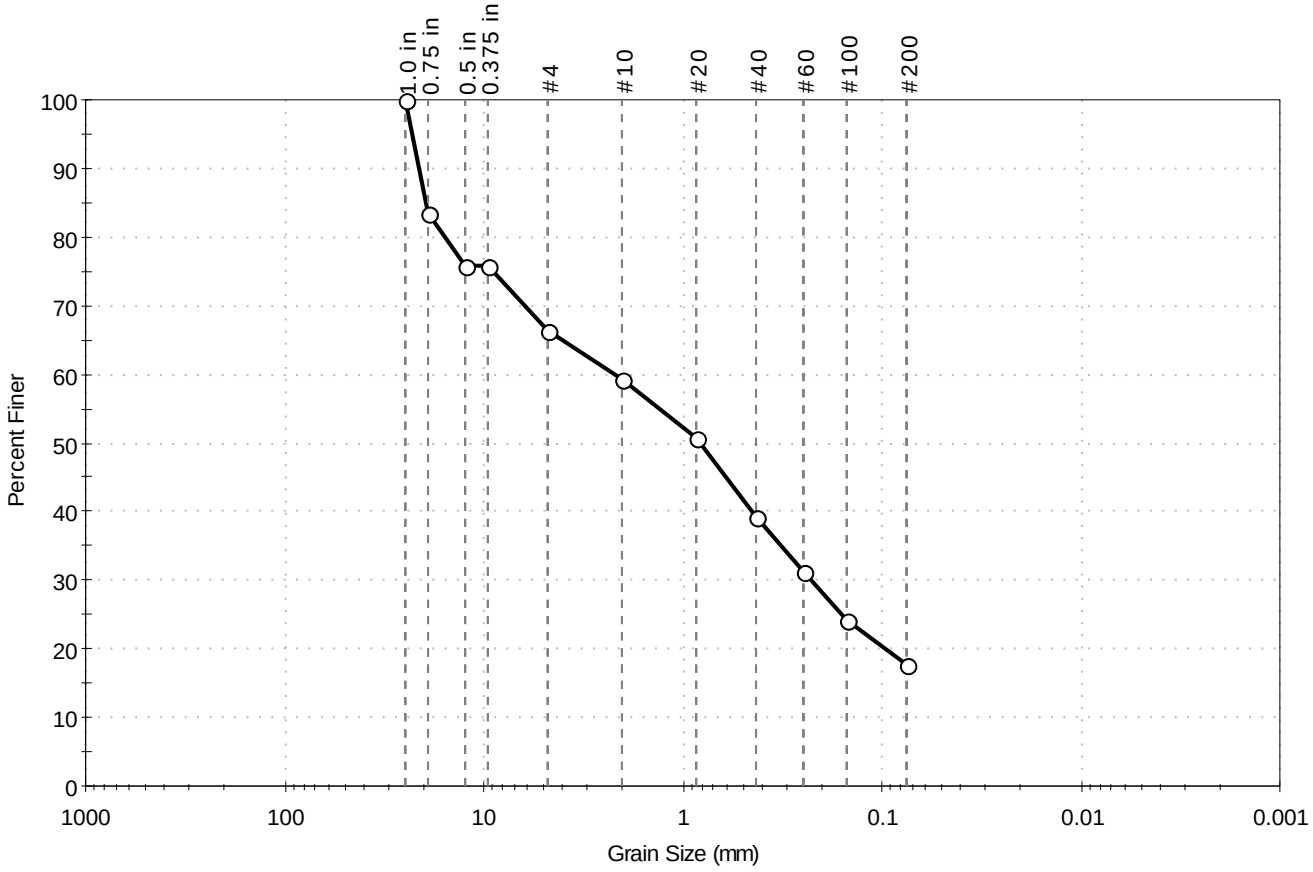
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-10	Sample Type:	jar	Tested By:	GA
Sample ID:	S2 + S3	Test Date:	11/11/16	Checked By:	emm
Depth :	3.0-7.0 ft	Test Id:	397702		
Test Comment:	---				
Visual Description:	Moist, very dark gray clayey sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	33.7	48.5	17.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.0 in	25.00	100		
0.75 in	19.00	84		
0.5 in	12.50	76		
0.375 in	9.50	76		
#4	4.75	66		
#10	2.00	59		
#20	0.85	51		
#40	0.42	39		
#60	0.25	31		
#100	0.15	24		
#200	0.075	18		

Coefficients

D_{85} = 19.4778 mm
D_{30} = 0.2285 mm
D_{60} = 2.1518 mm
D_{15} = N/A
D_{50} = 0.8121 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

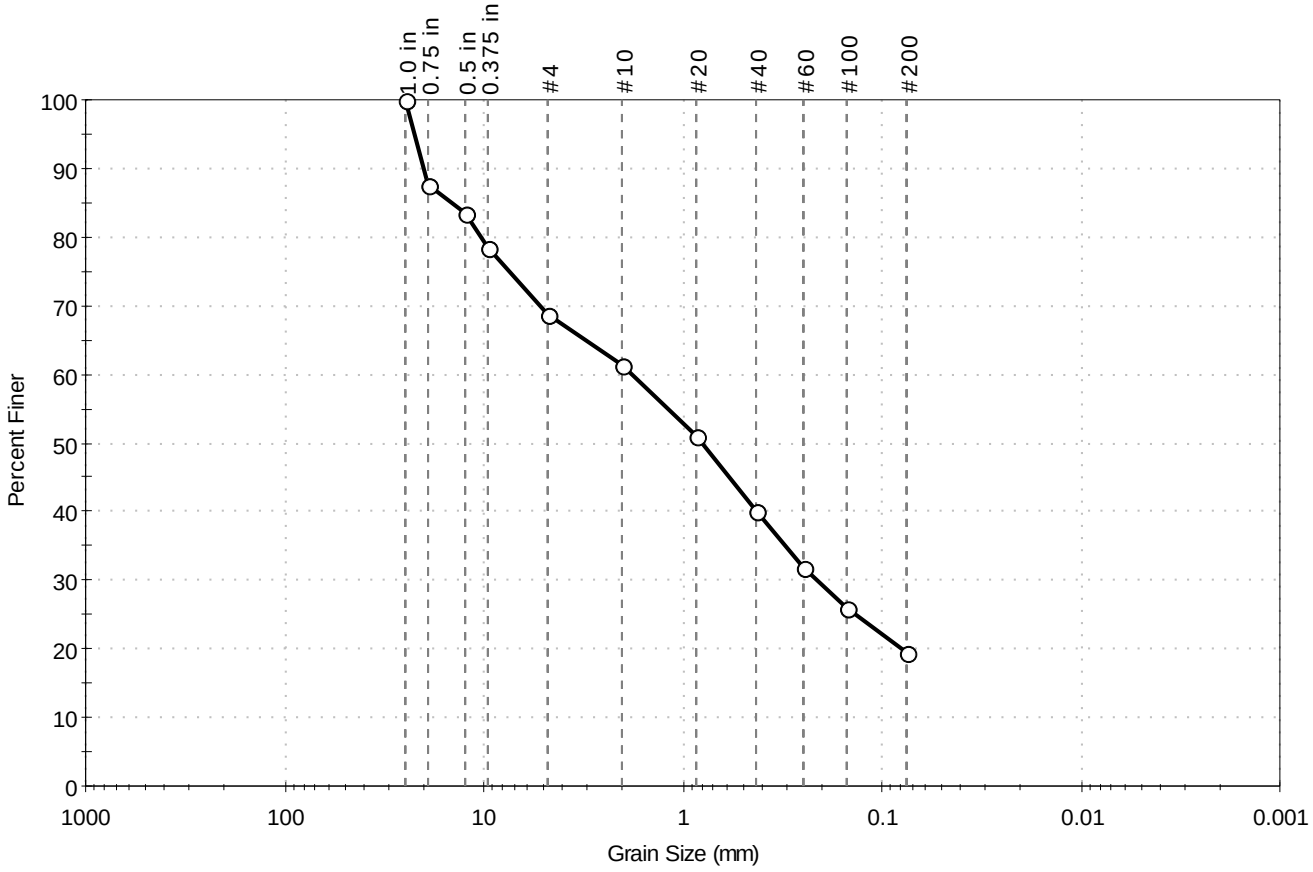
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-11	Sample Type:	jar	Tested By:	GA
Sample ID:	S2	Test Date:	11/11/16	Checked By:	emm
Depth :	3.0-4.9 ft	Test Id:	397705		
Test Comment:	---				
Visual Description:	Moist, brownish gray silty sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	31.1	49.4	19.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.0 in	25.00	100		
0.75 in	19.00	88		
0.5 in	12.50	83		
0.375 in	9.50	79		
#4	4.75	69		
#10	2.00	61		
#20	0.85	51		
#40	0.42	40		
#60	0.25	32		
#100	0.15	26		
#200	0.075	19		

Coefficients

D_{85} = 14.7198 mm D_{30} = 0.2144 mm

D_{60} = 1.8005 mm D_{15} = N/A

D_{50} = 0.7899 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample / Test Description

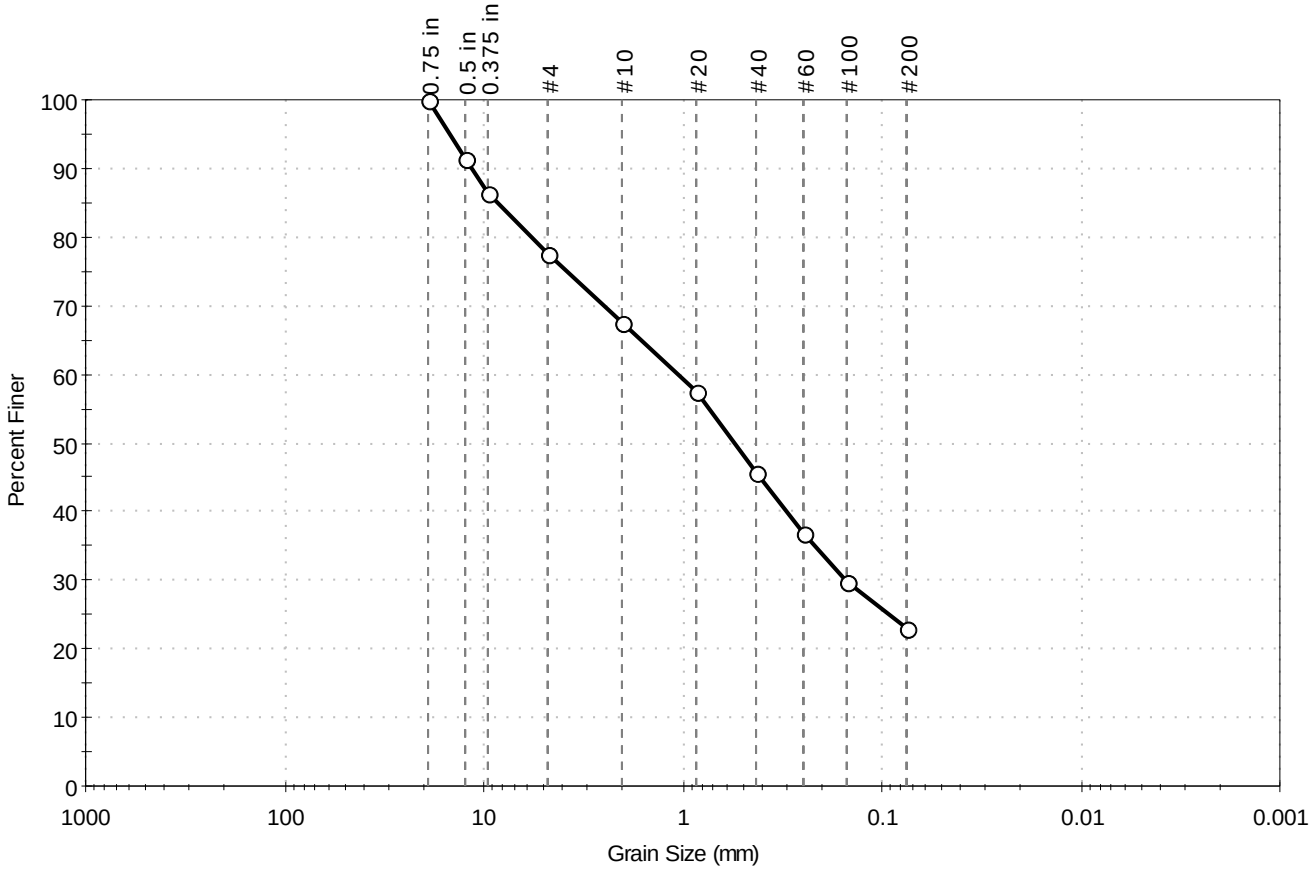
Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-11	Sample Type:	jar	Tested By:	GA
Sample ID:	S5 + S6	Test Date:	11/11/16	Checked By:	emm
Depth :	10.5-14.5 ft	Test Id:	397703		
Test Comment:	---				
Visual Description:	Moist, very dark gray clayey sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	22.4	54.6	23.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	91		
0.375 in	9.50	87		
#4	4.75	78		
#10	2.00	68		
#20	0.85	57		
#40	0.42	46		
#60	0.25	37		
#100	0.15	30		
#200	0.075	23		

Coefficients

D_{85} = 8.4315 mm
D_{30} = 0.1523 mm
D_{60} = 1.0562 mm
D_{15} = N/A
D_{50} = 0.5476 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

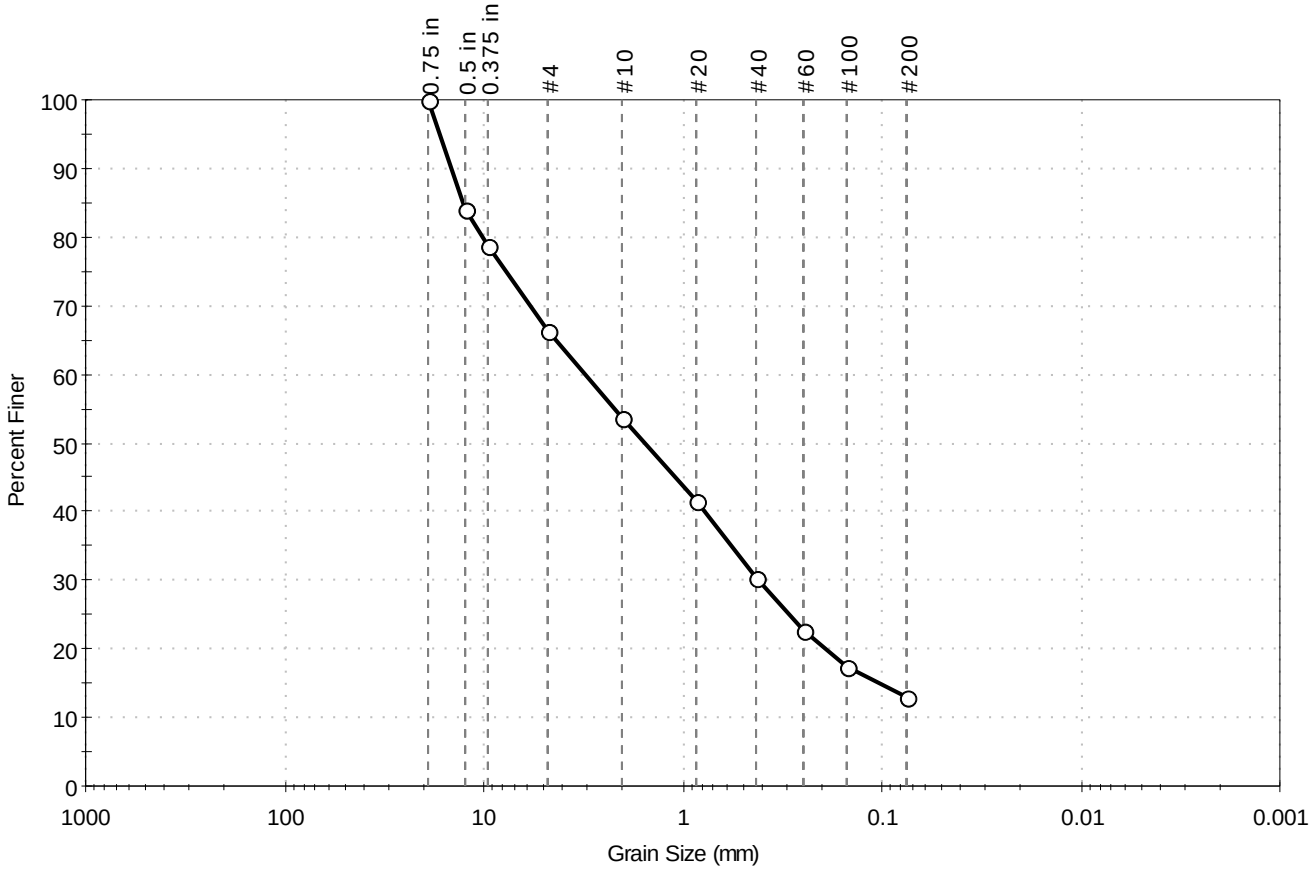
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-13	Sample Type:	jar	Tested By:	GA
Sample ID:	S2	Test Date:	11/11/16	Checked By:	emm
Depth :	3.0-5.0 ft	Test Id:	397704		
Test Comment:	---				
Visual Description:	Moist, very dark gray silty sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	33.6	53.6	12.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	84		
0.375 in	9.50	79		
#4	4.75	66		
#10	2.00	54		
#20	0.85	42		
#40	0.42	30		
#60	0.25	23		
#100	0.15	17		
#200	0.075	13		

Coefficients

D_{85} = 12.8354 mm
D_{30} = 0.4118 mm
D_{60} = 3.0747 mm
D_{15} = 0.1037 mm
D_{50} = 1.5425 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

GeoTesting EXPRESS

WARRANTY and LIABILITY

GeoTesting Express (GTX) warrants that all tests it performs are run in general accordance with the specified test procedures and accepted industry practice. GTX will correct or repeat any test that does not comply with this warranty. GTX has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GTX may report engineering parameters that require us to interpret the test data. Such parameters are determined using accepted engineering procedures. However, GTX does not warrant that these parameters accurately reflect the true engineering properties of the *in situ* material. Responsibility for interpretation and use of the test data and these parameters for engineering and/or construction purposes rests solely with the user and not with GTX or any of its employees.

GTX's liability will be limited to correcting or repeating a test which fails our warranty. GTX's liability for damages to the Purchaser of testing services for any cause whatsoever shall be limited to the amount GTX received for the testing services. GTX will not be liable for any damages, or for any lost benefits or other consequential damages resulting from the use of these test results, even if GTX has been advised of the possibility of such damages. GTX will not be responsible for any liability of the Purchaser to any third party.

Commonly Used Symbols

A	pore pressure parameter for $\Delta\sigma_1 - \Delta\sigma_3$
B	pore pressure parameter for $\Delta\sigma_3$
CAI	CERCHAR Abrasiveness Index
CIU	isotropically consolidated undrained triaxial shear test
CR	compression ratio for one dimensional consolidation
CSR	cyclic stress ratio
C_c	coefficient of curvature, $(D_{30})^2 / (D_{10} \times D_{60})$
C_u	coefficient of uniformity, D_{60}/D_{10}
C_c	compression index for one dimensional consolidation
C_α	coefficient of secondary compression
c_v	coefficient of consolidation
c	cohesion intercept for total stresses
c'	cohesion intercept for effective stresses
D	diameter of specimen
D	damping ratio
D_{10}	diameter at which 10% of soil is finer
D_{15}	diameter at which 15% of soil is finer
D_{30}	diameter at which 30% of soil is finer
D_{50}	diameter at which 50% of soil is finer
D_{60}	diameter at which 60% of soil is finer
D_{85}	diameter at which 85% of soil is finer
d_{50}	displacement for 50% consolidation
d_{90}	displacement for 90% consolidation
d_{100}	displacement for 100% consolidation
E	Young's modulus
e	void ratio
e_c	void ratio after consolidation
e_o	initial void ratio
G	shear modulus
G_s	specific gravity of soil particles
H	height of specimen
H_R	Rebound Hardness number
i	gradient
I_S	Uncorrected point load strength
$I_{S(50)}$	Size corrected point load strength index
H_A	Modified Taber Abrasion
H_T	Total hardness
K_o	lateral stress ratio for one dimensional strain
k	permeability
LI	Liquidity Index
m_v	coefficient of volume change
n	porosity
PI	plasticity index
P_c	preconsolidation pressure
p	$(\sigma_1 + \sigma_3) / 2$, $(\sigma_v + \sigma_h) / 2$
p'	$(\sigma'_1 + \sigma'_3) / 2$, $(\sigma'_v + \sigma'_h) / 2$
p'_c	p' at consolidation
Q	quantity of flow
q	$(\sigma_1 - \sigma_3) / 2$
q_f	q at failure
q_o, q_i	initial q
q_c	q at consolidation
S_r	Post cyclic undrained shear strength
T	temperature
t	time
U, UC	unconfined compression test
UU, Q	unconsolidated undrained triaxial test
u_a	pore gas pressure
u_e	excess pore water pressure
u, u_w	pore water pressure
V	total volume
V_g	volume of gas
V_s	volume of solids
V_s	shear wave velocity
V_v	volume of voids
V_w	volume of water
V_o	initial volume
v	velocity
W	total weight
W_s	weight of solids
W_w	weight of water
w	water content
w_c	water content at consolidation
w_f	final water content
w_l	liquid limit
w_n	natural water content
w_p	plastic limit
w_s	shrinkage limit
w_o, w_i	initial water content
α	slope of q_f versus p_f
α'	slope of q_f versus p_f'
γ_t	total unit weight
γ_d	dry unit weight
γ_s	unit weight of solids
γ_w	unit weight of water
ε	strain
ε_{vol}	volume strain
ε_h, ε_v	horizontal strain, vertical strain
μ	Poisson's ratio, also viscosity
σ	normal stress
σ'	effective normal stress
σ_c, σ'_c	consolidation stress in isotropic stress system
σ_h, σ'_h	horizontal normal stress
σ_v, σ'_v	vertical normal stress
σ'_{vc}	Effective vertical consolidation stress
σ_1	major principal stress
σ_2	intermediate principal stress
σ_3	minor principal stress
τ	shear stress
φ	friction angle based on total stresses
φ'	friction angle based on effective stresses
φ'_r	residual friction angle
φ_{ult}	φ for ultimate strength

APPENDIX C

Observation Well Installation and Groundwater Monitoring Reports

HALEY ALDRICH

GROUNDWATER OBSERVATION WELL INSTALLATION REPORT

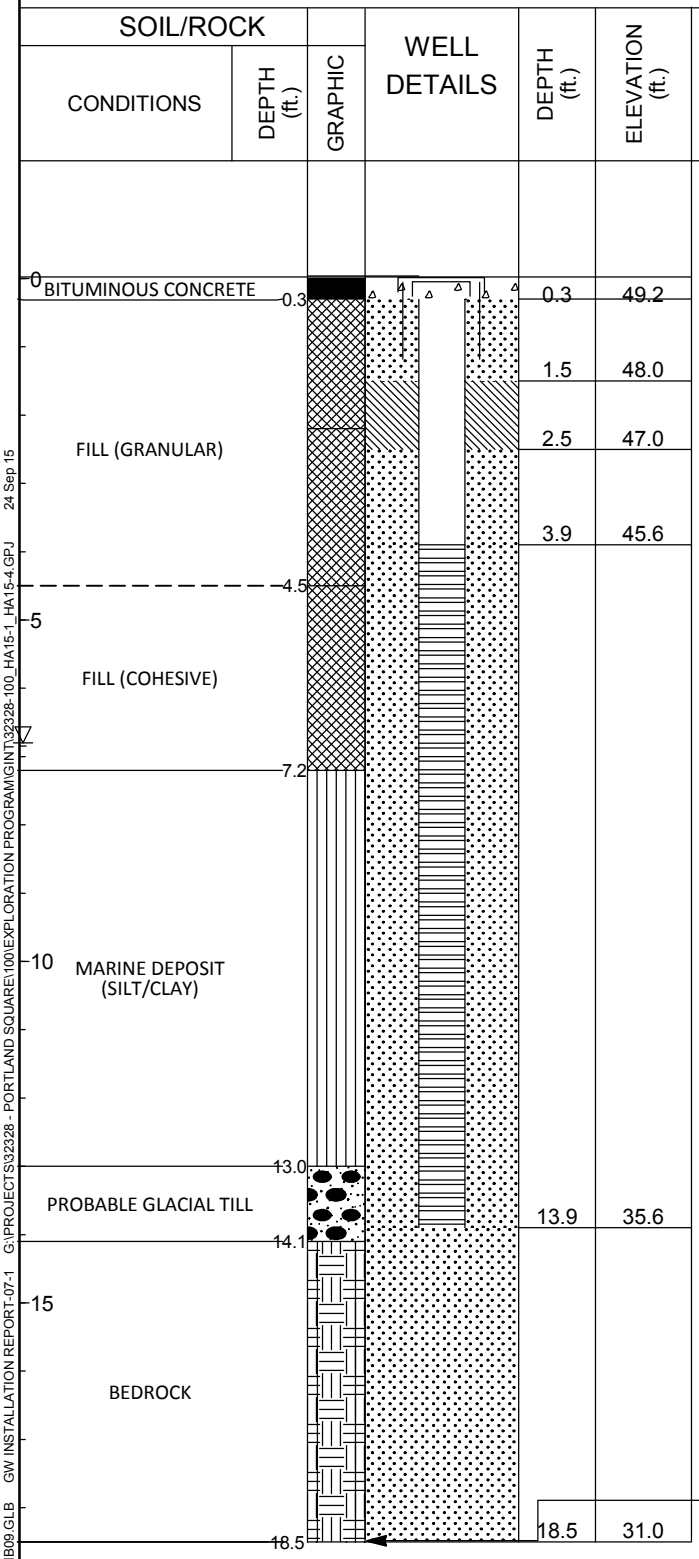
Well No. HA15-1(OW)
Boring No. HA15-1(OW)

Project	Portland Square Development
Location	Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors
Driller	C. Dupuis
Initial Water Level (depth bgs)	6.8 ft

Well Diagram: Riser Pipe; Screen; Filter Sand; Cuttings; Grout; Concrete; Bentonite Seal

File No. 32328-100
Date Installed 11 Aug 2015
H&A Rep. K. Russ
Location See Plan

Ground El. 49.5
Datum Portland City Datum



WELL CONSTRUCTION DETAILS

Type of protective cover	EMCO Hex. Bolt
Depth of Roadway Box below ground surface	0.0 ft
Depth of top of riser below ground surface	0.6 ft
Type of protective casing	Roadway Box
Length	0.8 ft
Inside diameter	6.0 in.
Depth of bottom of Roadway Box	0.8 ft
Type of riser pipe	Schedule 40 PVC
Inside diameter of riser pipe	1.0 in.
Depth of bottom of riser pipe	3.9 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Cold Patch	0.0	0.3
Bentonite	1.5	1.0
	-	-
	-	-

Diameter of borehole	3.0 in.
Depth to top of well screen	3.9 ft
Type of screen	Machine slotted Sch 40 PVC
Screen gauge or size of openings	0.010 in.
Diameter of screen	1.0 in.
Type of Backfill around Screen	Filter Sand
Depth to bottom of well screen	13.9 ft
Bottom of silt trap	0.0 ft
Depth of bottom of borehole	18.5 ft

COMMENTS:

HA-LIB09.GLB GW INSTALLATION REPORT-07-1 G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 24 Sep 15

HALEY ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
HA15-1(OW)

PROJECT	Portland Square Development	**H&A FILE NO.**	32328-100
LOCATION	Portland, Maine	**PROJECT MGR.**	B. Steinert
CLIENT	Winton Scott Architects	**FIELD REP.**	K. Russ
CONTRACTOR	New England Boring Contractors	**DATE**	8/11/2015

ELEVATION OF REFERENCE POINT 49.5 **REFERENCE POINT:** **Ground Surface** ☑ **PVC** ☐ **Other** ☐

Date	Time	Elapsed Time (days)	Depth of Water from Reference Point	Elevation of Water	Remarks	Read By
8/11/2015	13:30	0	6.8	42.7		KAR
8/12/2015	9:29	1	9.3	40.2		KAR
8/12/2015	18:49	1	9.3	40.2		KAR
9/1/2015	7:35	21	9.7	39.8		MLS
9/14/2015	11:44	34	9.8	39.7		KAR
6/17/2016	14:57	311	8.8	40.7		KAR
10/3/2016	15:10	419	10.4	39.2		RAE
10/10/2016	15:20	426	10.5	39.1		RAE
10/17/2016	8:04	433	10.5	39.0		RAE
12/6/2016	13:55	483	8.7	40.8		KAR

GROUNDWATER OBSERVATION WELL INSTALLATION REPORT

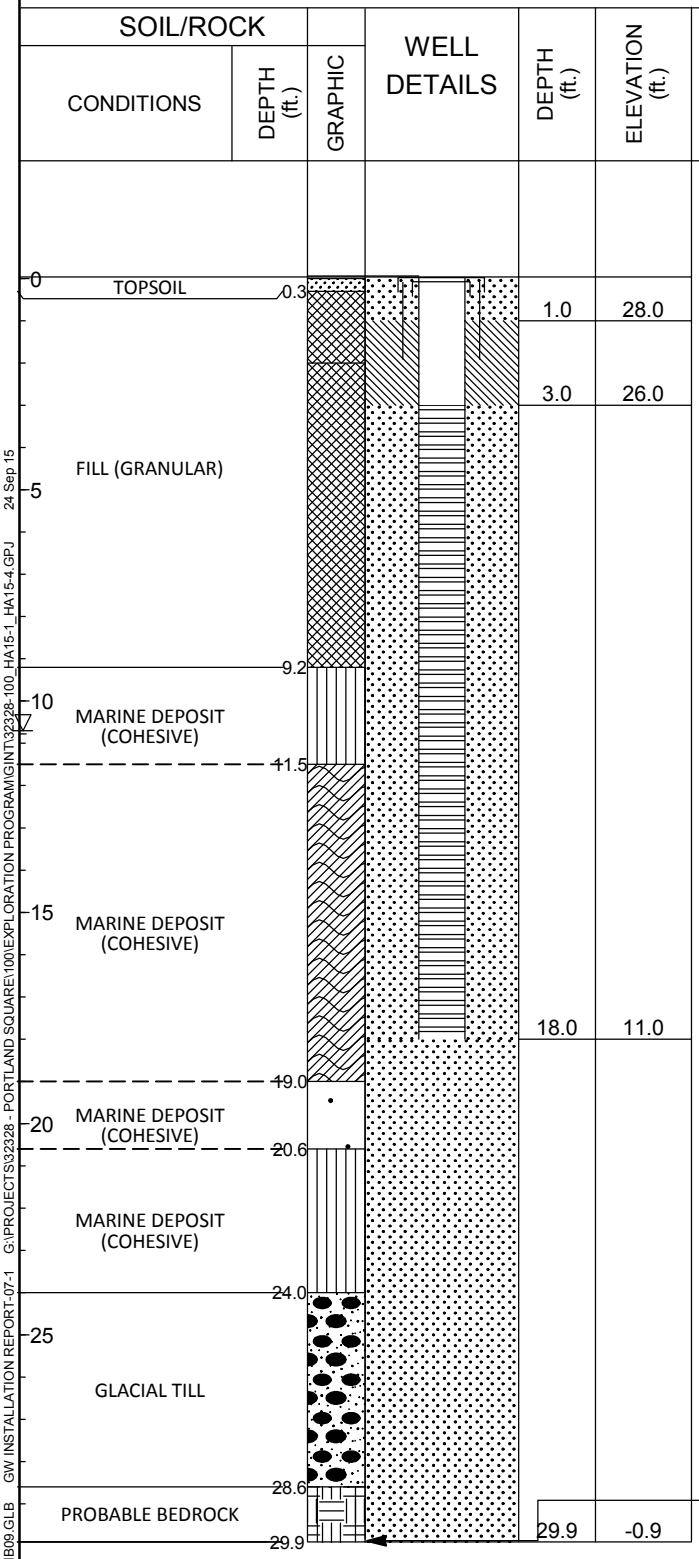
Well No. HA15-2(OW)
Boring No. HA15-2(OW)

Project	Portland Square Development
Location	Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors
Driller	C. Dupuis
Initial Water Level (depth bgs)	10.7 ft

Well Diagram: Riser Pipe, Screen, Filter Sand, Cuttings, Grout, Concrete, Bentonite Seal

File No. 32328-100
Date Installed 12 Aug 2015
H&A Rep. K. Russ
Location See Plan

Ground El. 29.0
Datum Portland City Datum



WELL CONSTRUCTION DETAILS

Type of protective cover	EMCO Hex. Bolt
Depth of Roadway Box below ground surface	0.0 ft
Depth of top of riser below ground surface	0.2 ft
Type of protective casing	Roadway Box
Length	0.8 ft
Inside diameter	6.0 in.
Depth of bottom of Roadway Box	0.8 ft
Type of riser pipe	Schedule 40 PVC
Inside diameter of riser pipe	1.0 in.
Depth of bottom of riser pipe	3.0 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Bentonite	1.0	2.0
	-	-
	-	-
	-	-

Diameter of borehole	3.0 in.
Depth to top of well screen	3.0 ft
Type of screen	Machine slotted Sch 40 PVC
Screen gauge or size of openings	0.010 in.
Diameter of screen	1.0 in.
Type of Backfill around Screen	Filter Sand
Depth to bottom of well screen	18.0 ft
Bottom of silt trap	0.0 ft
Depth of bottom of borehole	29.9 ft

COMMENTS:

HA-LIB09.GLB GW INSTALLATION REPORT-07-1 G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 24 Sep 15

HALEY ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
HA15-2(OW)

PROJECT	Portland Square Development	**H&A FILE NO.**	32328-100
LOCATION	Portland, Maine	**PROJECT MGR.**	B. Steinert
CLIENT	Winton Scott Architects	**FIELD REP.**	K. Russ
CONTRACTOR	New England Boring Contractors	**DATE**	8/12/2015

ELEVATION OF REFERENCE POINT 29.0 **REFERENCE POINT:** **Ground Surface** ☑ **PVC** ☐ **Other** ☐

Date	Time	Elapsed Time (days)	Depth of Water from Reference Point	Elevation of Water	Remarks	Read By
8/12/2015	11:45	0	9.8	19.2	Initial reading after installation	KAR
8/12/2015	16:50	0	10.7	18.3		KAR
9/1/2015	7:20	20	12.2	16.8		MLS
9/14/2015	11:24	33	12.2	16.8		KAR
6/17/2016	14:27	310	10.8	18.2	level logger installed	KAR
10/3/2016	16:22	418	12.7	16.3		RAE
10/10/2016	15:28	425	12.8	16.2		RAE
10/17/2016	8:10	432	12.8	16.2		RAE
12/6/2016	13:40	482	9.4	19.6	level logger removed	KAR

GROUNDWATER OBSERVATION WELL INSTALLATION REPORT

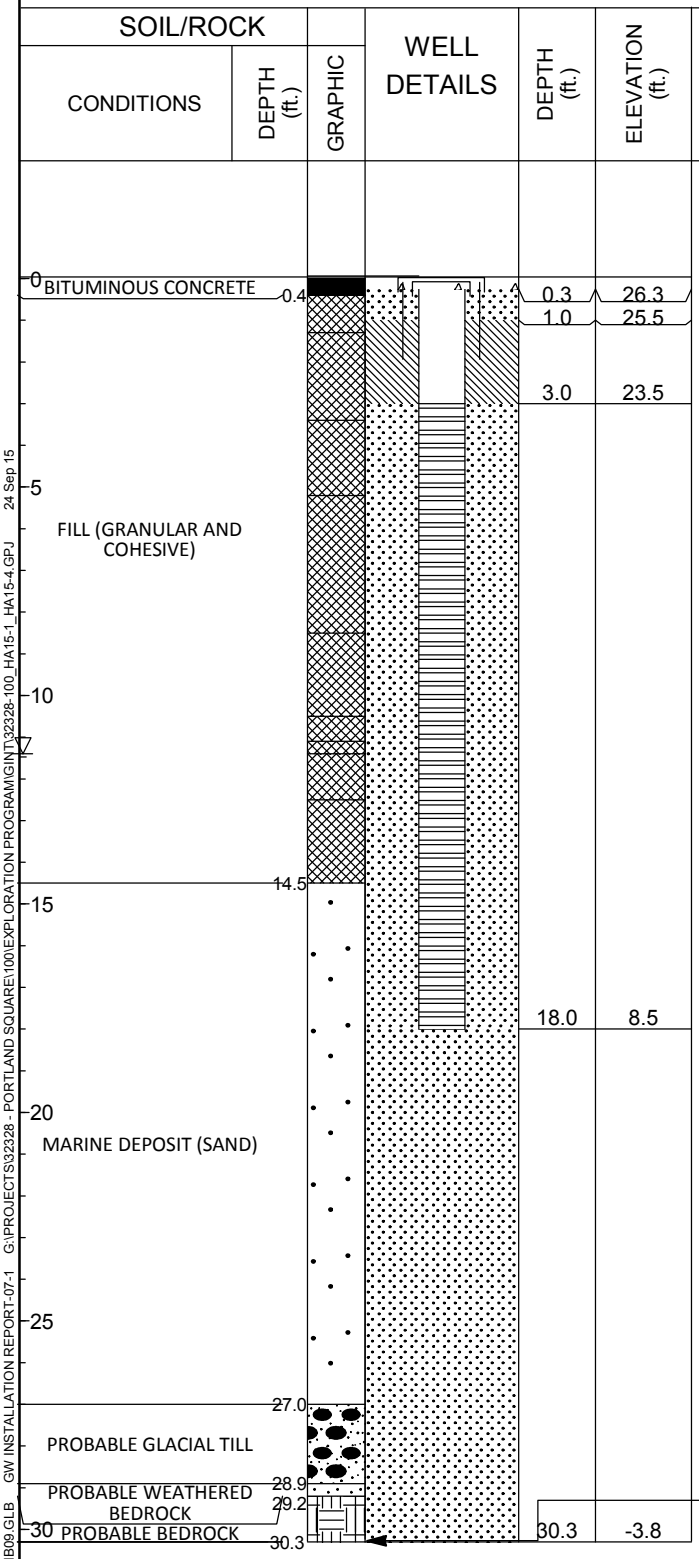
Well No. HA15-3(OW)
Boring No. HA15-3(OW)

Project	Portland Square Development
Location	Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors
Driller	C. Dupuis
Initial Water Level (depth bgs)	11.4 ft

Well Diagram: Riser Pipe, Screen, Filter Sand, Cuttings, Grout, Concrete, Bentonite Seal

File No. 32328-100
Date Installed 12 Aug 2015
H&A Rep. K. Russ
Location See Plan

Ground El. 26.5
Datum Portland City Datum



WELL CONSTRUCTION DETAILS

Type of protective cover	EMCO Hex. Bolt
Depth of Roadway Box below ground surface	0.0 ft
Depth of top of riser below ground surface	0.3 ft
Type of protective casing	Roadway Box
Length	0.8 ft
Inside diameter	6.0 in.
Depth of bottom of Roadway Box	0.8 ft
Type of riser pipe	Schedule 40 PVC
Inside diameter of riser pipe	1.0 in.
Depth of bottom of riser pipe	3.0 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Cold Patch	0.0	0.3
Bentonite	1.0	2.0
	-	-
	-	-

Diameter of borehole	3.0 in.
Depth to top of well screen	3.0 ft
Type of screen	Machine slotted Sch 40 PVC
Screen gauge or size of openings	0.010 in.
Diameter of screen	1.0 in.
Type of Backfill around Screen	Filter Sand
Depth to bottom of well screen	18.0 ft
Bottom of silt trap	0.0 ft
Depth of bottom of borehole	30.3 ft

COMMENTS:

HA-LIB09.GLB GW INSTALLATION REPORT-07-1 G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 24 Sep 15

HALEY ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
HA15-3(OW)

PROJECT	Portland Square Development	**H&A FILE NO.**	32328-100
LOCATION	Portland, Maine	**PROJECT MGR.**	B. Steinert
CLIENT	Winton Scott Architects	**FIELD REP.**	K. Russ
CONTRACTOR	New England Boring Contractors	**DATE**	8/12/2015

ELEVATION OF REFERENCE POINT 26.5 **REFERENCE POINT:** **Ground Surface** ☑ **PVC** ☐ **Other** ☐

Date	Time	Elapsed Time (days)	Depth of Water from Reference Point	Elevation of Water	Remarks	Read By
8/12/2015	17:50	0	11.4	15.1	Initial reading after installation	KAR
9/1/2015	7:15	20	13.8	12.7		MLS
9/14/2015	11:32	33	14.0	12.5		KAR
6/17/2016	14:22	310	13.0	13.6		KAR
10/3/2016	15:51	418	14.3	12.2		RAE
10/10/2016	15:39	425	14.0	12.5		RAE
10/17/2016	8:14	432	14.1	12.4		RAE
12/6/2016	13:45	482	13.1	13.4		KAR

GROUNDWATER OBSERVATION WELL INSTALLATION REPORT

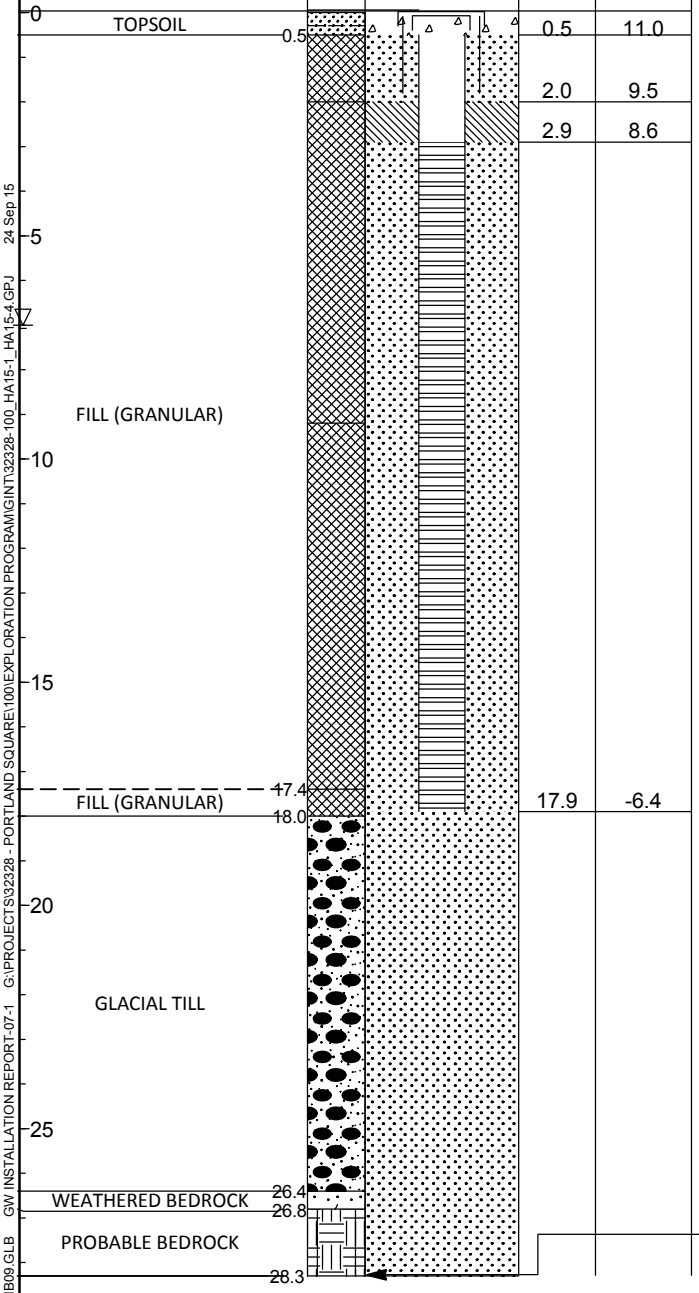
Well No. HA15-4(OW)
Boring No. HA15-4(OW)

Project	Portland Square Development
Location	Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors
Driller	C. Dupuis
Initial Water Level (depth bgs)	11.5 ft

Well Diagram: Riser Pipe, Screen, Filter Sand, Cuttings, Grout, Concrete, Bentonite Seal

File No. 32328-100
Date Installed 10 Aug 2015
H&A Rep. K. Russ
Location See Plan

Ground El. 11.5
Datum Portland City Datum



WELL CONSTRUCTION DETAILS

Type of protective cover	EMCO Hex. Bolt
Depth of Roadway Box below ground surface	0.0 ft
Depth of top of riser below ground surface	0.2 ft
Type of protective casing	Roadway Box
Length	0.8 ft
Inside diameter	6.0 in.
Depth of bottom of Roadway Box	0.8 ft
Type of riser pipe	Schedule 40 PVC
Inside diameter of riser pipe	1.0 in.
Depth of bottom of riser pipe	2.9 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	0.5
Bentonite	2.0	1.0
	-	-
	-	-

Diameter of borehole	3.0 in.
Depth to top of well screen	2.9 ft
Type of screen	Machine slotted Sch 40 PVC
Screen gauge or size of openings	0.010 in.
Diameter of screen	1.0 in.
Type of Backfill around Screen	Filter Sand
Depth to bottom of well screen	17.9 ft
Bottom of silt trap	0.0 ft
Depth of bottom of borehole	28.3 ft

COMMENTS:

HA-LIB09.GLB GW INSTALLATION REPORT-07-1 G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 24 Sep 15

HALEY ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
HA15-4(OW)

PROJECT	Portland Square Development	**H&A FILE NO.**	32328-100
LOCATION	Portland, Maine	**PROJECT MGR.**	B. Steinert
CLIENT	Winton Scott Architects	**FIELD REP.**	K. Russ
CONTRACTOR	New England Boring Contractors	**DATE**	8/11/2015

ELEVATION OF REFERENCE POINT 11.5 **REFERENCE POINT:** **Ground Surface** ☑ **PVC** ☐ **Other** ☐

Date	Time	Elapsed Time (days)	Depth of Water from Reference Point	Elevation of Water	Remarks	Read By
8/11/2015	7:50	0	7.2	4.3		KAR
8/11/2015	13:40	0	7.1	4.4		KAR
8/11/2015	15:45	0	7.1	4.4	Rainy day	KAR
8/12/2015	9:12	1	7.1	4.4	Rainy day	KAR
8/12/2015	18:32	1	7.1	4.4		KAR
9/1/2015	7:45	21	7.4	4.1		MLS
9/14/2015	11:15	34	7.4	4.2		KAR
6/17/2016	14:02	311	6.81	4.7	level logger installed	KAR
10/3/2016	16:05	419	7.3	4.2		RAE
10/10/2016	15:49	426	7.4	4.1		RAE
10/17/2016	8:17	433	7.4	4.1		RAE
12/6/2016	13:30	483	7.0	4.5	level logger removed	KAR

APPENDIX D

Historic Sanborn Maps

Portland Square Development
Center Street-Cross Street Block
Portland, ME 04101

Inquiry Number: 4348218.1
July 08, 2015

Certified Sanborn® Map Report

6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

7/08/15

Site Name:
Portland Square Development
Center Street-Cross Street
Portland, ME 04101

Client Name:
Haley & Aldrich, Inc.
75 Washington Ave.
Portland, ME 04101-2617

EDR Inquiry # 4348218.1

Contact: Dave Dearden

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Haley & Aldrich, Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Site Name: Portland Square Development
Address: Center Street-Cross Street Block
City, State, Zip: Portland, ME 04101
Cross Street:
P.O. # 32328-970
Project: Portland Square Development
Certification # 0A61-488A-B3E4

Maps Provided:

1988	1896
1986	1886
1980	
1954	
1949	
1909	

Sanborn® Library search results
Certification # 0A61-488A-B3E4

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

The Sanborn Library LLC Since 1866™

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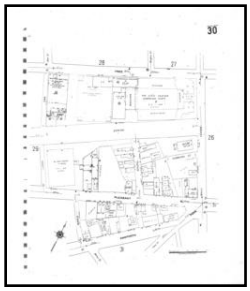
Sanborn Sheet Thumbnails

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1988 Source Sheets



Volume 1, Sheet 26



Volume 1, Sheet 30



Volume 1, Sheet 31

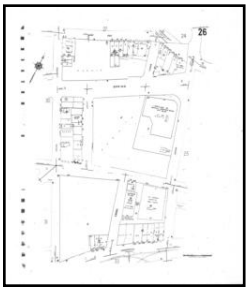
1986 Source Sheets



Volume 1, Sheet 30

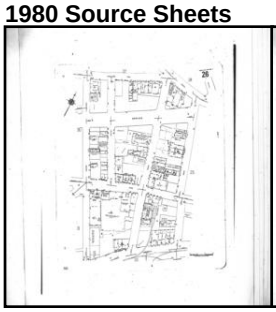


Volume 1, Sheet 31



Volume 1, Sheet 26

1980 Source Sheets



Volume 1, Sheet 26



Volume 1, Sheet 30



Volume 1, Sheet 31

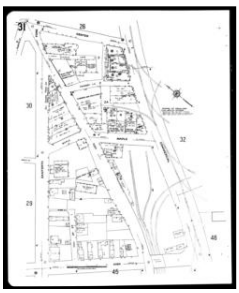
1954 Source Sheets



Volume 1, Sheet 26



Volume 1, Sheet 30



Volume 1, Sheet 31

1949 Source Sheets



Volume 1, Sheet 26



Volume 1, Sheet 30



Volume 1, Sheet 31

1909 Source Sheets



Volume 1, Sheet 26



Volume 1, Sheet 30



Volume 1, Sheet 31

1896 Source Sheets



Volume 1, Sheet 22



Volume 1, Sheet 23



Volume 1, Sheet 24

1886 Source Sheets



Volume 1, Sheet 8

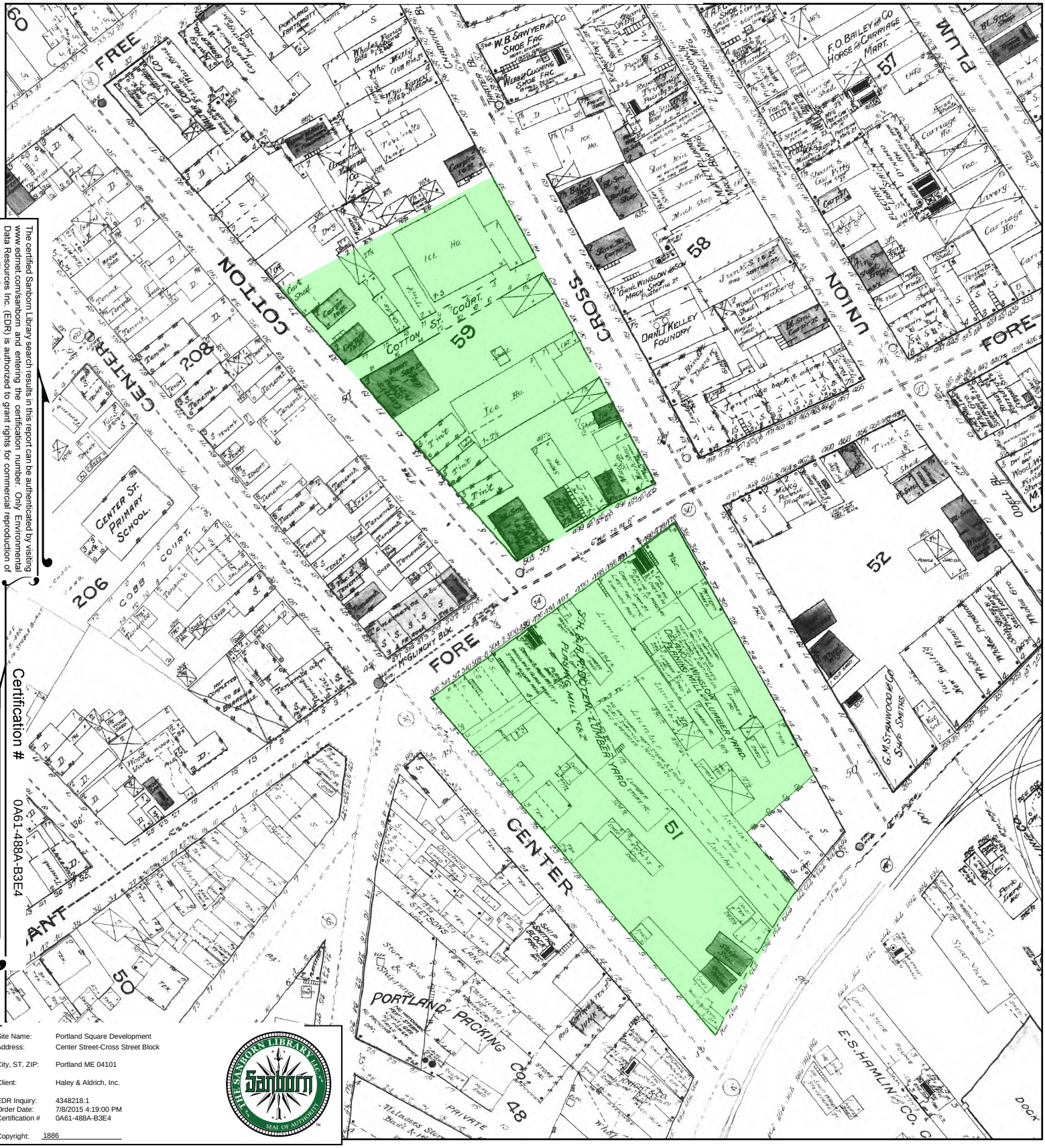


Volume 1, Sheet 9



Volume 1, Sheet 23

1886 Certified Sanborn Map



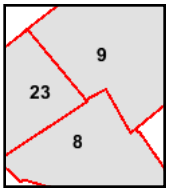
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Address:	Center Street-Cross Street Block
City, ST, ZIP:	Portland ME 04101
Client:	Haley & Aldrich, Inc.
EDR Inquiry:	4348218.1
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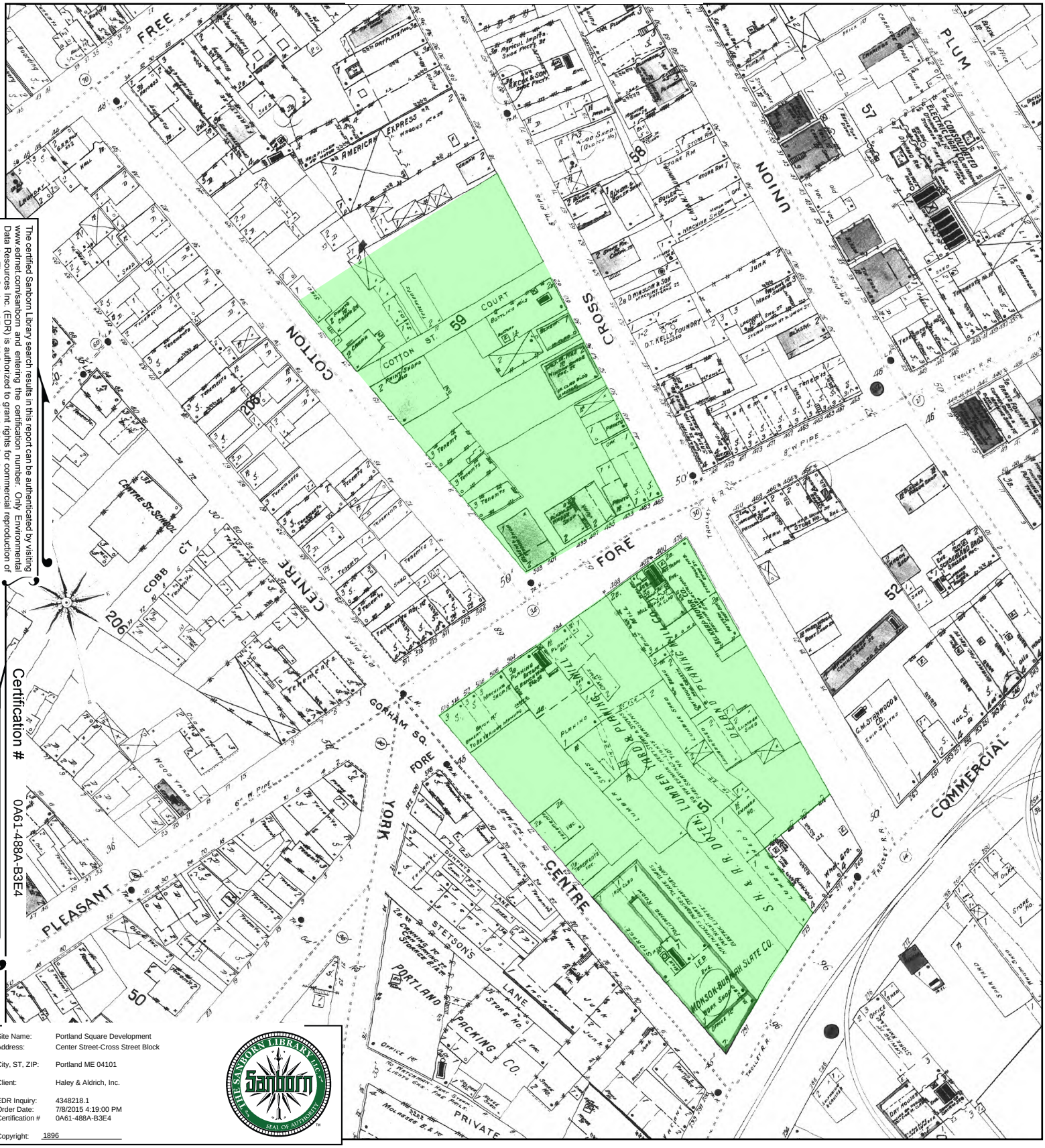


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Volume 1, Sheet 9
Volume 1, Sheet 23

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1896 Certified Sanborn Map



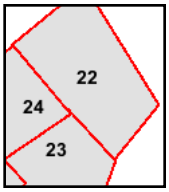
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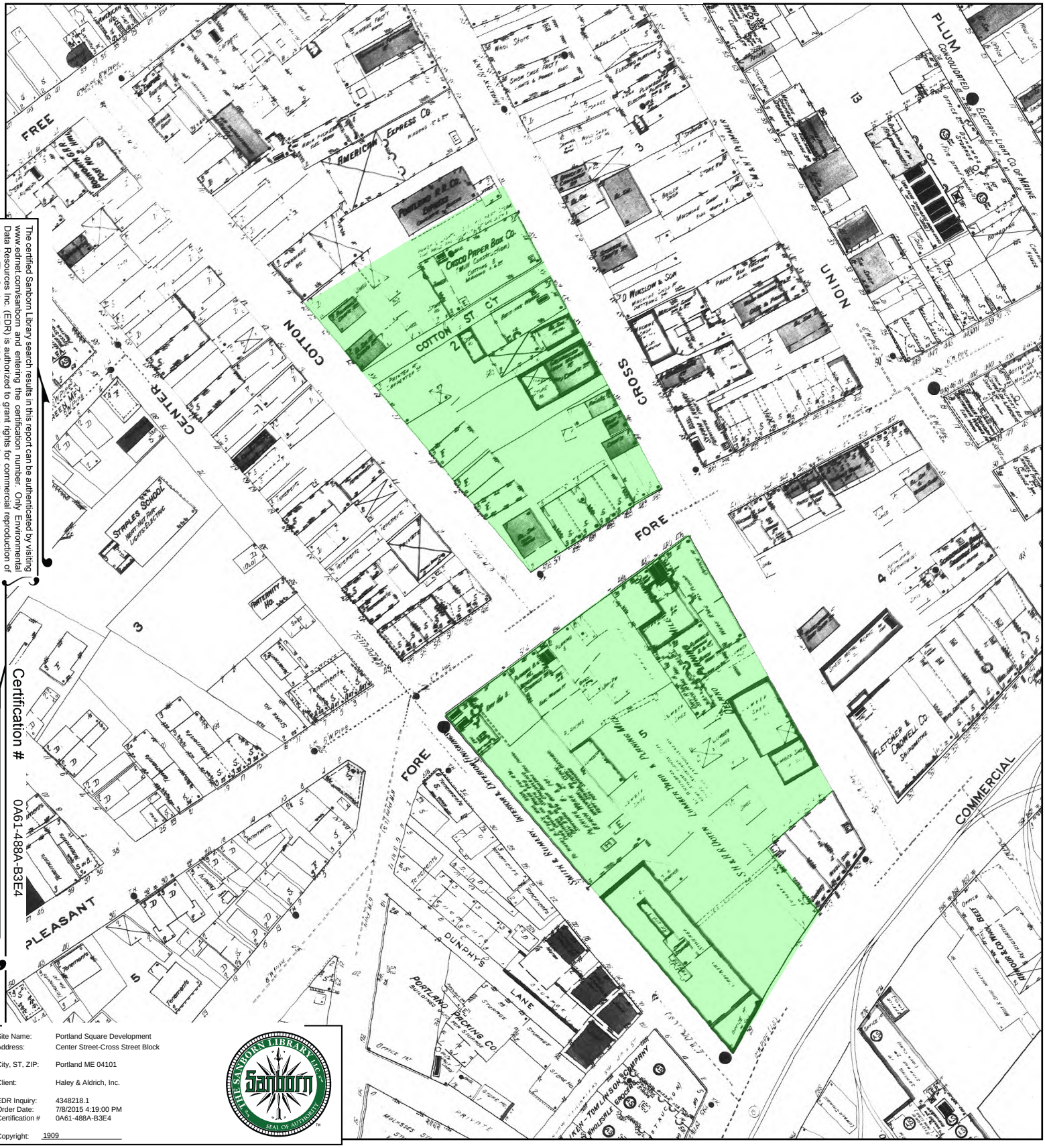


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Volume 1, Sheet 24

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1909 Certified Sanborn Map



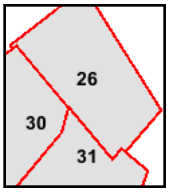
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City, ST, ZIP:	Portland ME 04101
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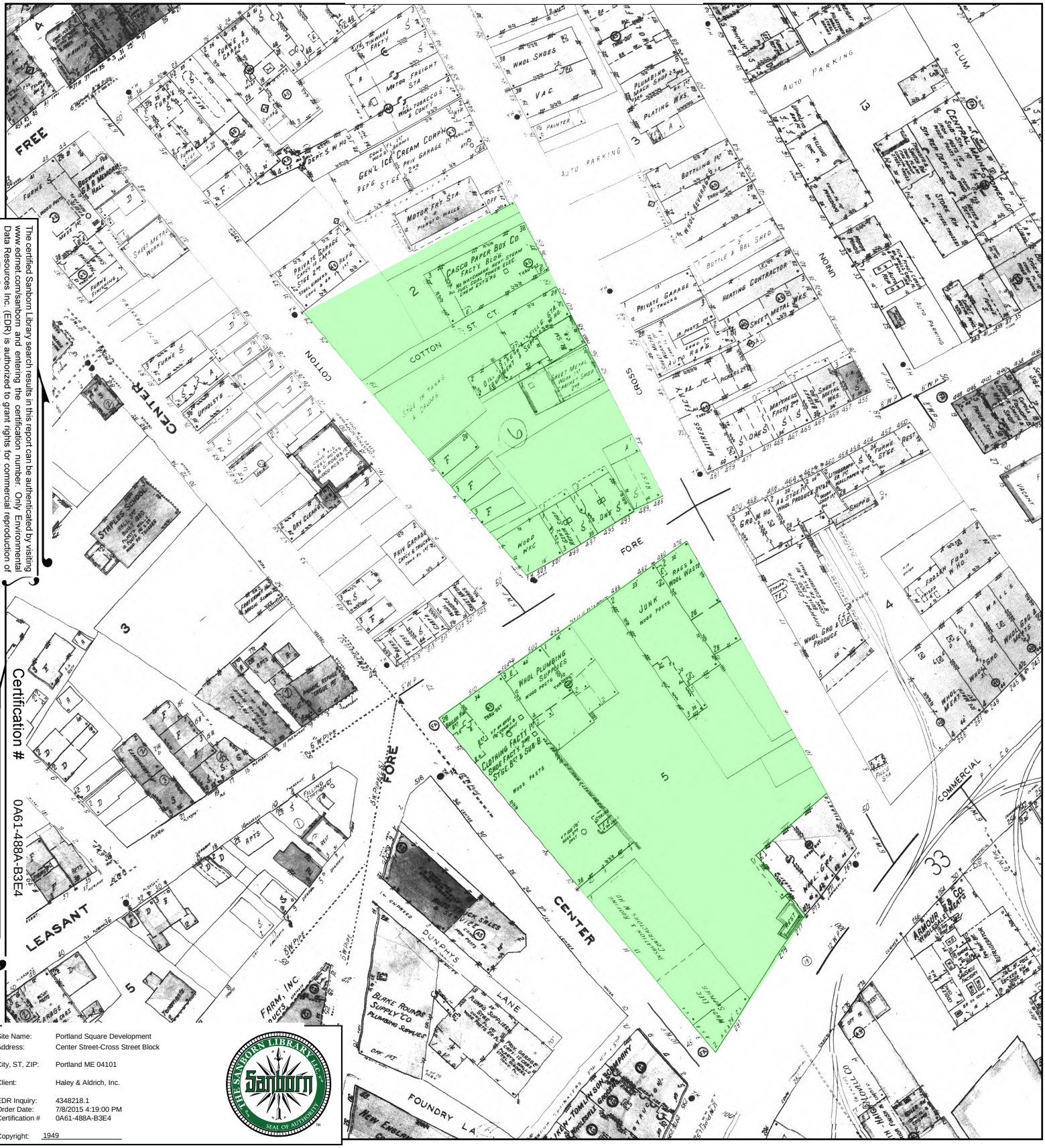


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1949 Certified Sanborn Map



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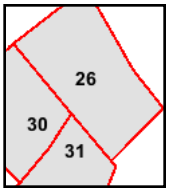
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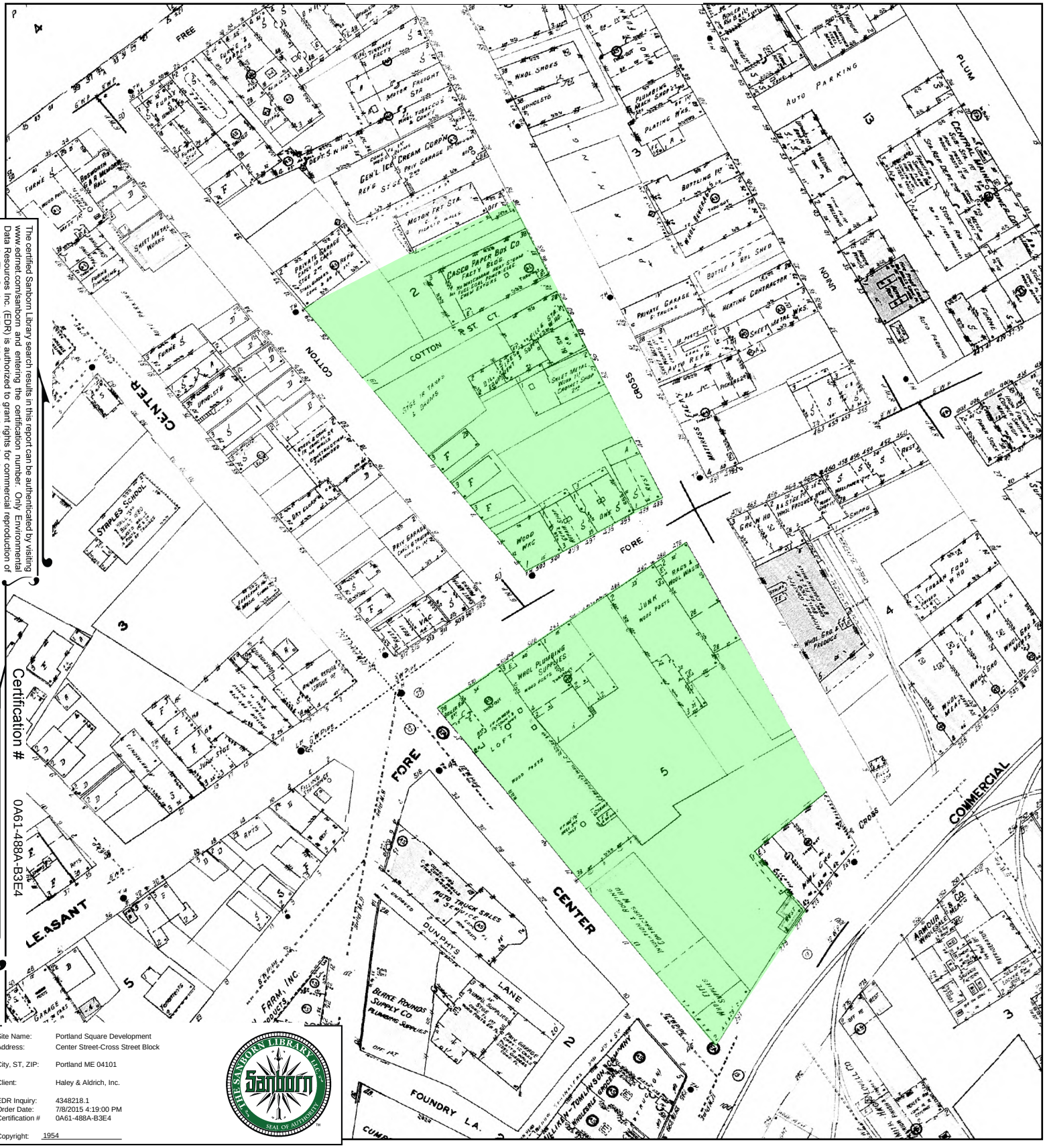


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1954 Certified Sanborn Map



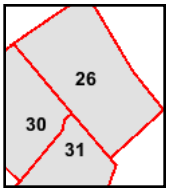
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City, ST, ZIP:	Portland ME 04101
Client:	Haley & Aldrich, Inc.
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1980 Certified Sanborn Map



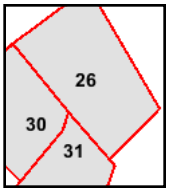
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Site Name:	Portland Square Development
Address:	Center Street-Cross Street Block
City, ST, ZIP:	Portland ME 04101
Client:	Haley & Aldrich, Inc.
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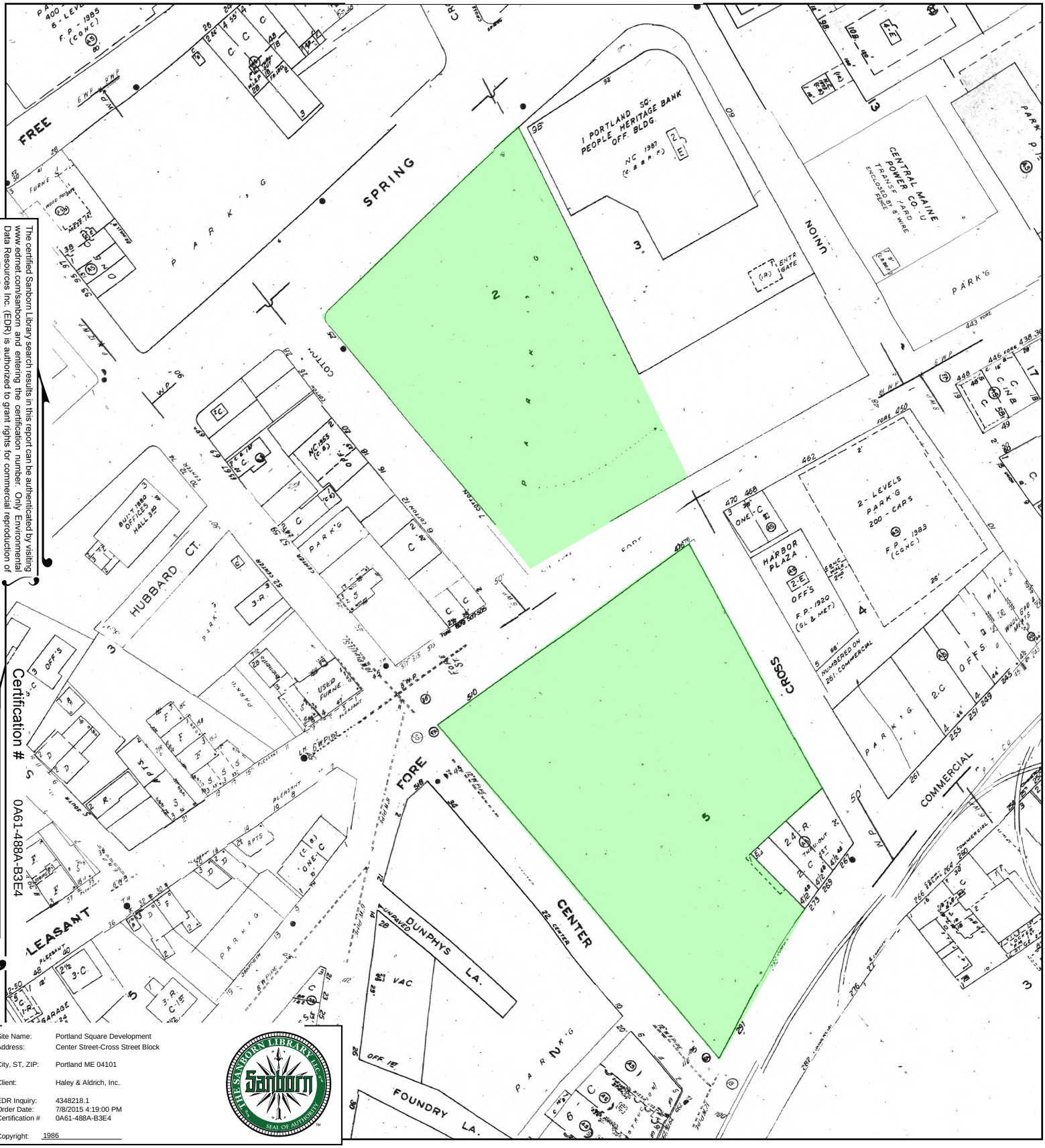


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Volume 1, Sheet 31

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1986 Certified Sanborn Map



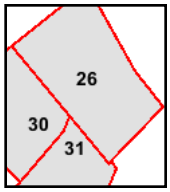
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Address:	Center Street-Cross Street Block
City, ST, ZIP:	Portland ME 04101
Client:	Haley & Aldrich, Inc.
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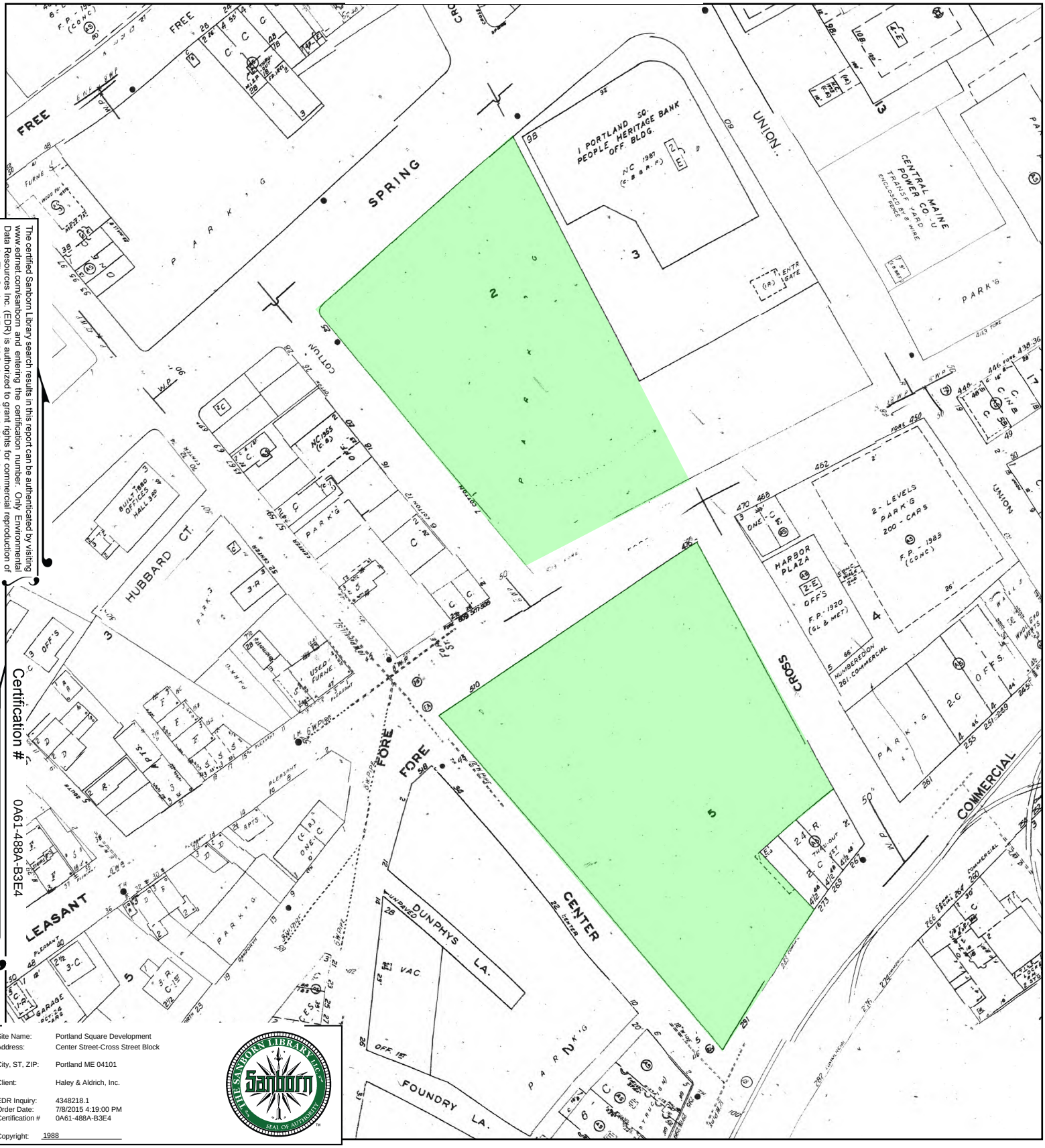


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Volume 1, Sheet 31
Volume 1, Sheet 26

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1988 Certified Sanborn Map



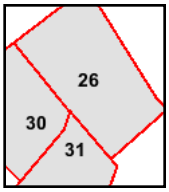
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Certification # 0A61-488A-B3E4

Site Name:	Portland Square Development
Address:	Center Street-Cross Street Block
City, ST, ZIP:	Portland ME 04101
Client:	Haley & Aldrich, Inc.
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Copyright:	1988

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Volume 1, Sheet 31

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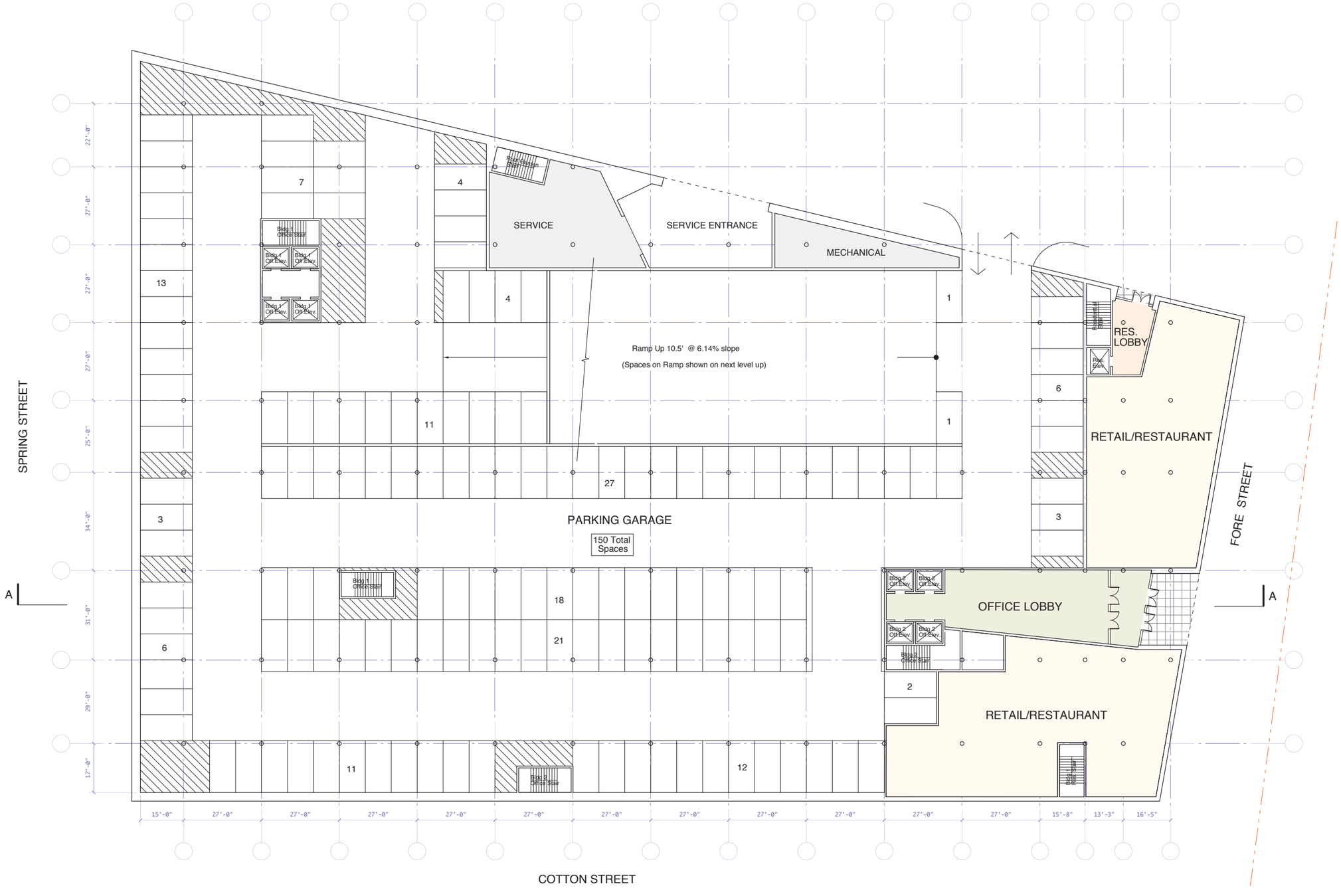
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APPENDIX E

Preliminary Conceptual Master Plans, Upper and Lower Lots

HALEY ALDRICH

Upper Lot



WINTON SCOTT ARCHITECTS, PA
5 Milk Street
Portland, ME 04101
774-4811
www.wintonscott.com

BECKER STRUCTURAL ENGINEERS, INC.
75 York Street, Suite 3
Portland, ME 04101
207.879.1838
www.beckerstructural.com

CARROLL ASSOCIATES LANDSCAPE ARCHITECTS
217 Commercial St, Suite 200
Portland, ME 04101
207.772.1552
www.carroll-assoc.com

RANSOM CONSULTING, INC.
400 Commercial St, Suite 404
Portland, ME 04101
207.772-2891
www.ransomenv.com

HALEY & ALDRICH, INC.
75 Washington Ave, Suite 1A
Portland, ME 04101
207.482.4609
www.haleyaldrich.com

GORRILL PALMER
707 Sable Oaks Drive, Suite 30
South Portland, ME 04106
207.239.7470
www.gorrillpalmer.com

Portland Square

Portland, Maine

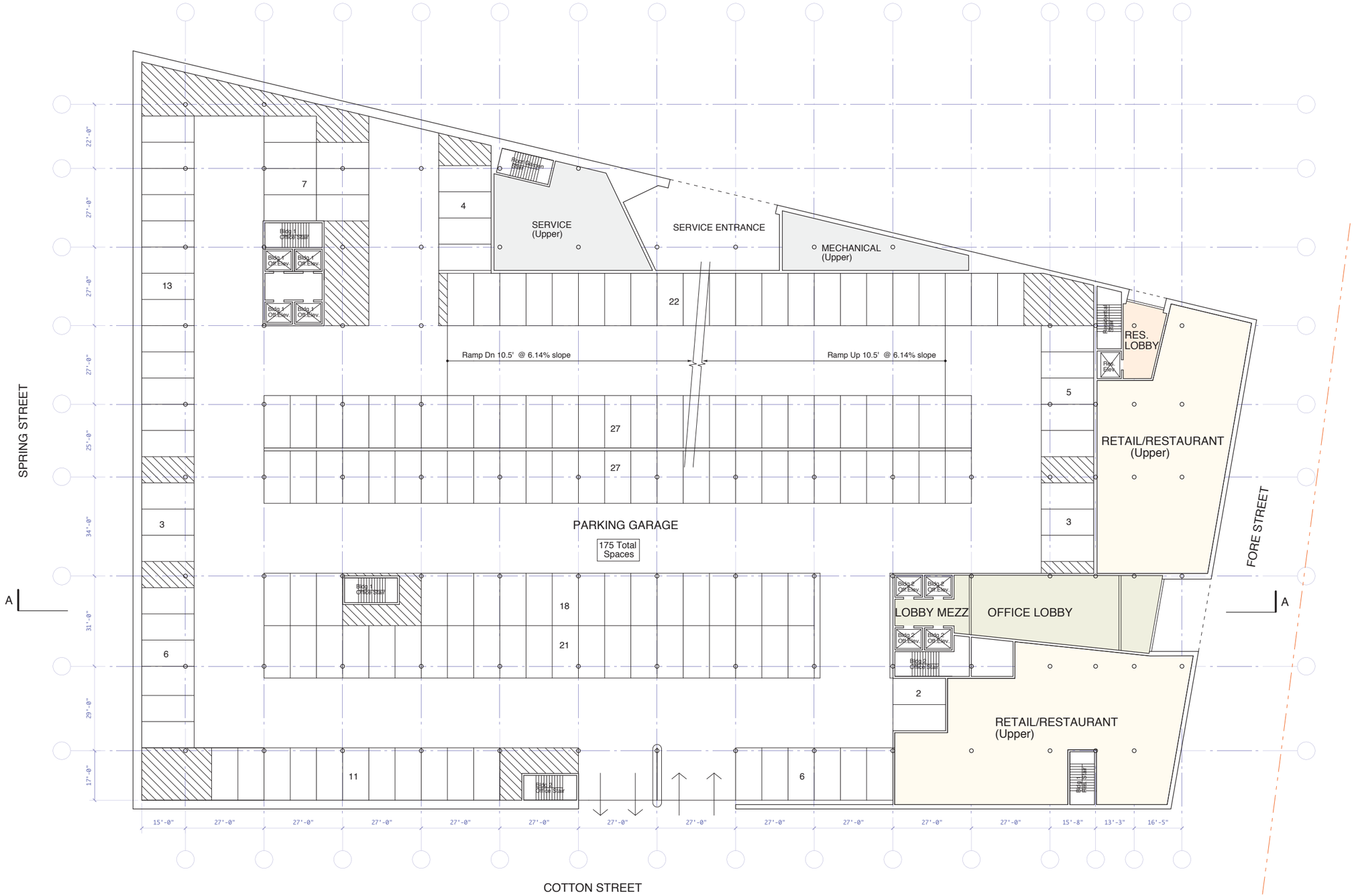
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL G PARKING
Floor El. 29.0'

A1.0

AUGUST 21, 2016



winton scott architects

WINTON SCOTT ARCHITECTS, PA
5 Milk Street
Portland, ME 04101
774-4811
www.wintonscott.com

BECKER STRUCTURAL ENGINEERS, INC.
75 York Street, Suite 3
Portland, ME 04101
207.879.1838
www.beckerstructural.com

CARROLL ASSOCIATES LANDSCAPE ARCHITECTS
217 Commercial St, Suite 200
Portland, ME 04101
207.772.1552
www.carroll-assoc.com

RANSOM CONSULTING, INC.
400 Commercial St, Suite 404
Portland, ME 04101
207.772-2891
www.ransomenv.com

HALEY & ALDRICH, INC.
75 Washington Ave, Suite 1A
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Portland, Maine

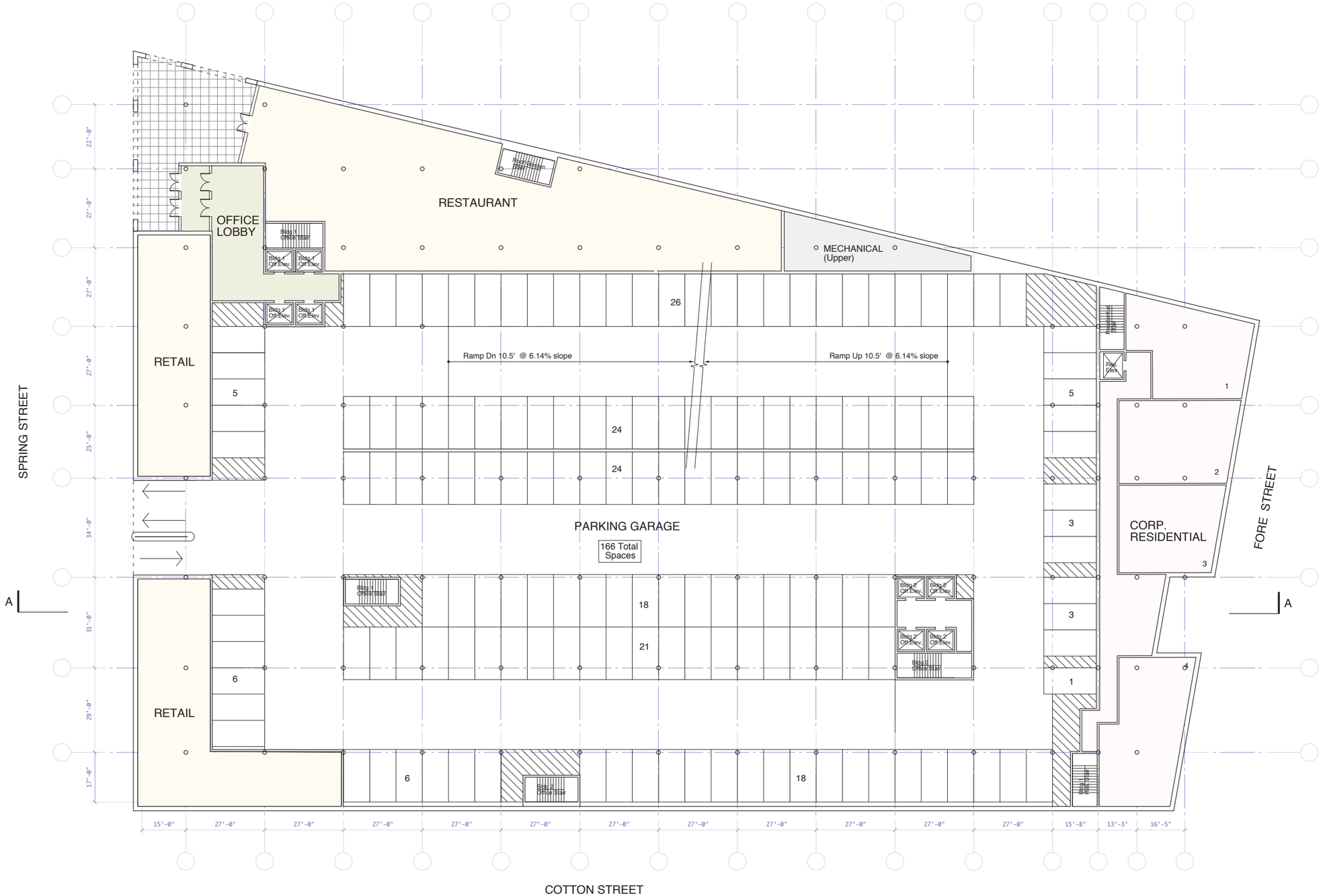
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 1 PARKING
Floor El. 39.5'

A1.1

AUGUST 21, 2016



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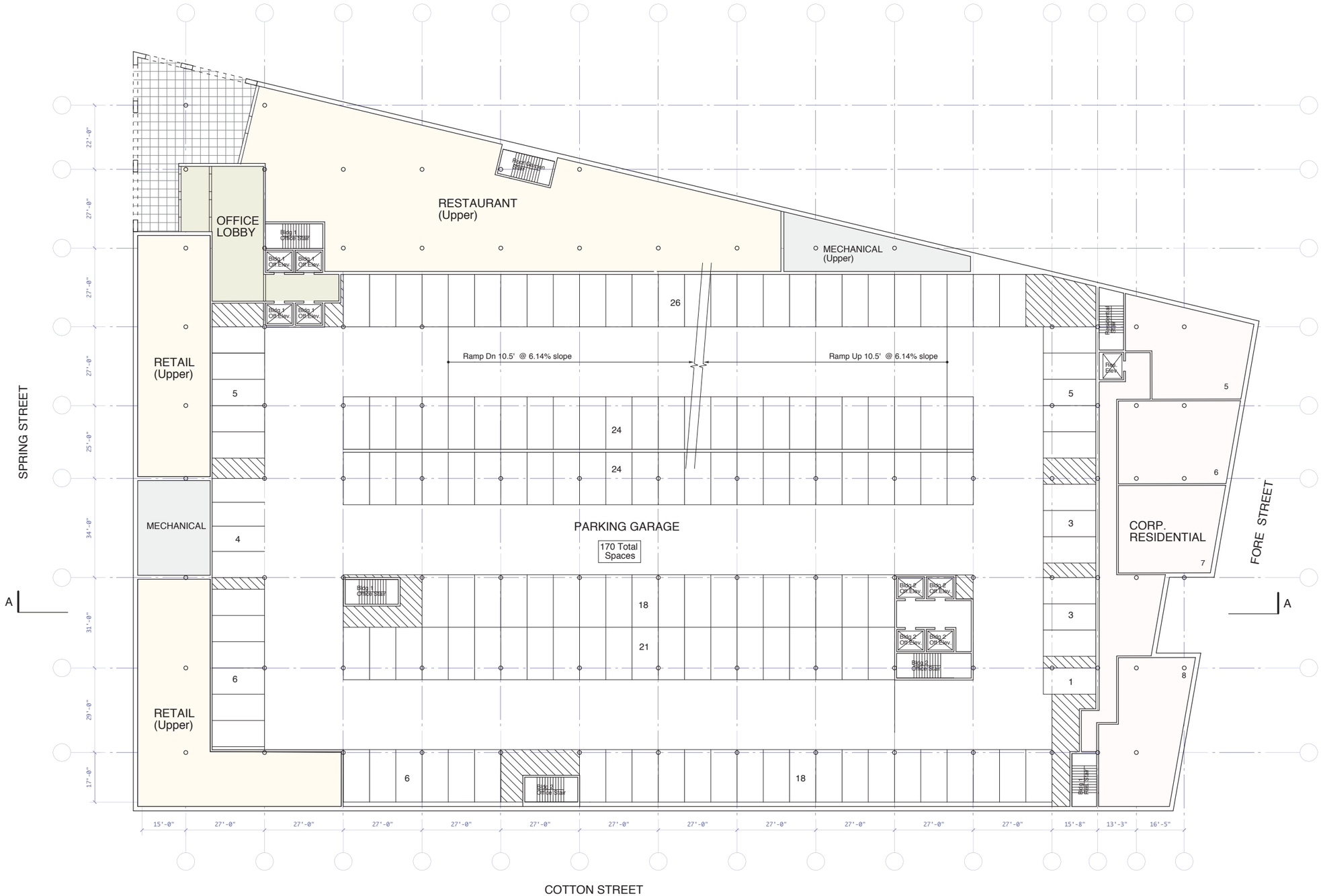
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 2 PARKING
Floor El. 50.0'

A1.2

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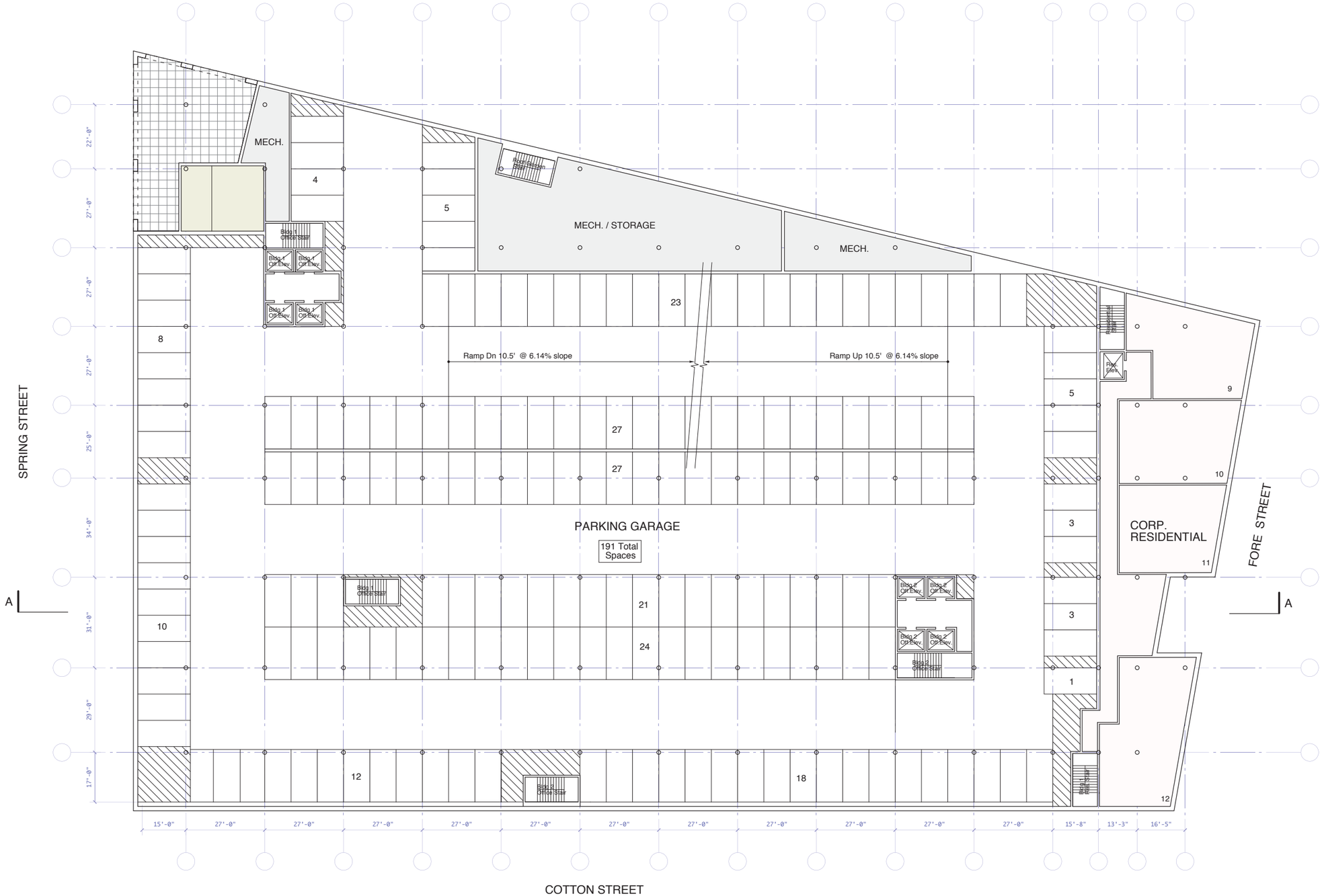
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 3 PARKING
Floor El. 61.5'

A1.3

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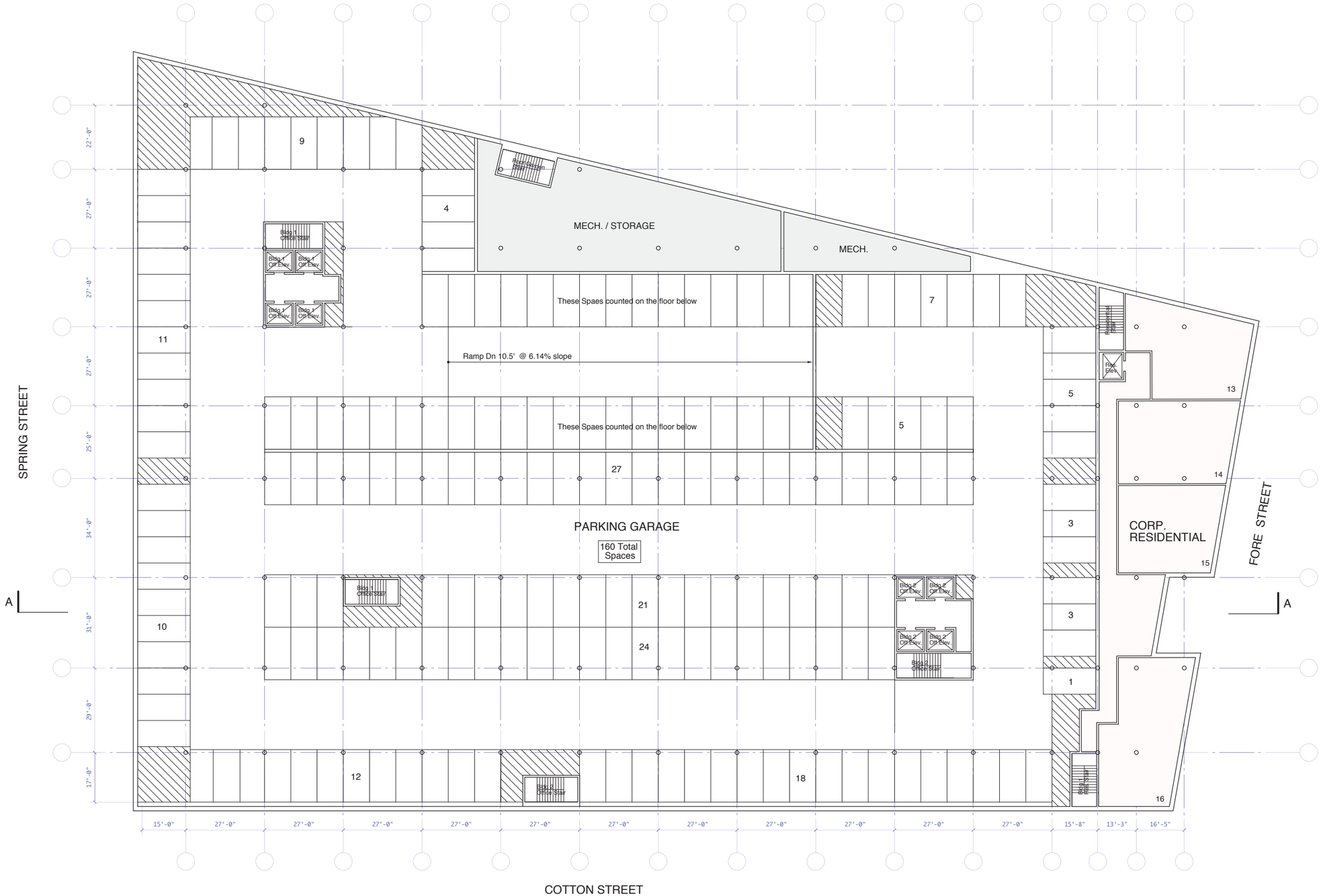
Owner / Developers
NORTH RIVER, LLC
New York, NY

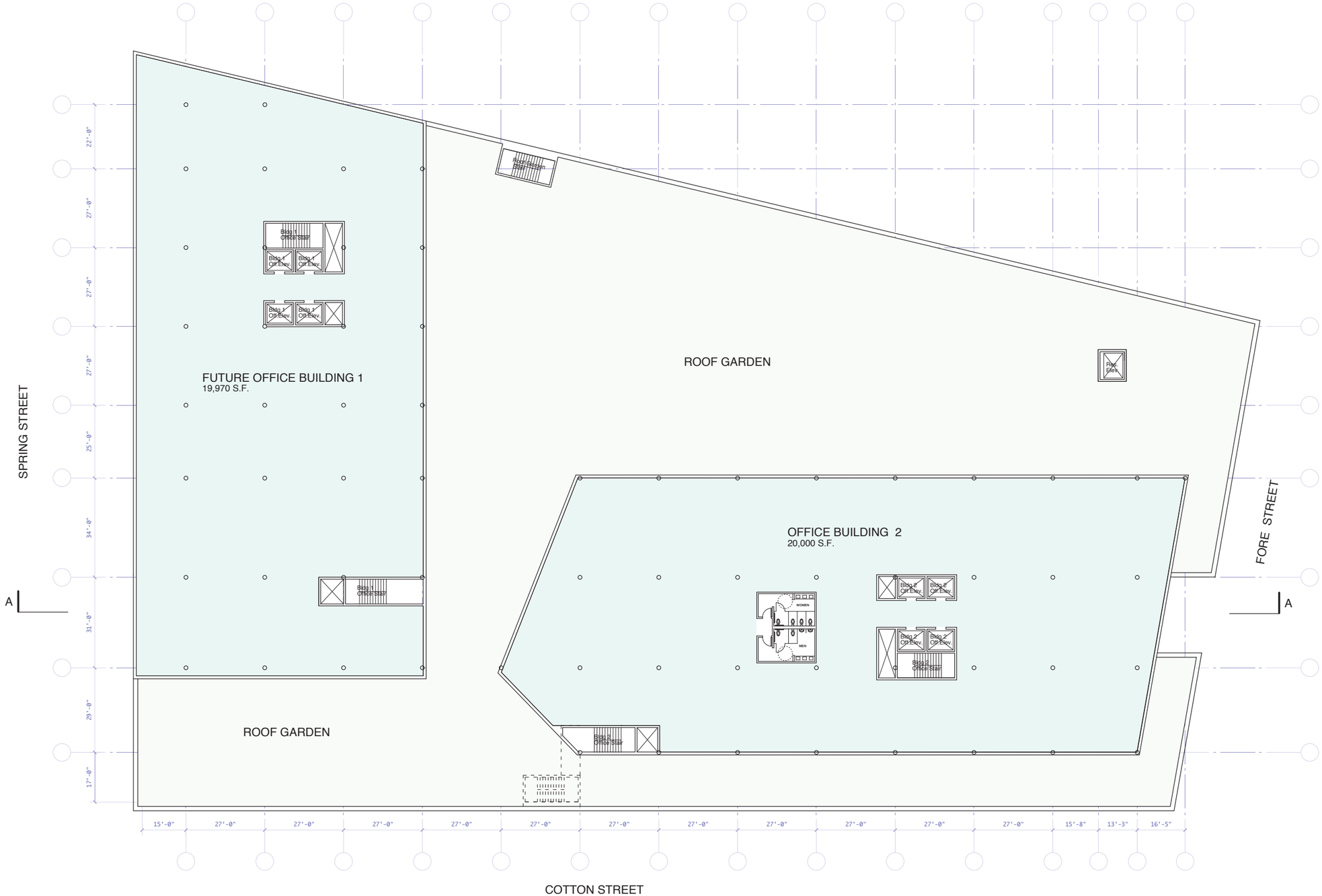
SCALE: 1/16" = 1'-0"

LEVEL 4 PARKING
Floor El. 71.0'

A1.4

AUGUST 21, 2016


SPRING STREET
FORE STREET
COTTON STREET
A
A
MECH. / STORAGE
MECH.
These Spaes counted on the floor below
Ramp Dn 10.5' @ 6.14% slope
These Spaes counted on the floor below
PARKING GARAGE
160 Total Spaces
CORP. RESIDENTIAL
Bldg 1 Office Stair
Bldg 1 Off Elev
Bldg 1 Off Elev
Bldg 1 Off Elev
Bldg 1 Off Elev
Bldg 2 Office Stair
Bldg 2 Off Elev
Bldg 2 Off Elev
Bldg 2 Off Elev
Bldg 2 Off Elev
Bldg 2 Office Stair
Bldg 3 Office Stair
Bldg 3 Office Stair
Bldg 4 Office Stair
Bldg 4 Office Stair
Bldg 4



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Portland, Maine

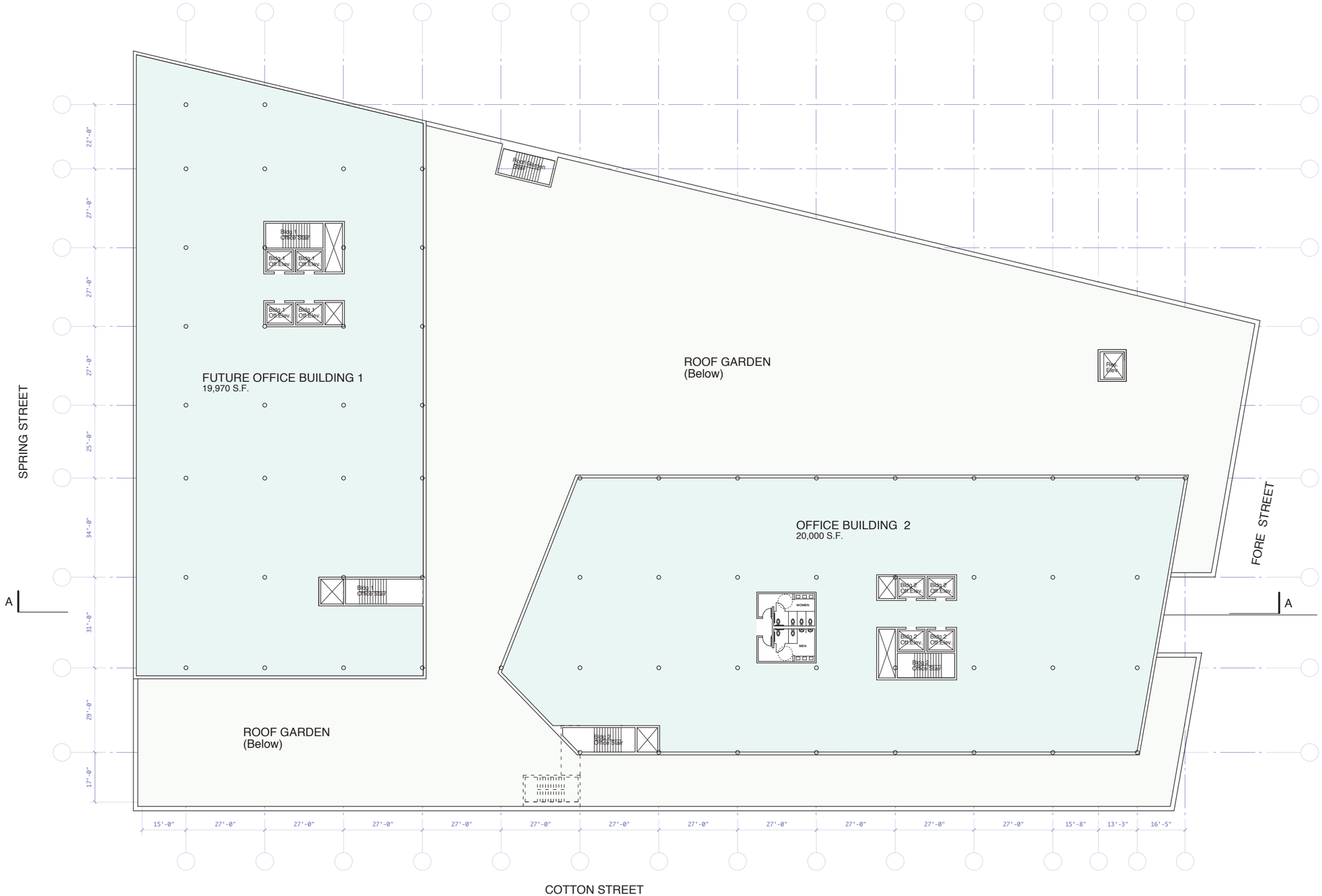
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 6 OFFICE
Floor El. 93.0'

A1.6

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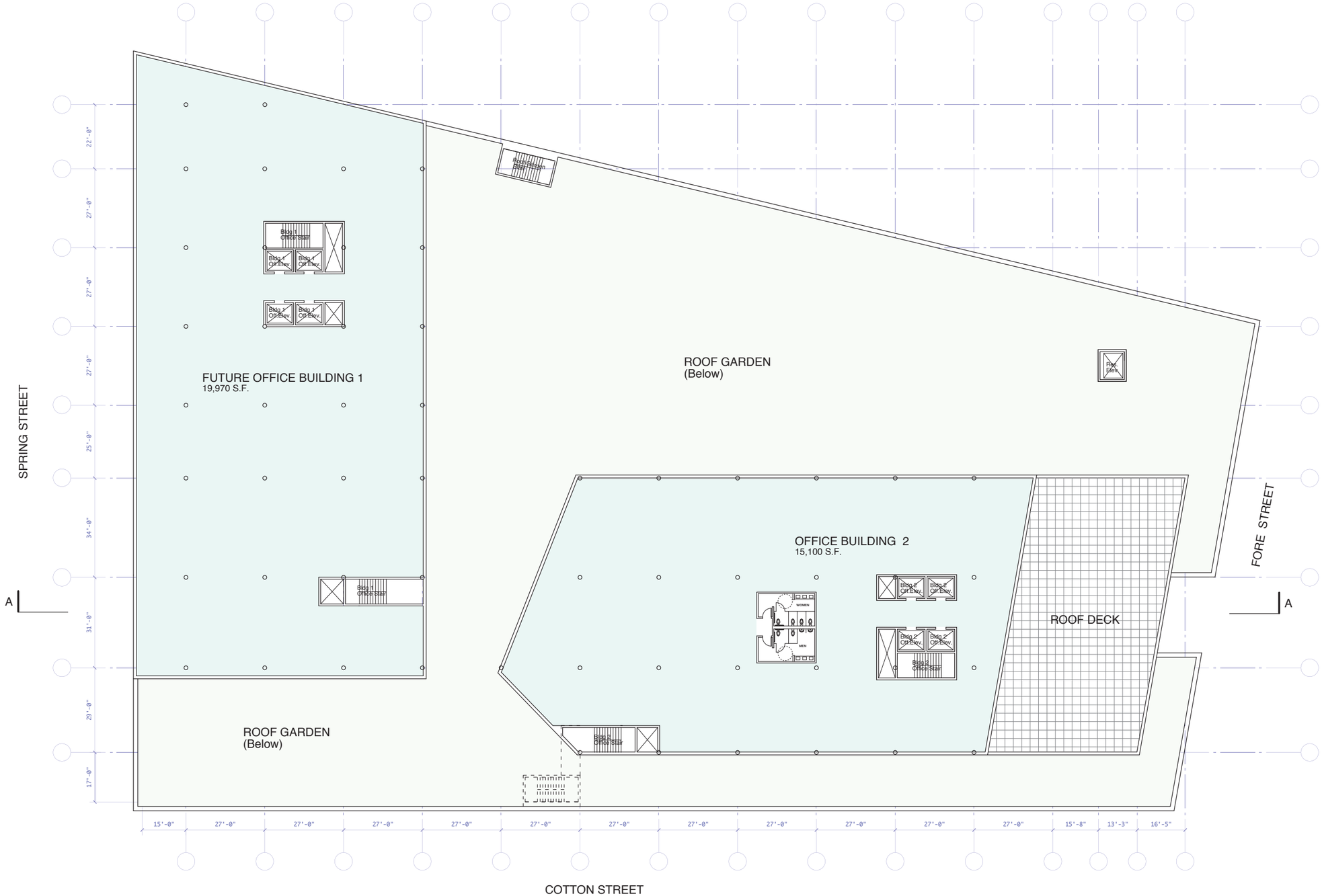
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 7 OFFICE
Floor El. 105.5'

A1.7

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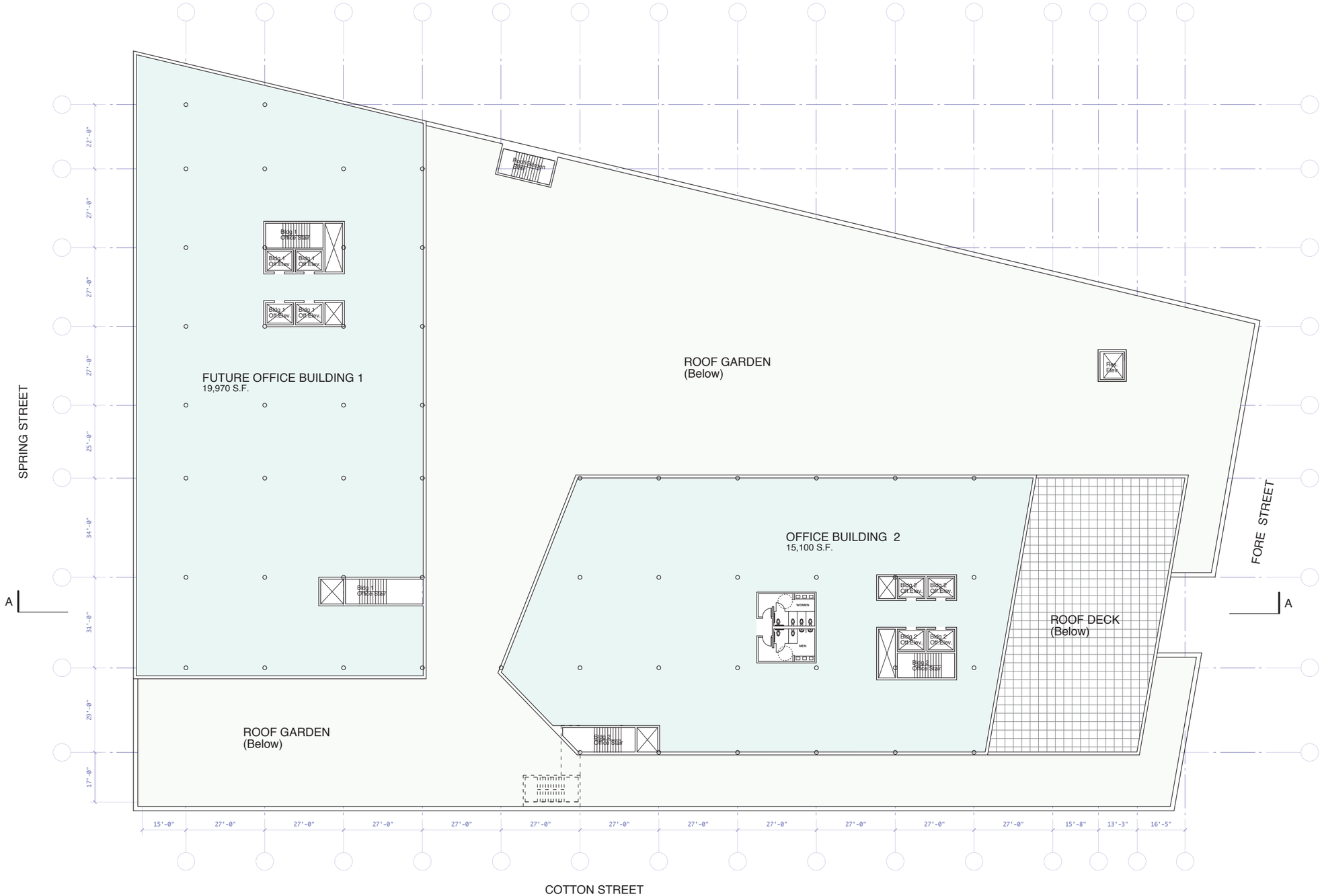
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 8 OFFICE
Floor El. 117.5'

A1.8

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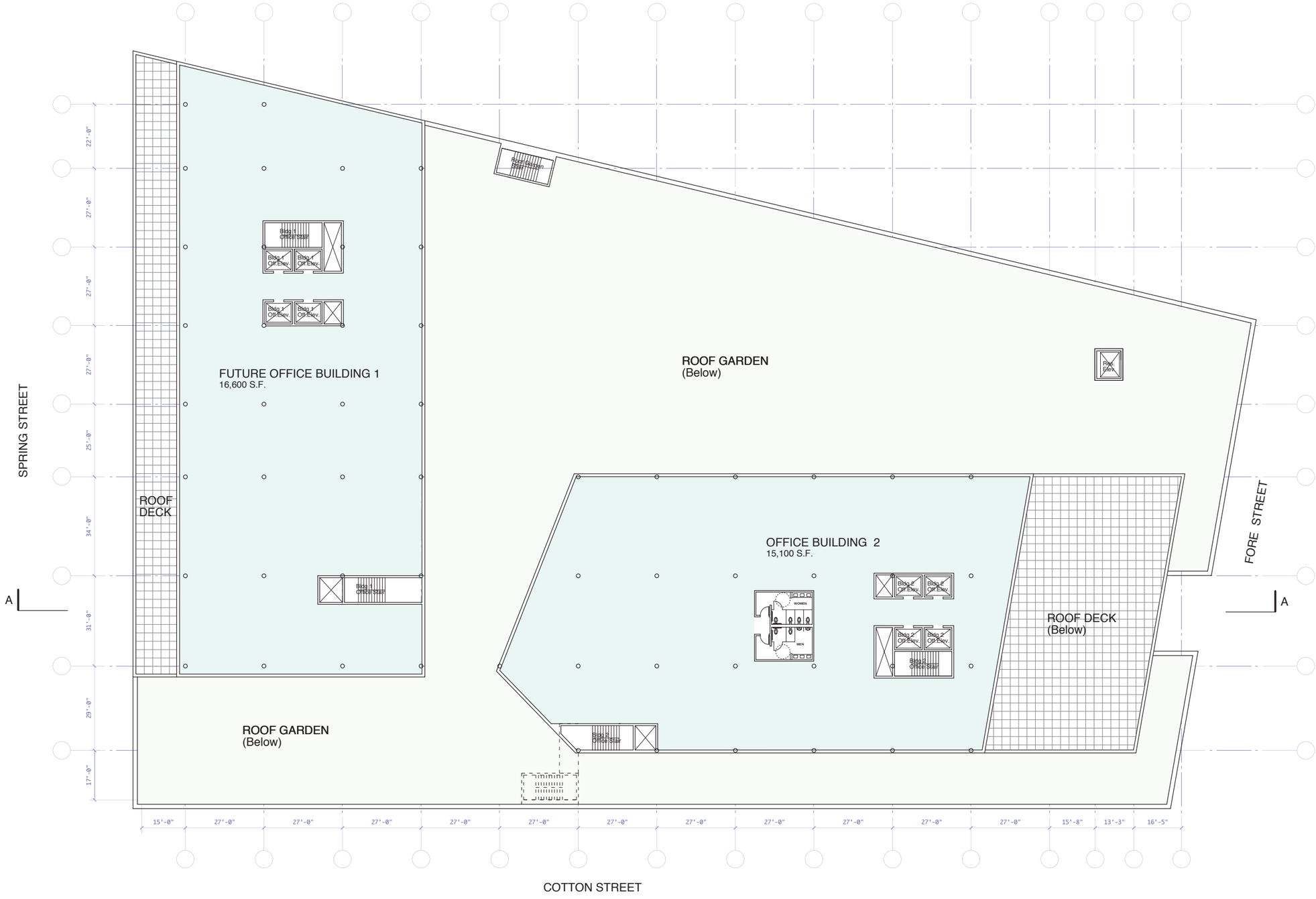
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 9 OFFICE
Floor El. 129.5'

A1.9

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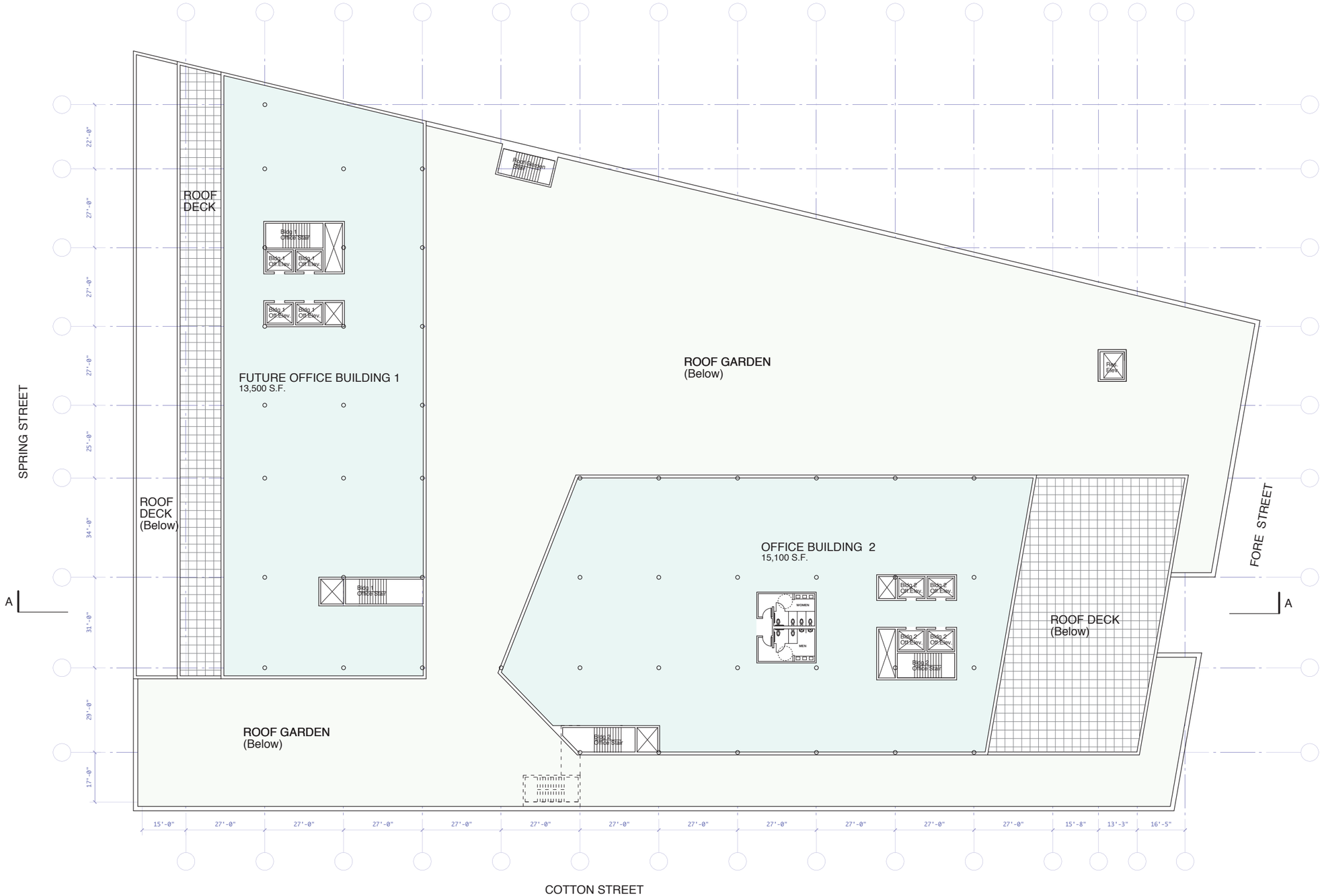
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 10 OFFICE
Floor El. 141.5'

A1.10

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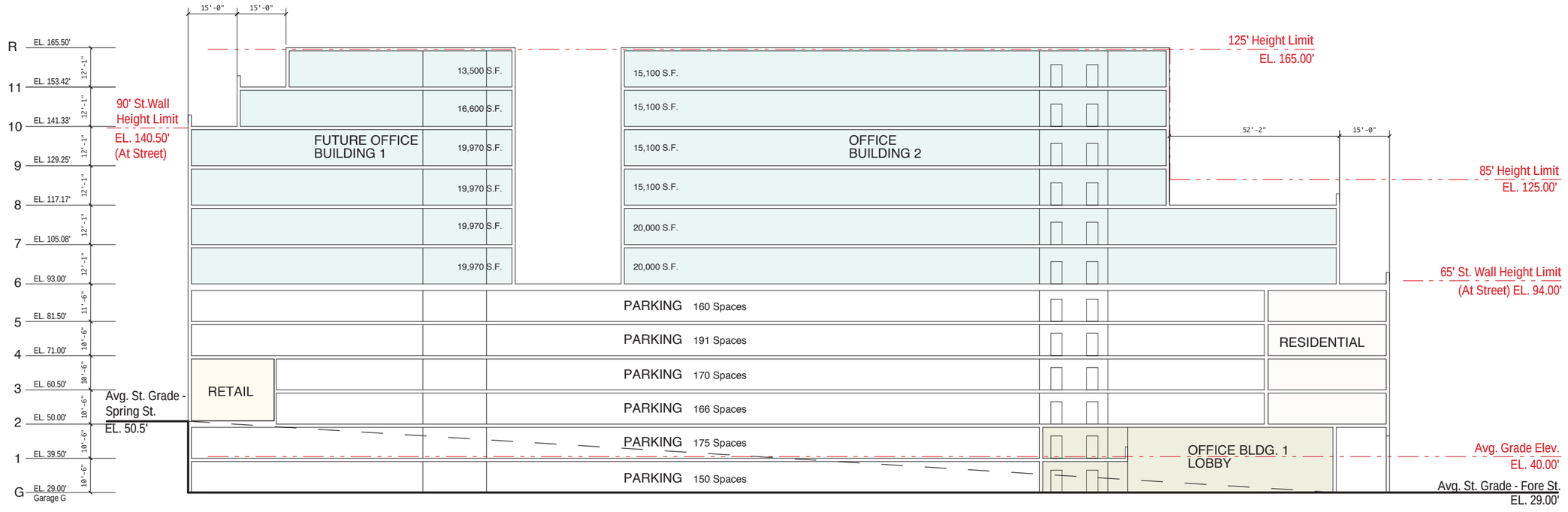
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 11 OFFICE
Floor El. 153.5'

A1.11

AUGUST 21, 2016



SECTION A-A BUILDINGS 1 & 2

SUMMARY OF USE AREAS:

Office Building 1:	109,980 S.F. 6 Stories
Office Building 2:	100,400 S.F. 6 Stories
Roof Garden:	38,400 S.F. 1 Story
Retail/Restaurant:	19,690 S.F. 1 Story
Residential:	26,080 S.F. 4 Stories
Parking:	380,540 S.F. 6 Stories 1,000 Spaces

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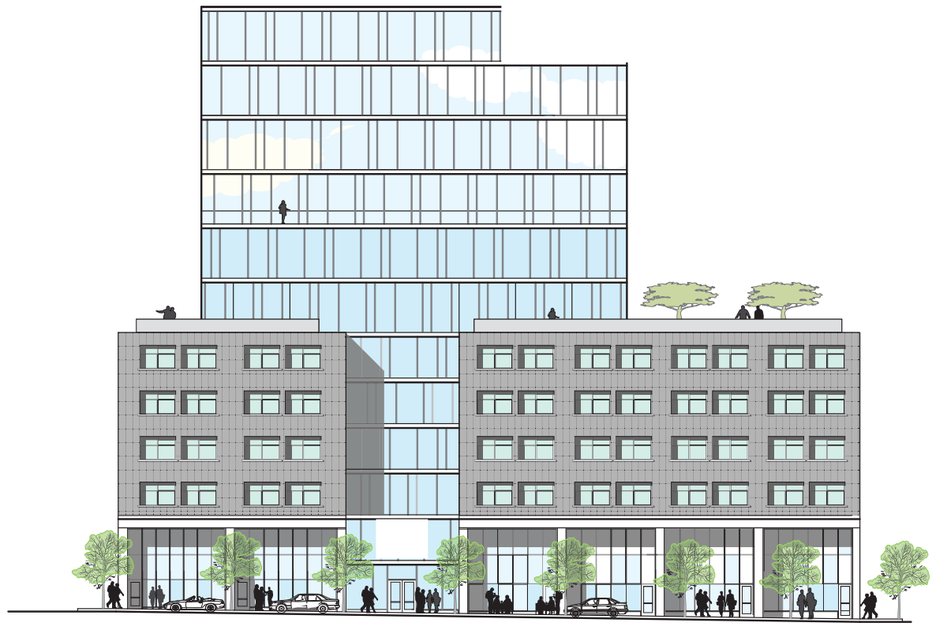
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

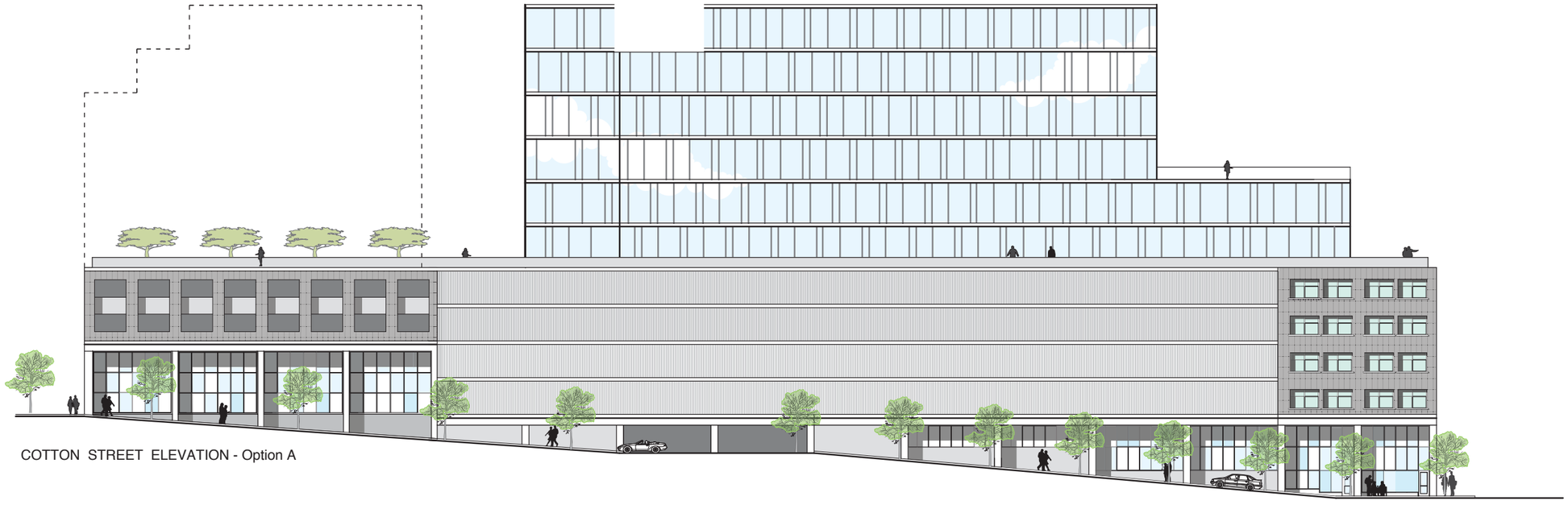
BUILDING SECTION

A2.1

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FORE STREET ELEVATION - Option A



COTTON STREET ELEVATION - Option A

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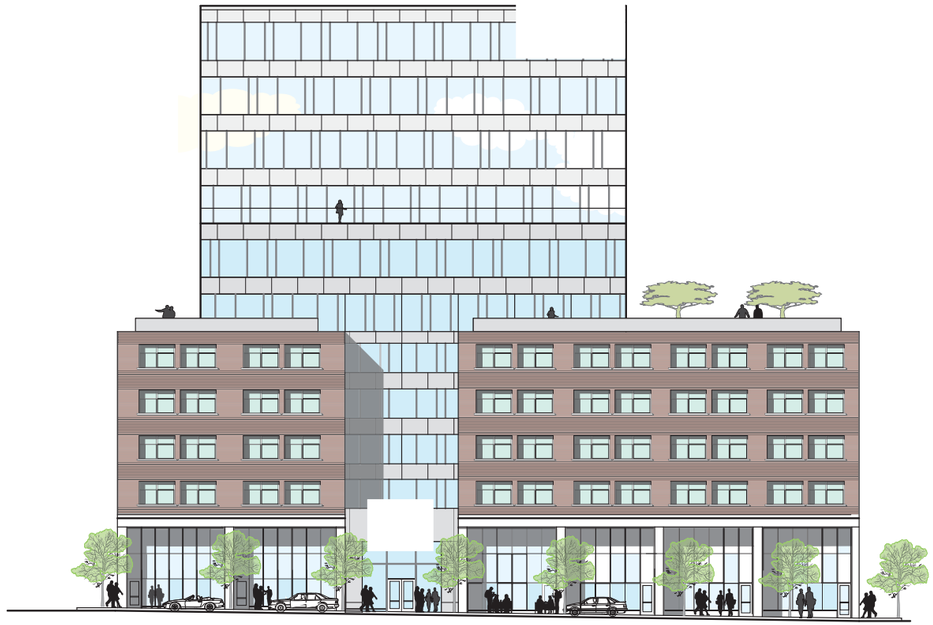
Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

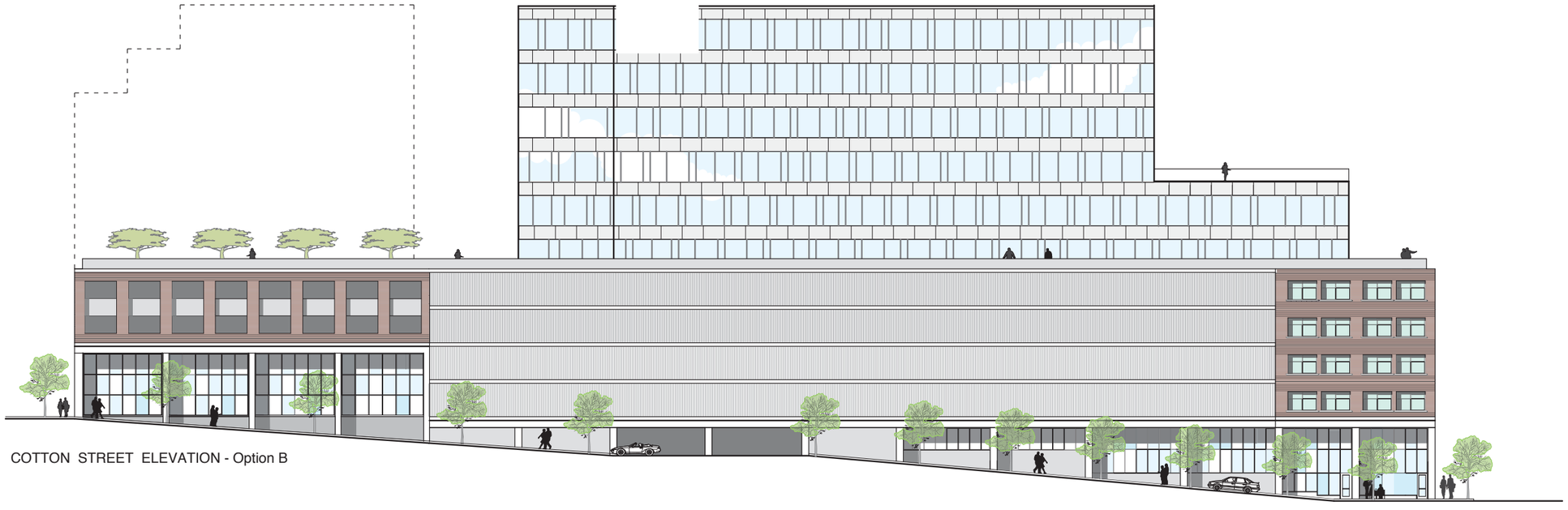
SCALE: 1/16" = 1'-0"

A3.1

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FORE STREET ELEVATION - Option B



COTTON STREET ELEVATION - Option B

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Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

A3.2

AUGUST 21, 2016



FORE STREET ELEVATION - Option C



COTTON STREET ELEVATION - Option C

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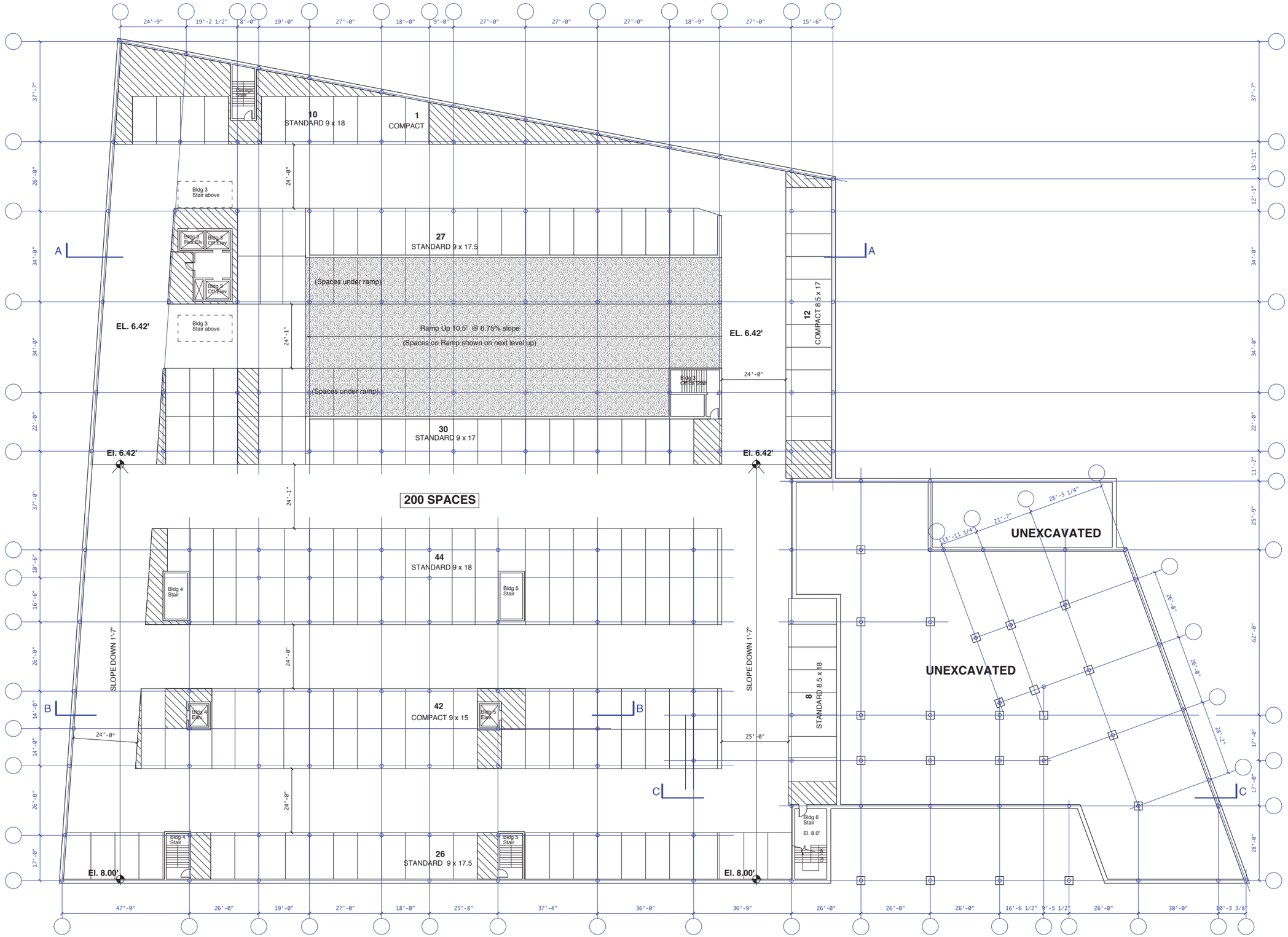
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

A3.3

AUGUST 21, 2016

Lower Lot



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PHASE 1- PRELIMINARY SCHEMATICS

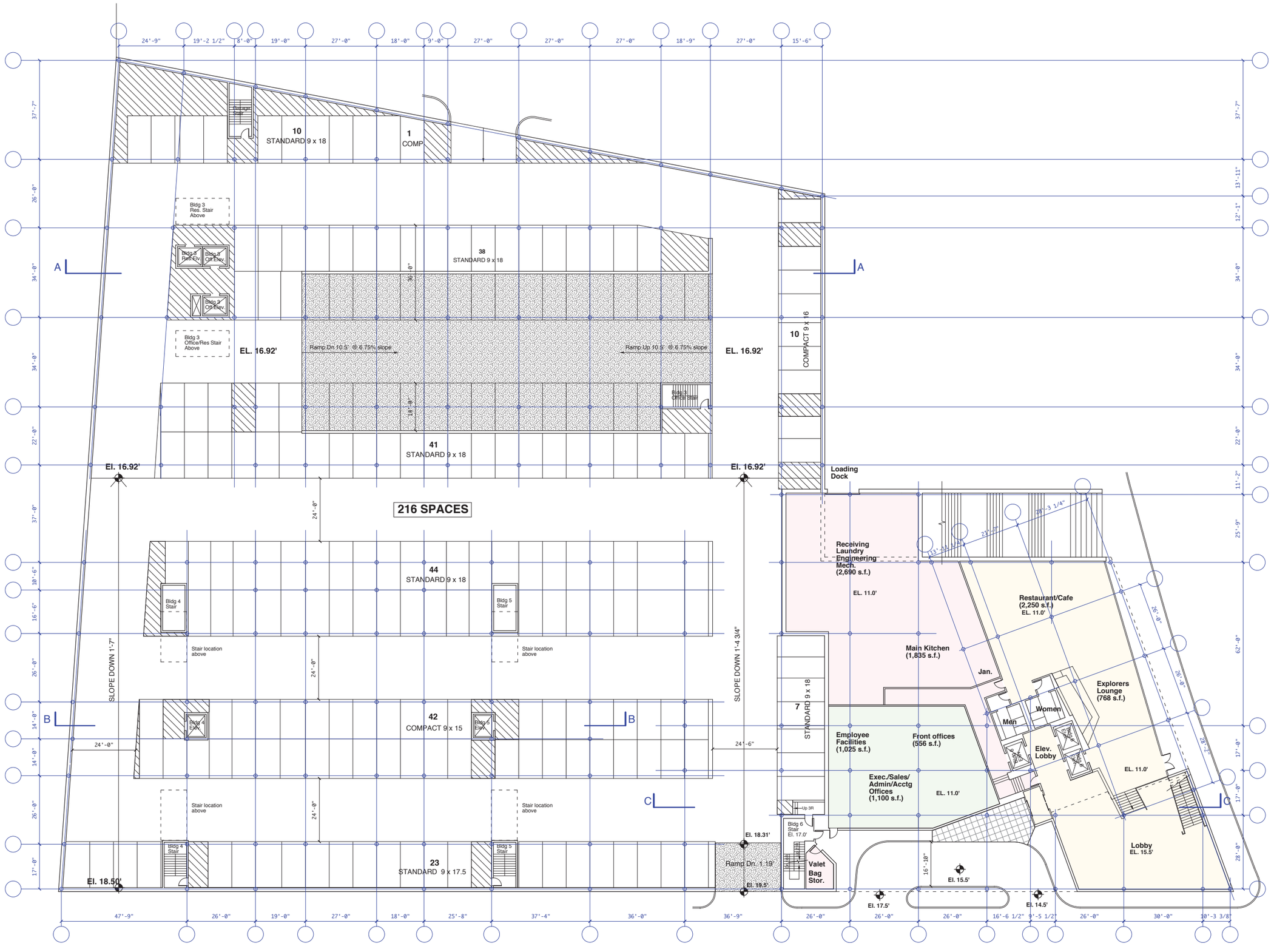
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

GROUND LEVEL PLAN
Floor El. 6.42' & 8.00'

A1.0

JUNE 1, 2016



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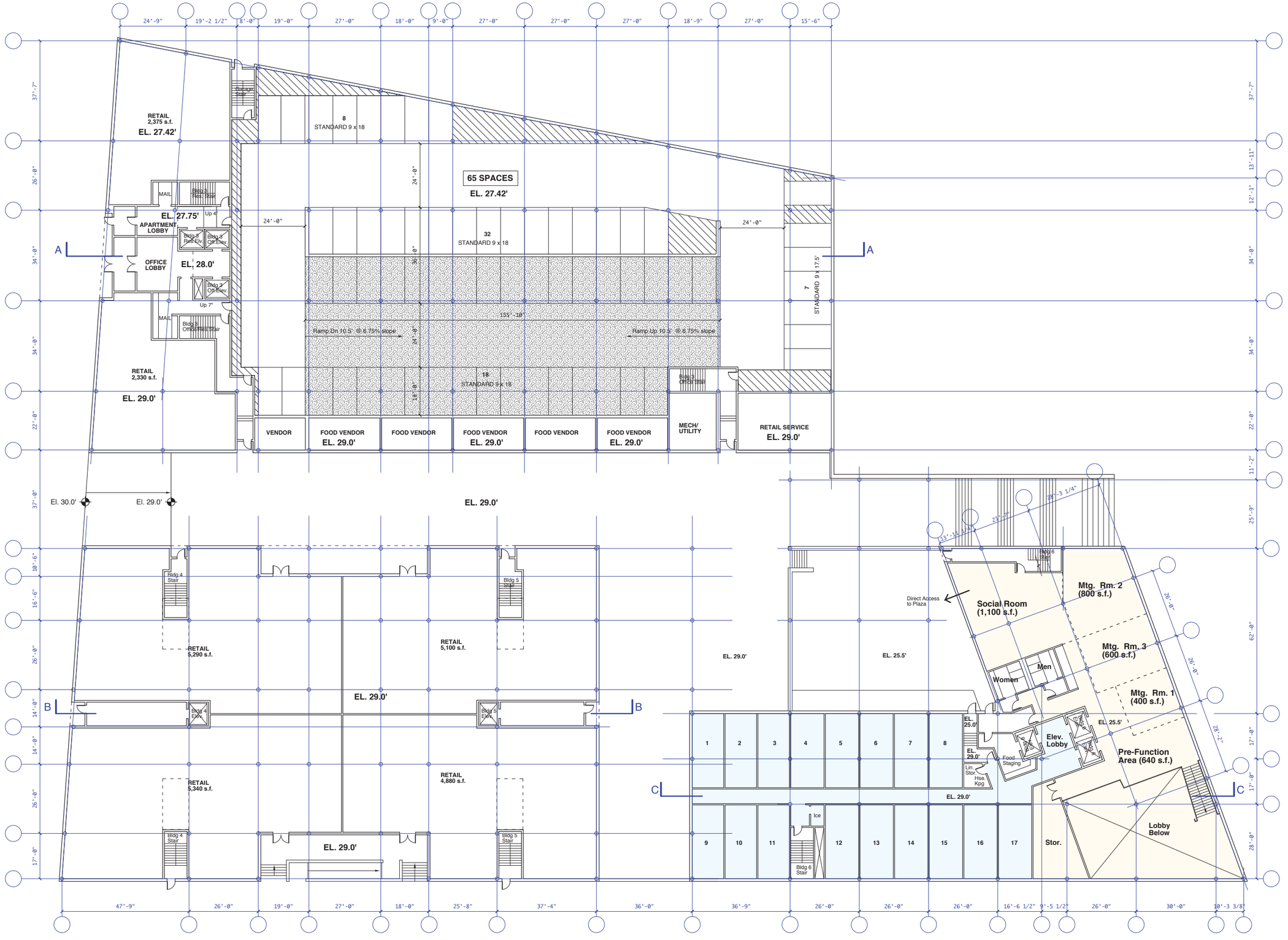
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 1 PLAN
Floor El. 11.0', El. 15.5', El. 16.92' & El. 18.5'

A1.1

JUNE 1, 2016



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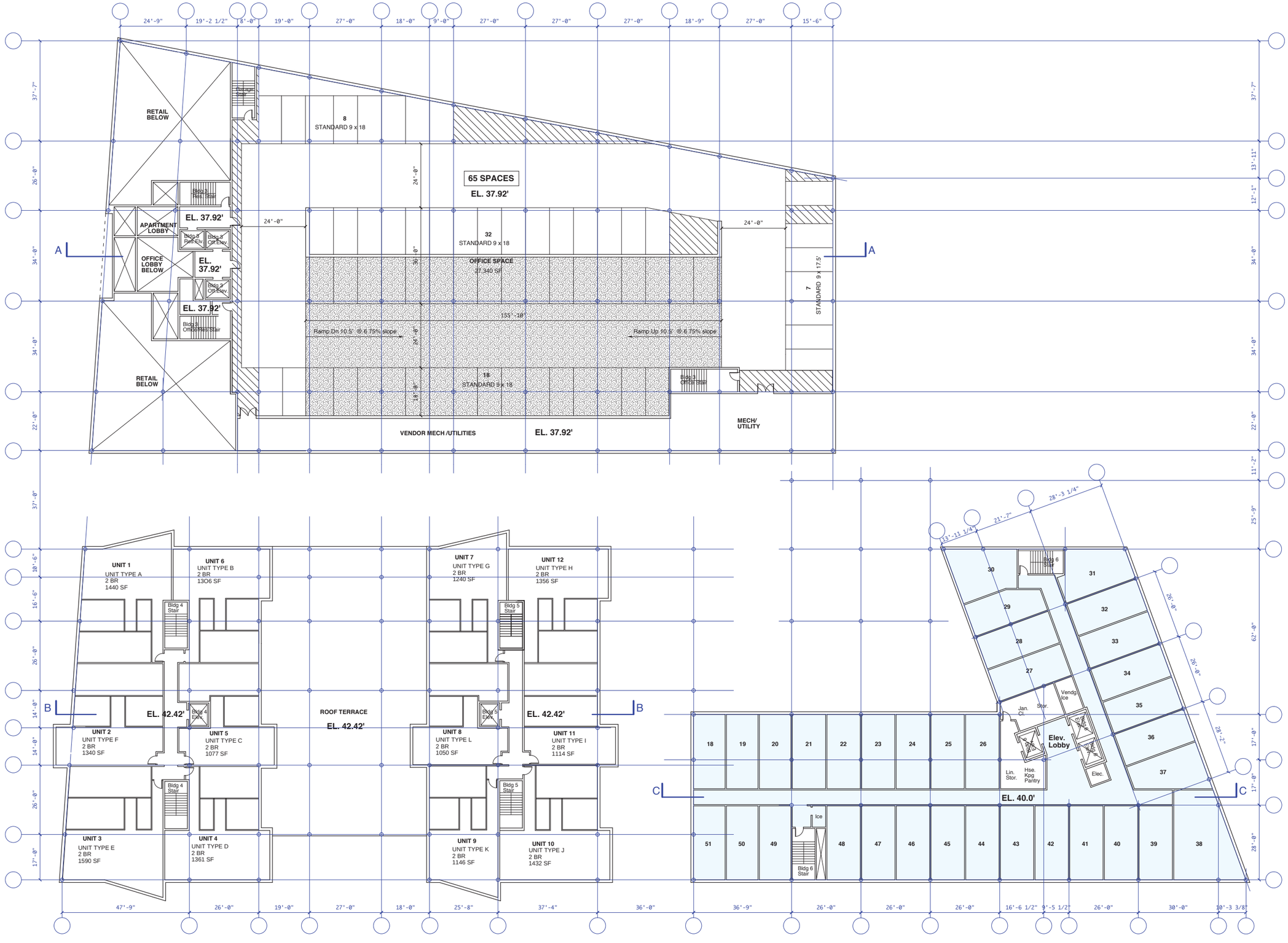
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

PLAZA LEVEL PLAN
Floor El. 25.0', El. 27.42', El. 27.75', El. 28.0' & El. 29.0'

A1.2

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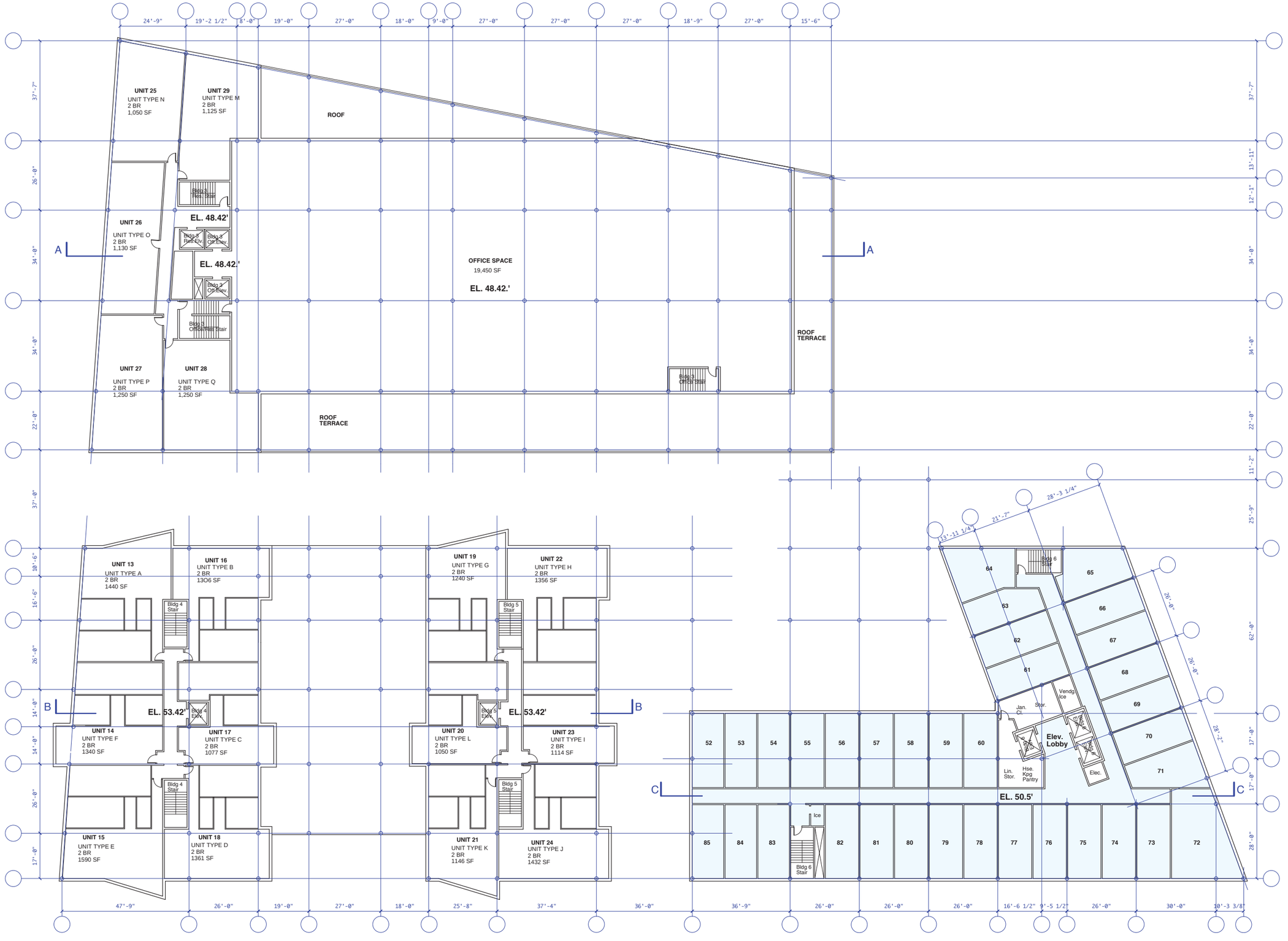
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 3 PLAN
Floor El 39.5', EL 40.0', El. 44.0'

A1.3

JUNE 1, 2016



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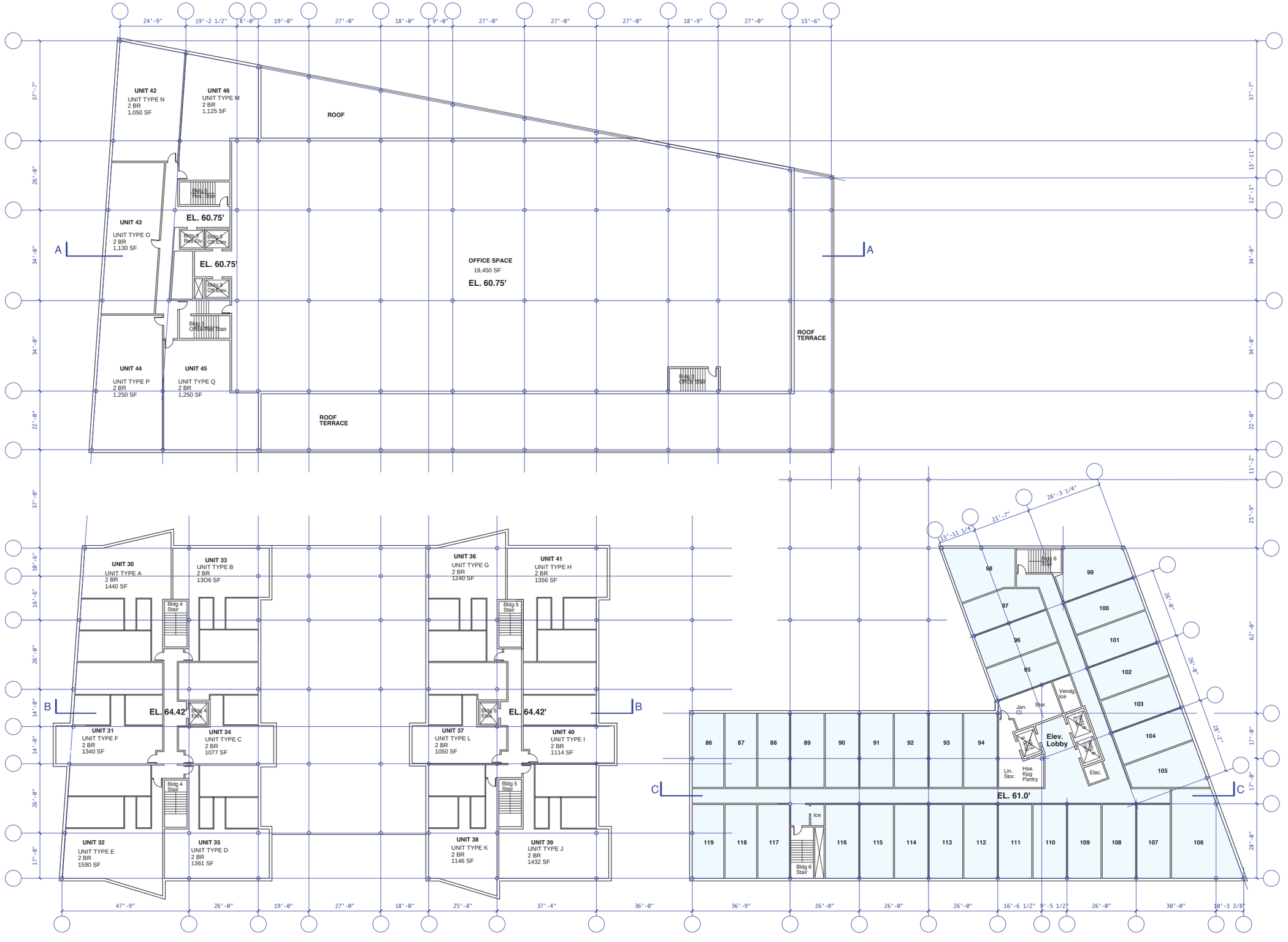
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 4 PLAN
Floor El. 48.42', El. 50.5', El. 53.42'

A1.4

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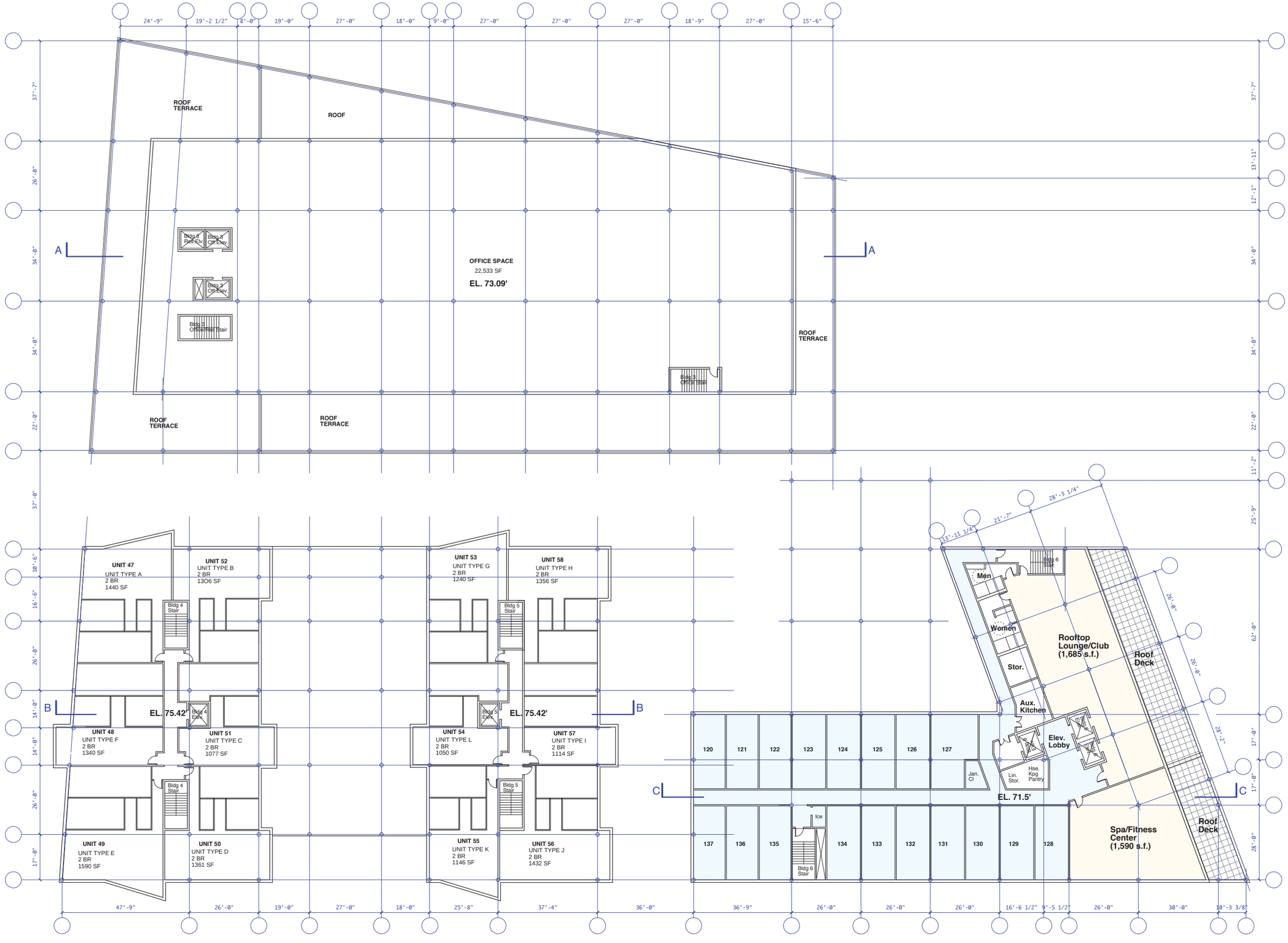
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 5 PLAN
Floor El. 60.75', El. 61.0', El. 64.42'

A1.5

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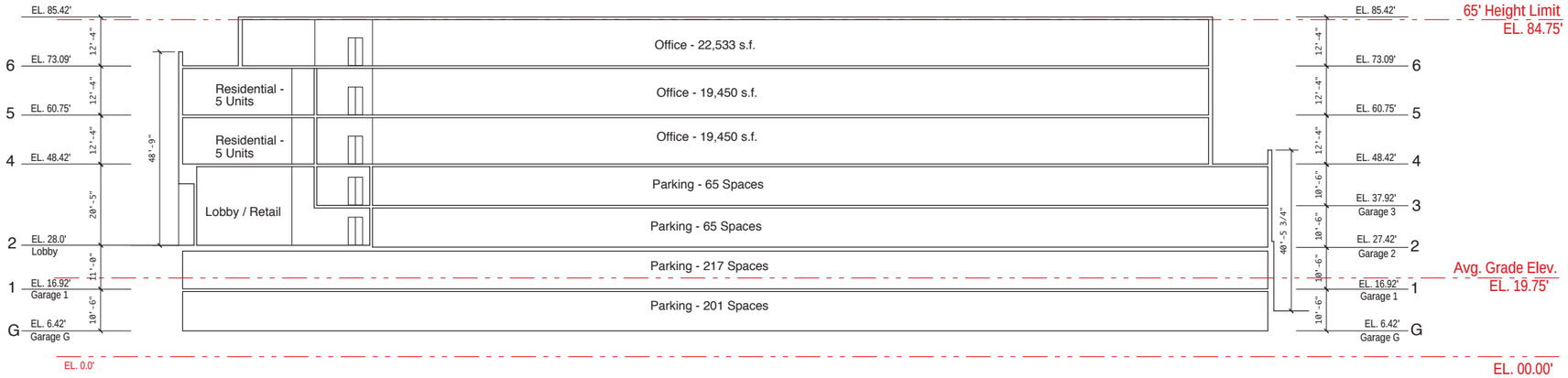
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

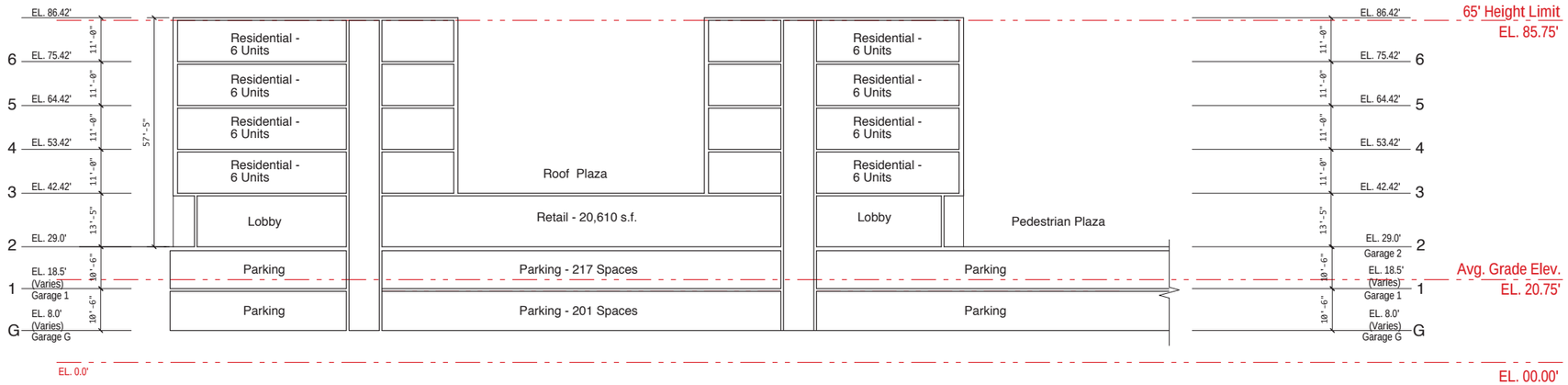
LEVEL 6 PLAN
Floor El. 71.5', El. 73.09', El. 75.42'

A1.6

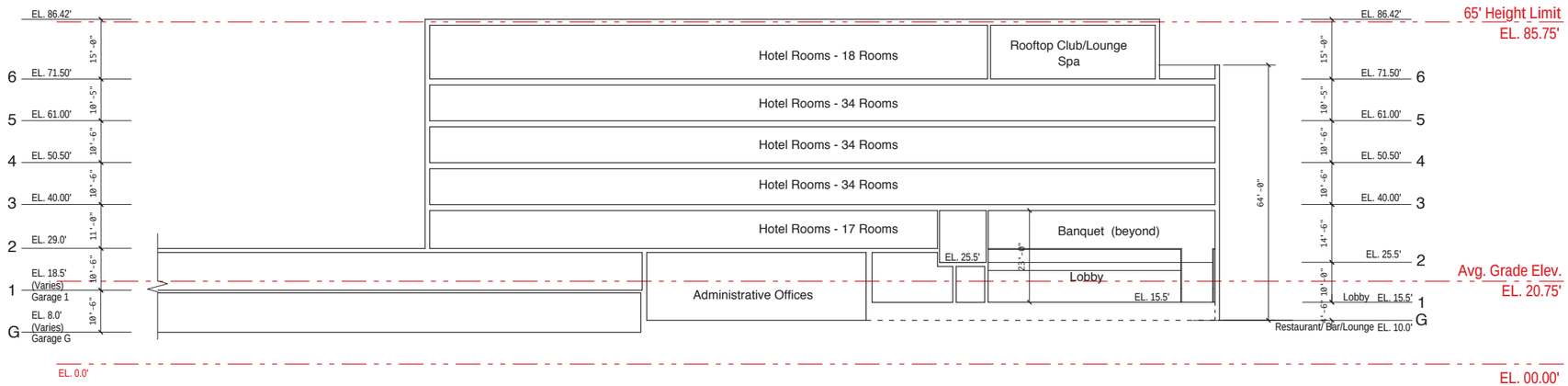
JUNE 1, 2016



SECTION A-A BUILDING 3



SECTION B-B BUILDINGS 4 & 5



SECTION C-C BUILDING 6

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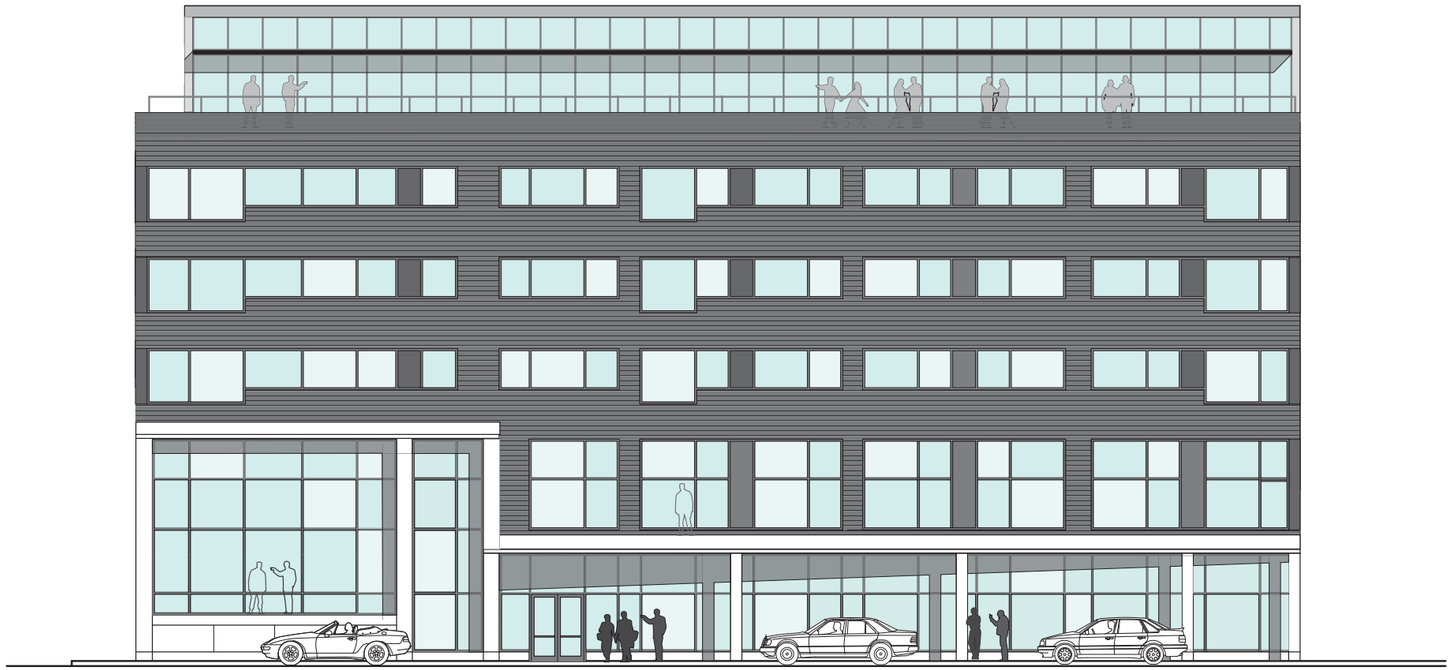
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

BUILDING SECTIONS

A2.1

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BUILDING 6 - COMMERCIAL STREET ELEVATION

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Owner / Developers
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New York, NY

SCALE: 1/16" = 1'-0"

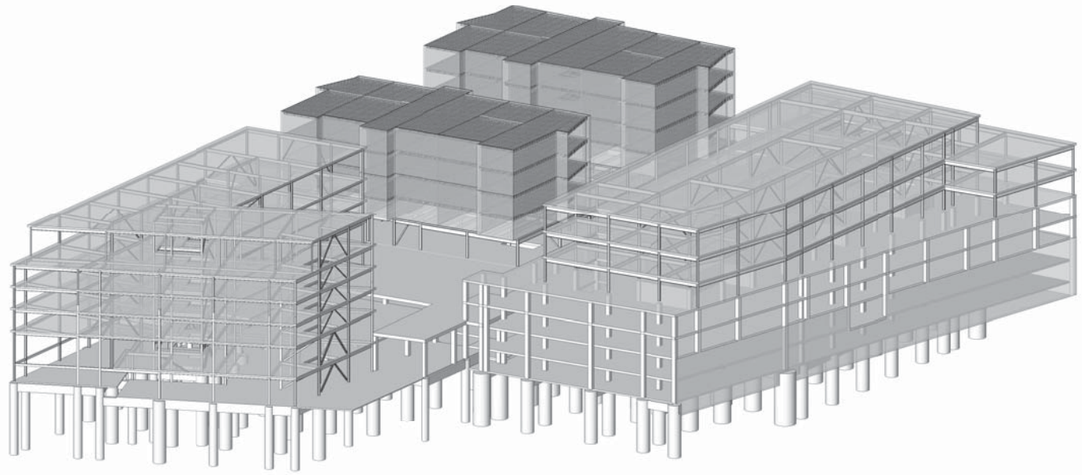
BUILDING SECTIONS

A3.1

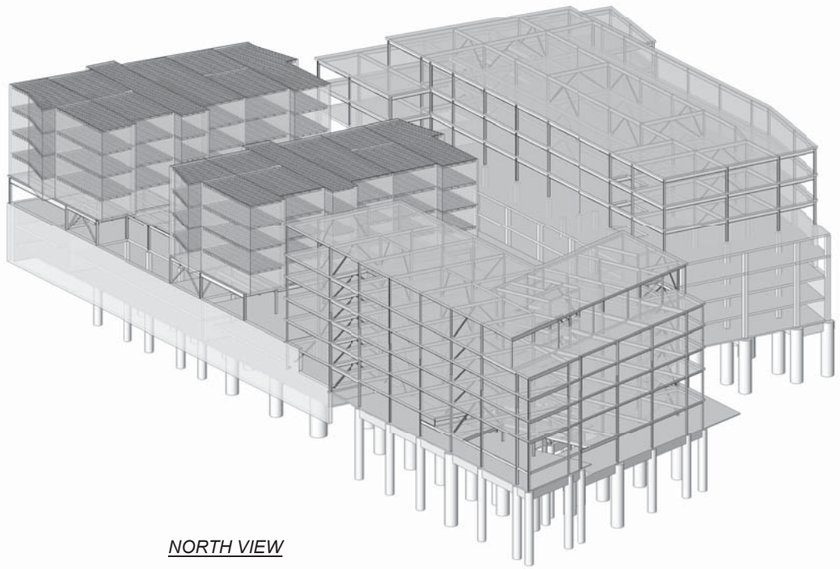
JUNE 1, 2016

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ISSUED FOR 50% SD 06/30/16

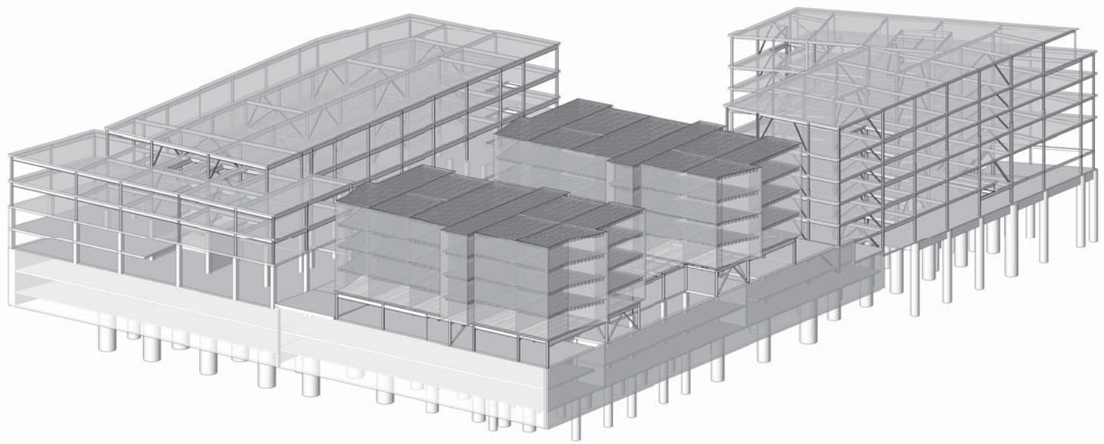
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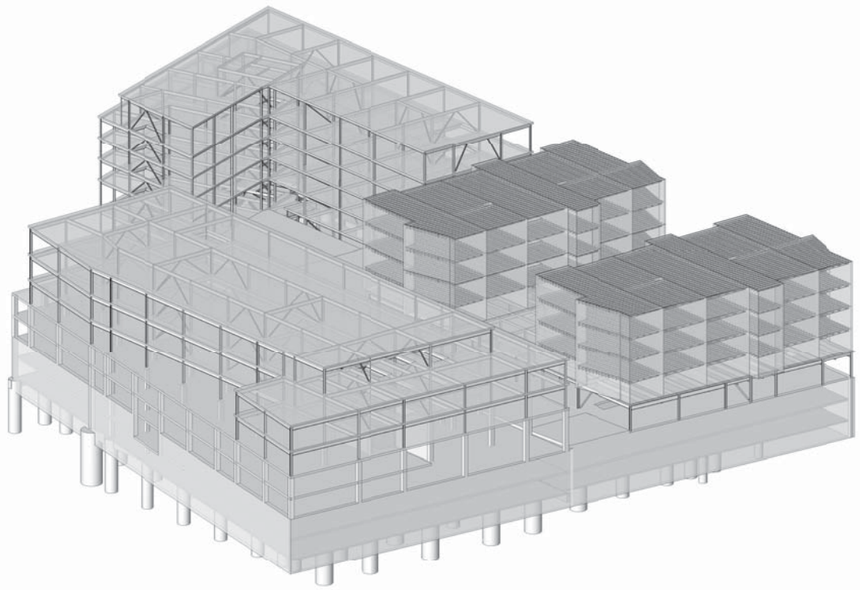
WEST VIEW



NORTH VIEW



EAST VIEW



SOUTH VIEW

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Portland Square

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Owner /Developers
NORTH RIVER, LLC
New York, NY

1/8" = 1'-0"

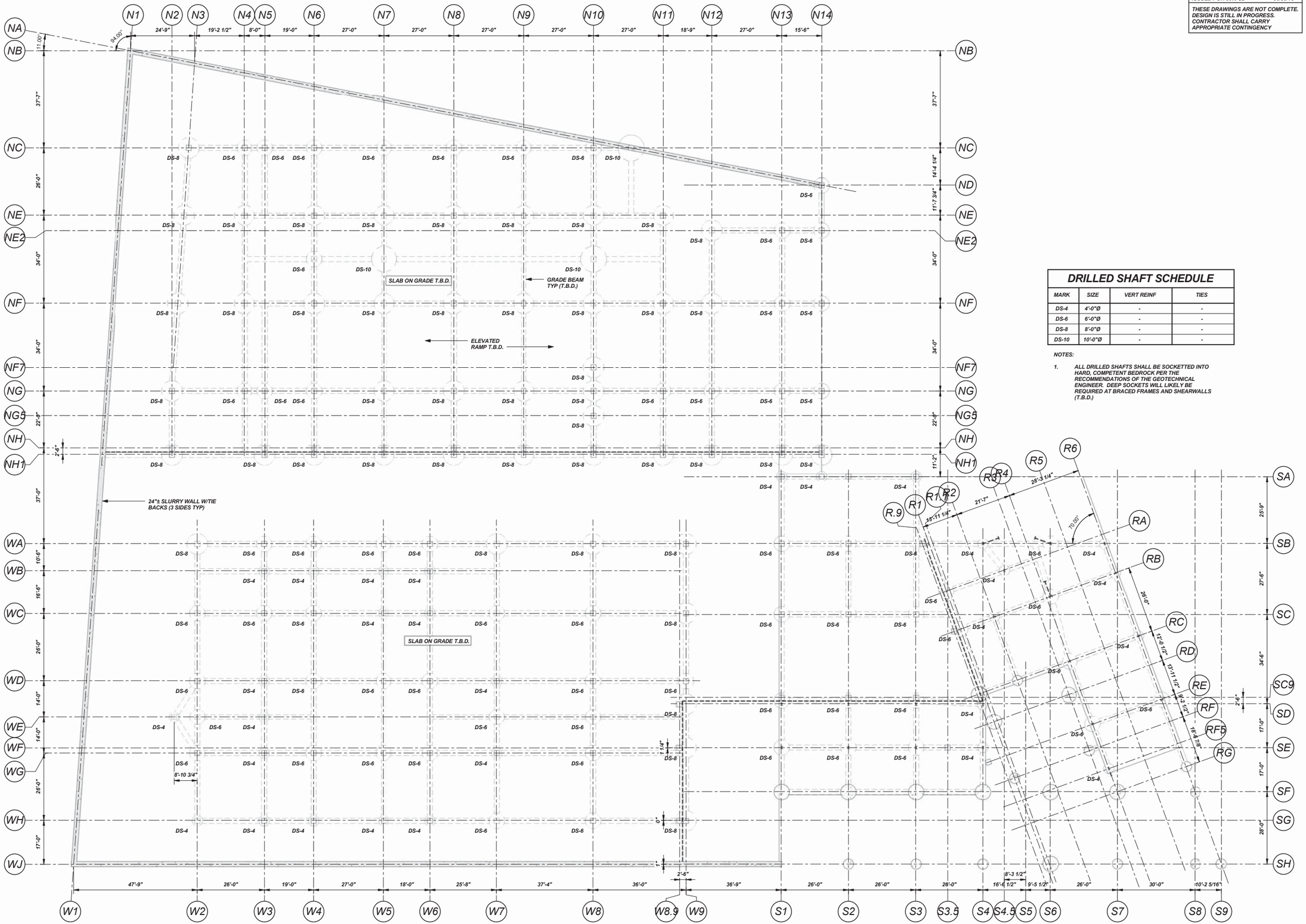
AXONOMETRIC VIEW

S1.0

JUNE 30, 2016

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DRILLED SHAFT SCHEDULE

MARK	SIZE	VERT REINF	TIES
DS-4	4'-0"Ø	-	-
DS-6	6'-0"Ø	-	-
DS-8	8'-0"Ø	-	-
DS-10	10'-0"Ø	-	-

NOTES:

1. ALL DRILLED SHAFTS SHALL BE SOCKETTED INTO HARD, COMPETENT BEDROCK PER THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER. DEEP SOCKETS WILL LIKELY BE REQUIRED AT BRACED FRAMES AND SHEARWALLS (T.B.D.)

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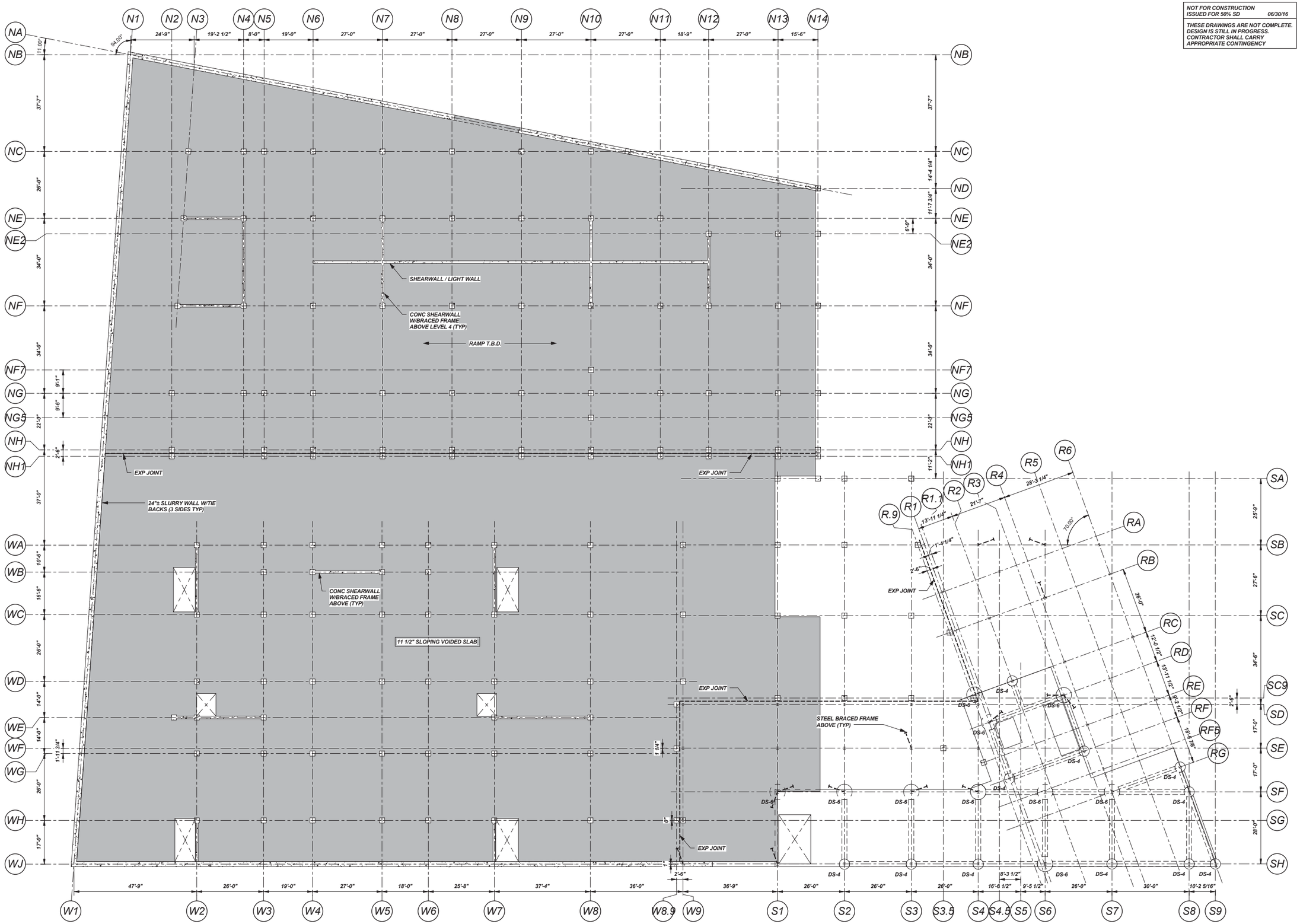
Owner /Developers
NORTH RIVER, LLC
New York, NY

As indicated

FOUNDAITON PLAN

S1.1

JUNE 30, 2016



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Portland Square

PHASE 1- PRELIMINARY SCHEMATICS

Owner /Developers
NORTH RIVER, LLC
New York, NY

As indicated

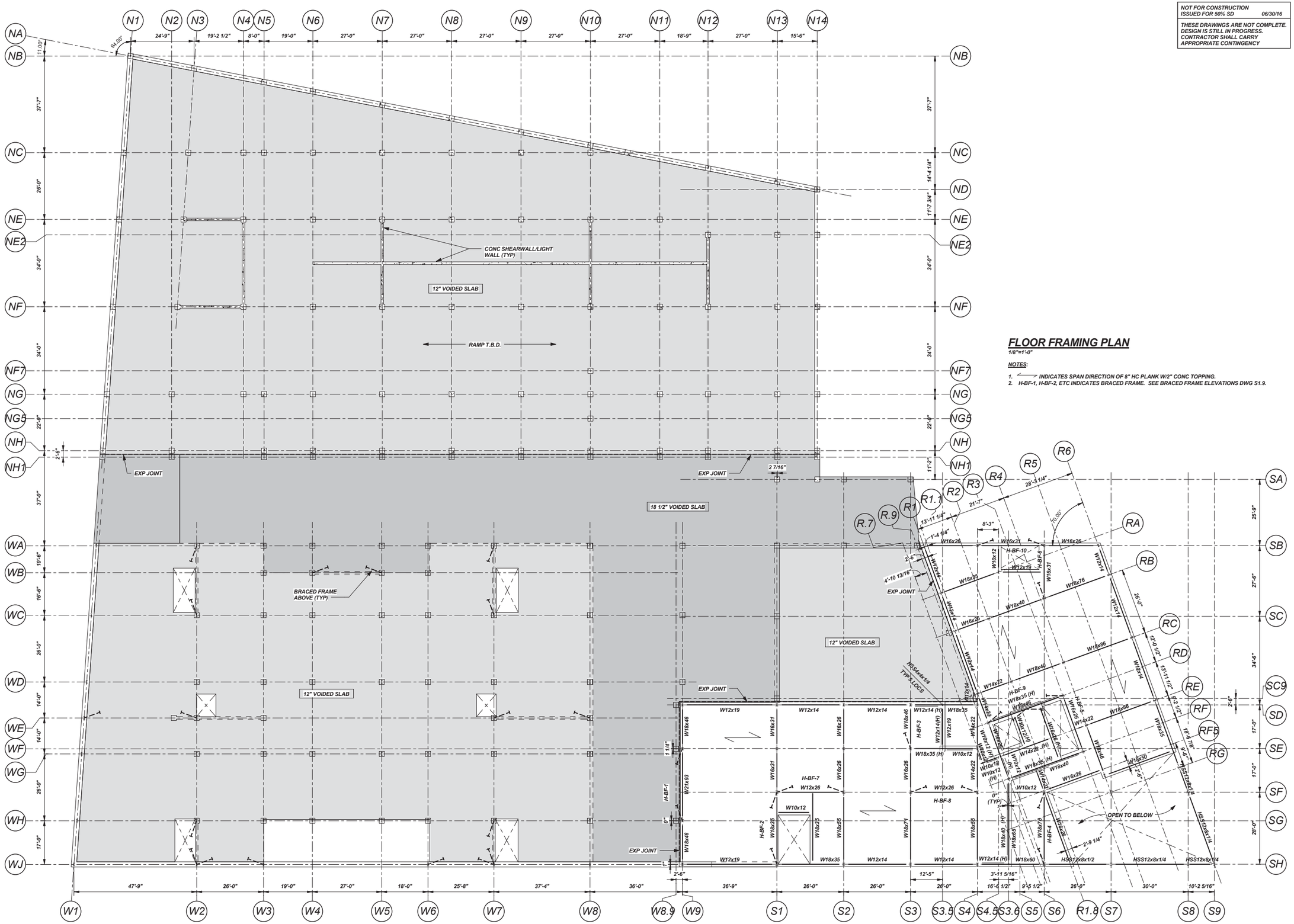
LEVEL 2 DECK PLAN

S1.2

JUNE 30, 2016

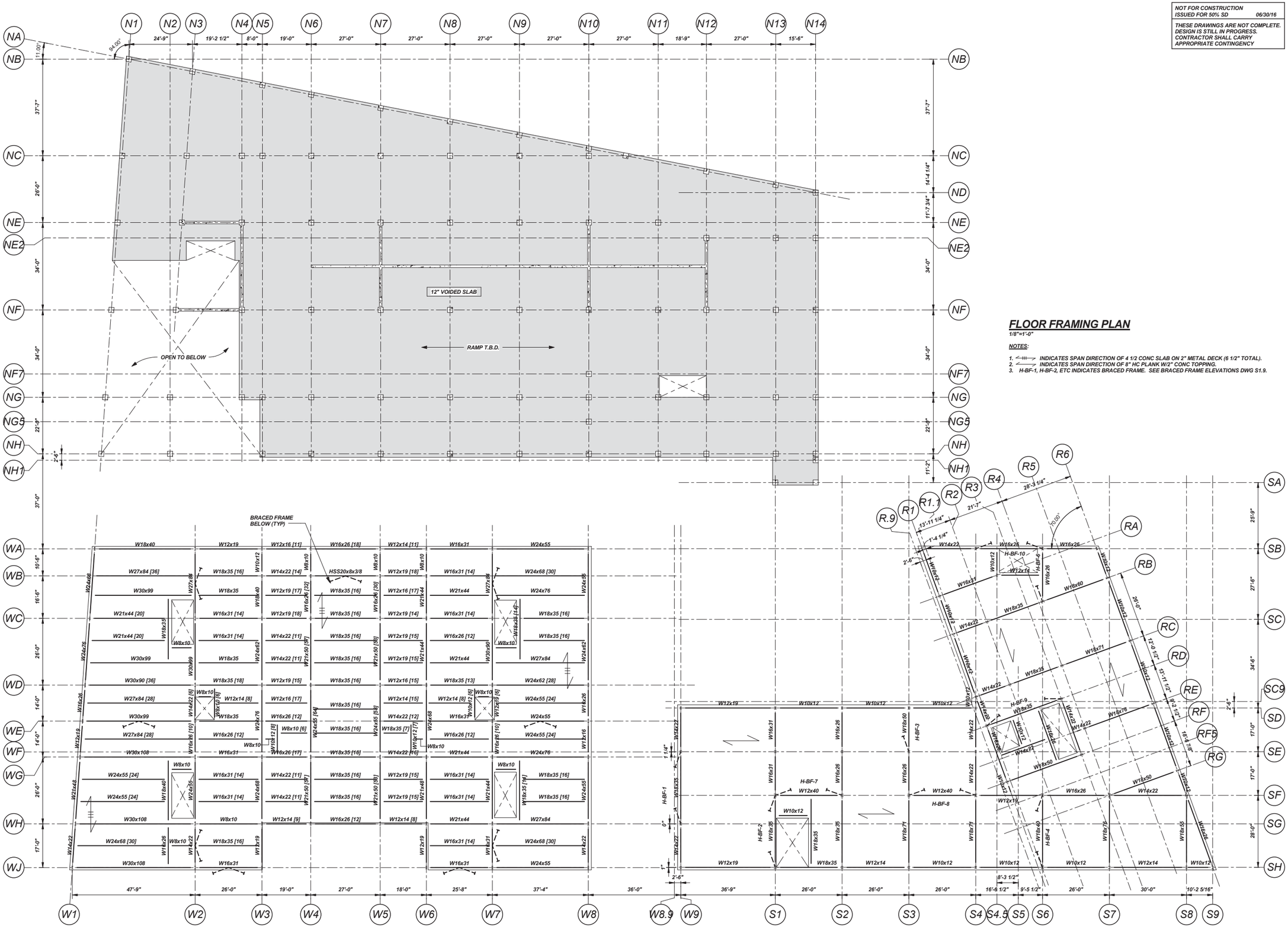
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N1 N2 N3 N4 N5 N6 N7 N8 N9 N10 N11 N12 N13 N14
NA NB NC NE NE2 NF NF7 NG NG5 NH NH1 WA WB WC WD WE WF WG WH WJ
24'-9" 19'-2 1/2" 8'-0" 19'-0" 27'-0" 27'-0" 27'-0" 27'-0" 27'-0" 18'-9" 27'-0" 15'-6"
94.00°
111.00'
37'-7" 26'-0" 34'-0" 34'-0" 22'-0" 2'-6" 37'-0" 10'-6" 16'-6" 26'-0" 14'-0" 14'-0" 26'-0" 17'-0"
CONC SHEARWALL/LIGHT WALL (TYP)
12" VOIDED SLAB
RAMP T.B.D.
EXP JOINT
2 7/16"
18 1/2" VOIDED SLAB
BRACED FRAME ABOVE (TYP)
12" VOIDED SLAB
12" VOIDED SLAB
EXP JOINT
EXP JOINT
EXP JOINT
W12x19 W12x14 W12x14 W12x14 (H) W18x35 W18x35 (H) W12x14 W18x35 (H) W18x40 W18x86 W18x46 W16x26 W16x31 W16x26 W16x26 W16x26 W16x31 W16x26 W16x31 W16x26 W16x31

NOT FOR CONSTRUCTION
ISSUED FOR 50% SD 06/30/16

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FLOOR FRAMING PLAN

1/8"=1'-0"

NOTES:

1. ⟵ INDICATES SPAN DIRECTION OF 4 1/2 CONC SLAB ON 2" METAL DECK (6 1/2" TOTAL).
2. ⟵ INDICATES SPAN DIRECTION OF 8" HC PLANK W/2" CONC TOPPING.
3. H-BF-1, H-BF-2, ETC INDICATES BRACED FRAME. SEE BRACED FRAME ELEVATIONS DWG S1.9.

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Portland Square

PHASE 1- PRELIMINARY SCHEMATICS

Owner /Developers
NORTH RIVER, LLC
New York, NY

As indicated

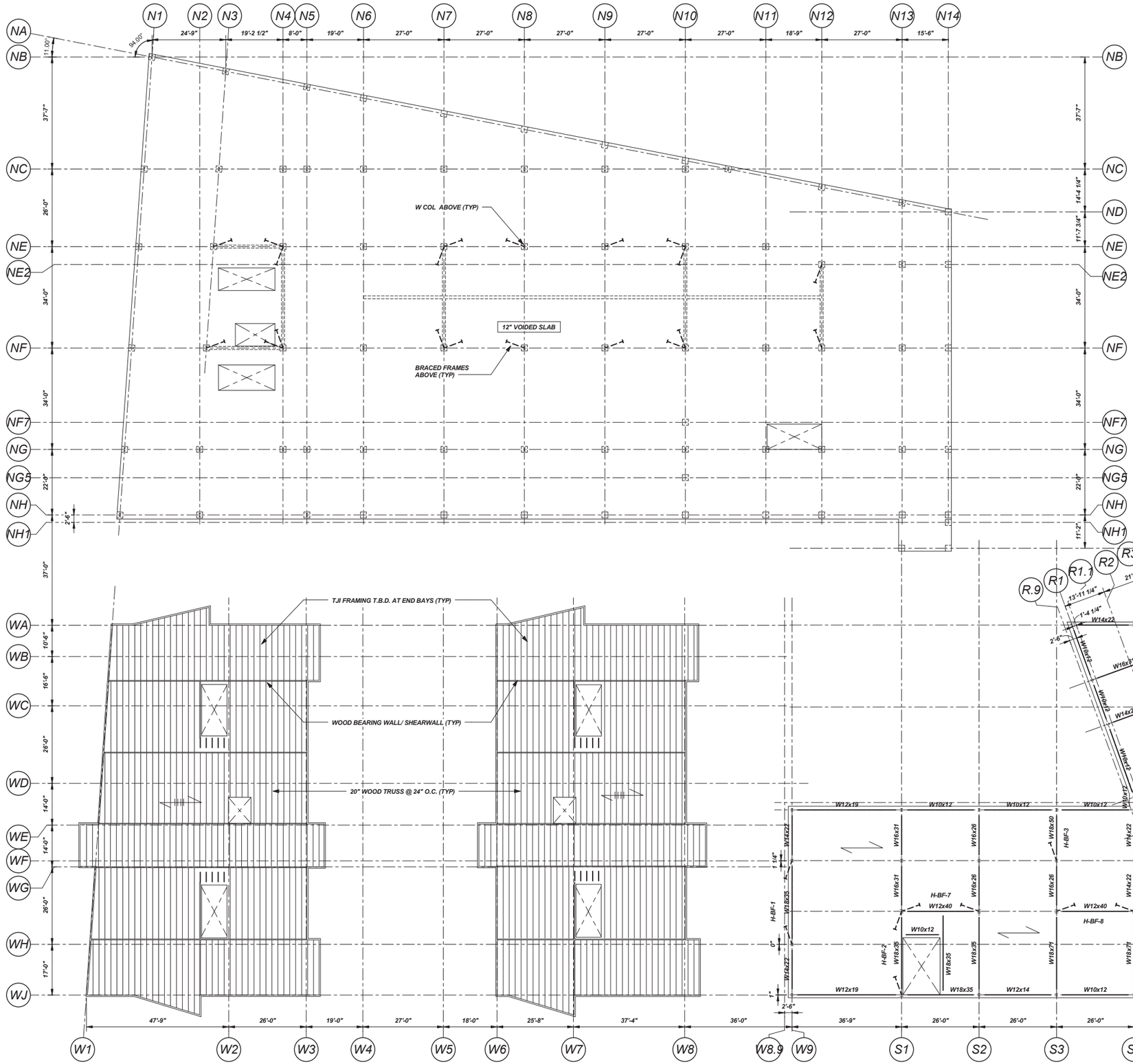
LEVEL 4 FRAMING PLAN

S1.4

JUNE 30, 2016

NOT FOR CONSTRUCTION
ISSUED FOR 50% SD 06/30/16

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FLOOR FRAMING PLAN

1/8"=1'-0"

NOTES:

1. <---> INDICATES SPAN DIRECTION OF 3/4" PLY SHTG.
2. <---> INDICATES SPAN DIRECTION OF 8" HC PLANK W/2" CONC TOPPING.
3. H-BF-1, H-BF-2, ETC INDICATES BRACED FRAME. SEE BRACED FRAME ELEVATIONS DWG S1.9.

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www.wintonscott.com

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Portland Square

PHASE 1- PRELIMINARY SCHEMATICS

Owner /Developers
NORTH RIVER, LLC
New York, NY

As indicated

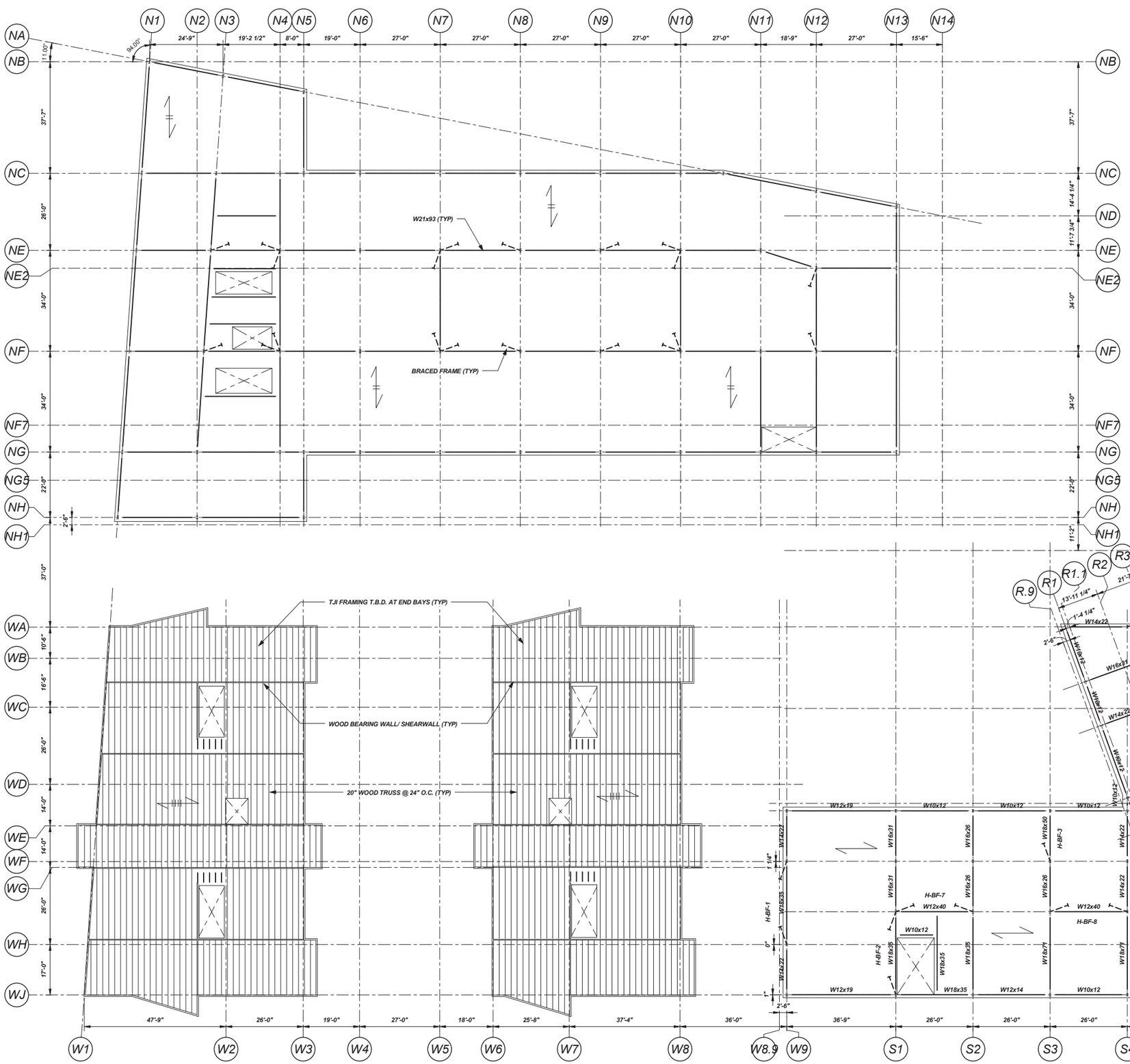
LEVEL 5 FRAMING PLAN

S1.5

JUNE 30, 2016

NOT FOR CONSTRUCTION
ISSUED FOR 50% SD 06/30/16

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FLOOR FRAMING PLAN

1/8"=1'-0"

NOTES:

1. INDICATES SPAN DIRECTION OF 10" HC PLANK W/2" CONC TOPPING.
2. INDICATES SPAN DIRECTION OF 8" HC PLANK W/2" CONC TOPPING.
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Portland Square

PHASE 1- PRELIMINARY SCHEMATICS

Owner /Developers
NORTH RIVER, LLC
New York, NY

As indicated

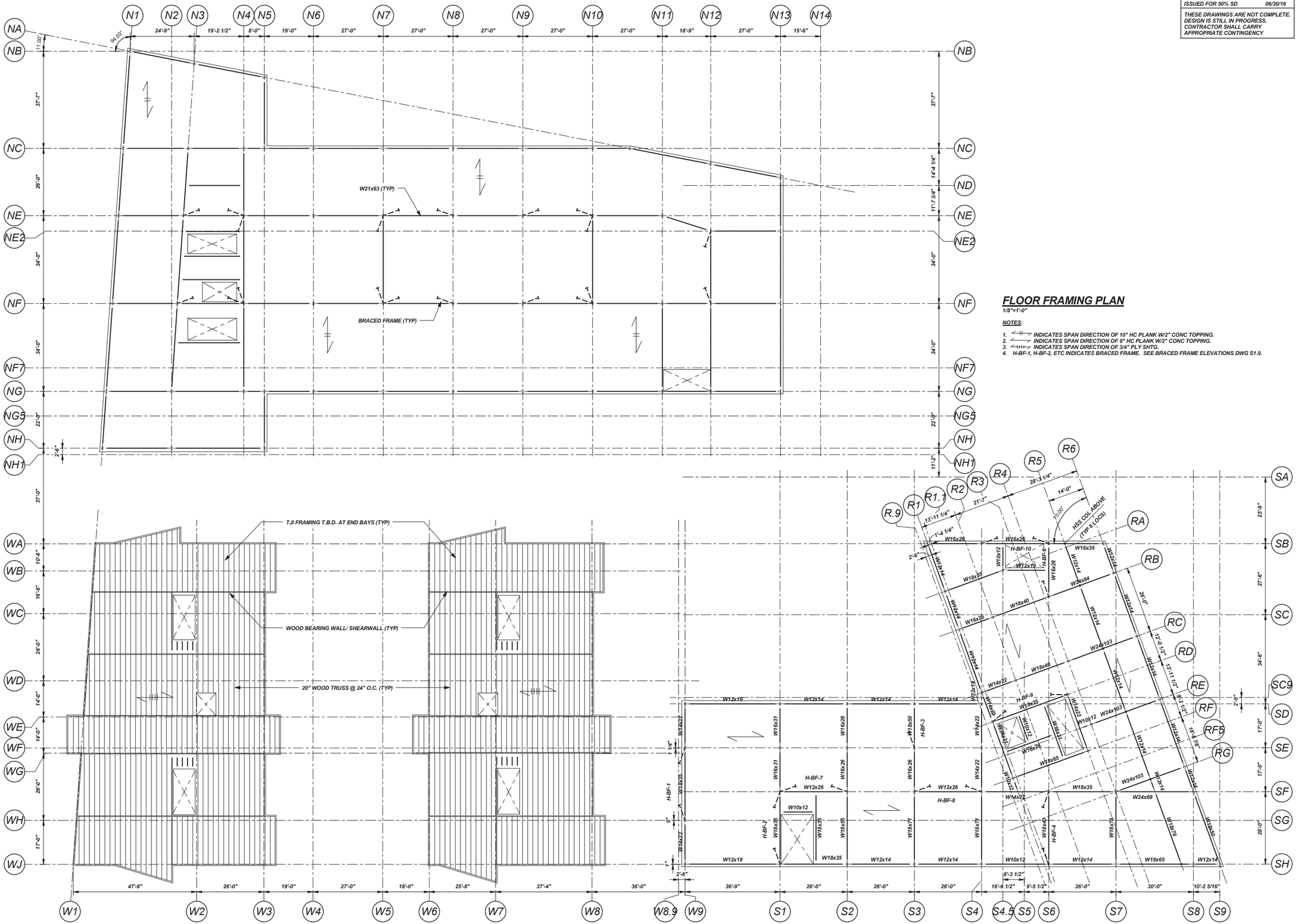
LEVEL 6 FRAMING PLAN

S1.6

JUNE 30, 2016

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FLOOR FRAMING PLAN

1/8"=1'-0"

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Portland Square

PHASE 1- PRELIMINARY SCHEMATICS

Owner /Developers
NORTH RIVER, LLC
New York, NY

As indicated

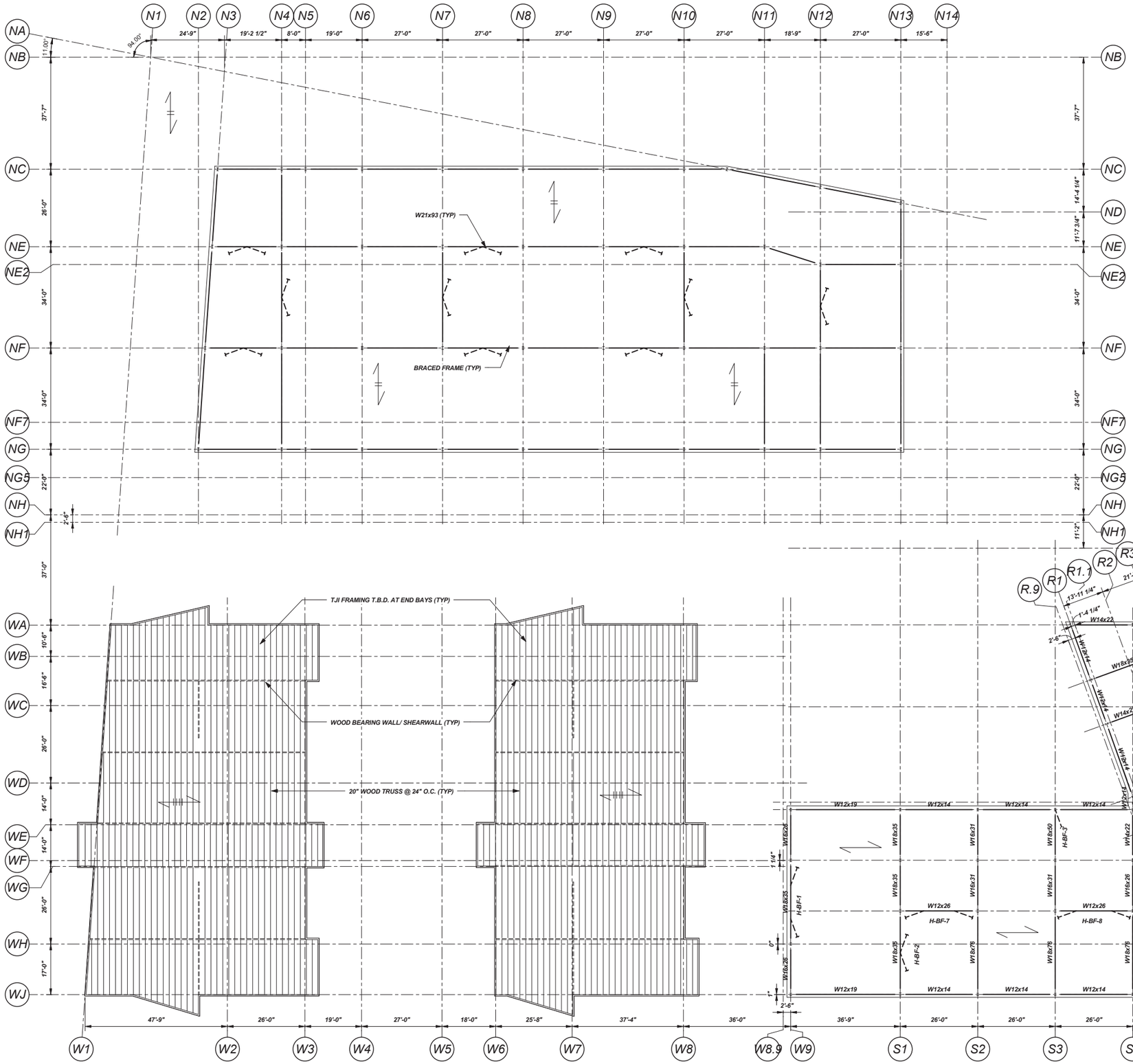
LEVEL 7 FRAMING PLAN

S1.7

JUNE 30, 2016

NOT FOR CONSTRUCTION
ISSUED FOR 50% SD 06/30/16

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ROOF FRAMING PLAN

1/8"=1'-0"

NOTES:

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3. INDICATES SPAN DIRECTION OF 3/4" PLY SHTG.
4. H-BF-1, H-BF-2, ETC INDICATES BRACE FRAME. SEE BRACED FRAME ELEVATIONS DWG S1.9.

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Portland Square

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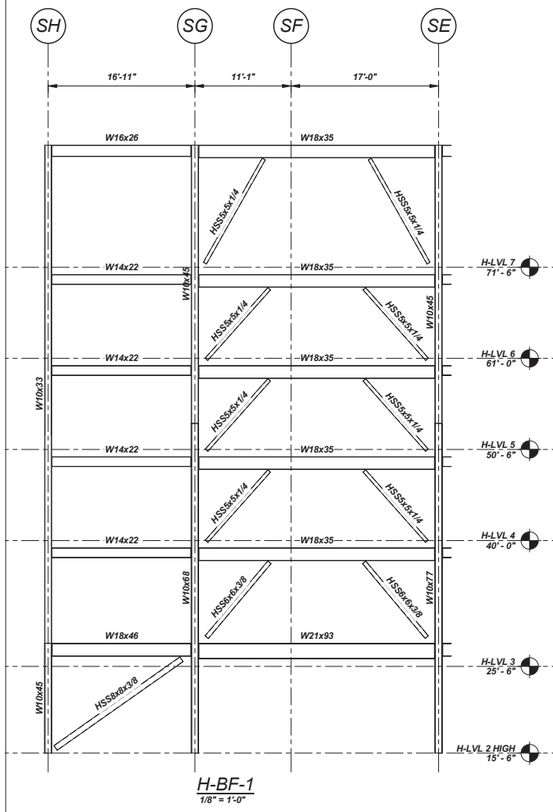
Owner /Developers
NORTH RIVER, LLC
New York, NY

As indicated

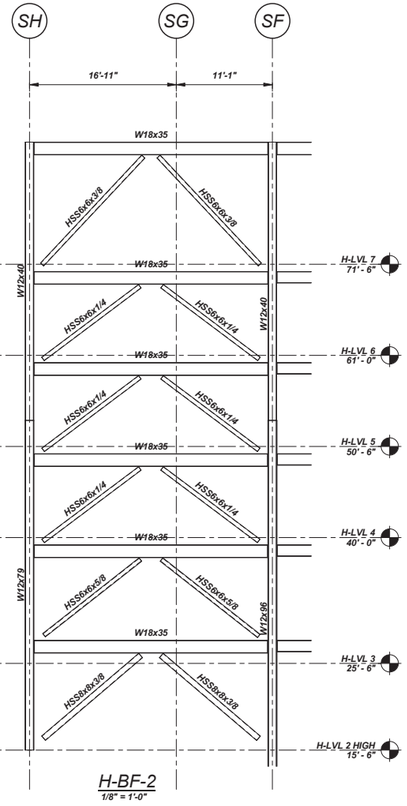
ROOF FRAMING PLAN

S1.8

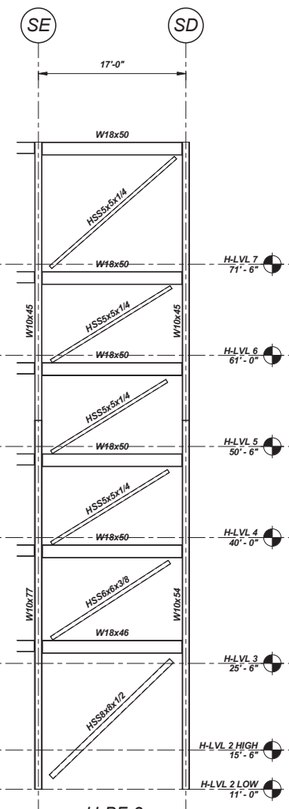
JUNE 30, 2016



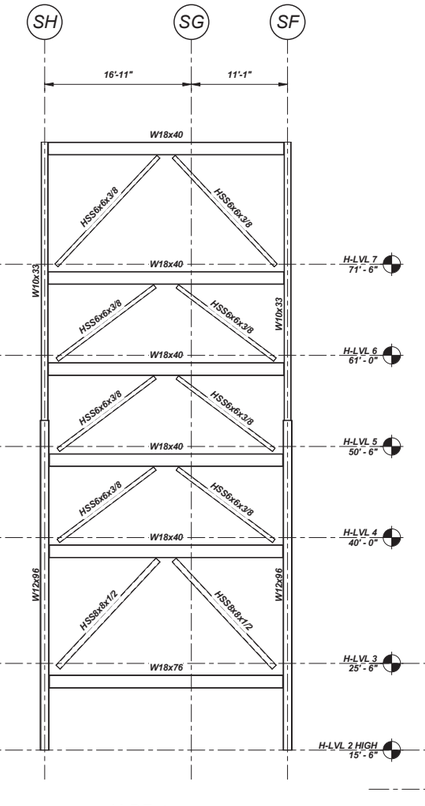
H-BF-1
1/8" = 1'-0"



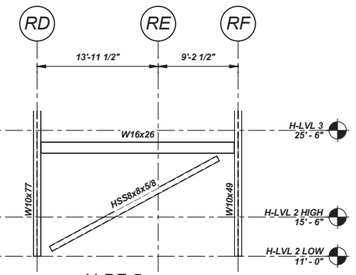
H-BF-2
1/8" = 1'-0"



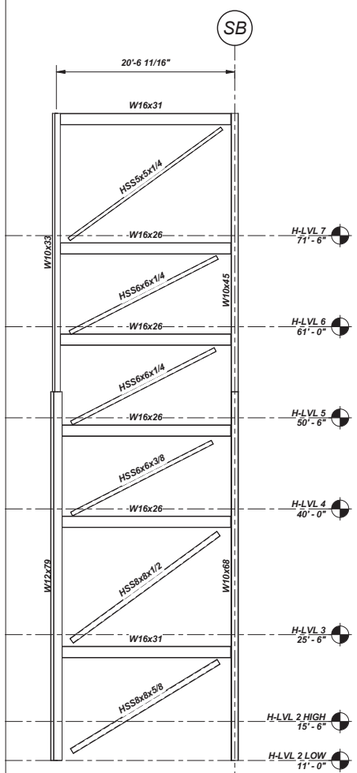
H-BF-3
1/8" = 1'-0"



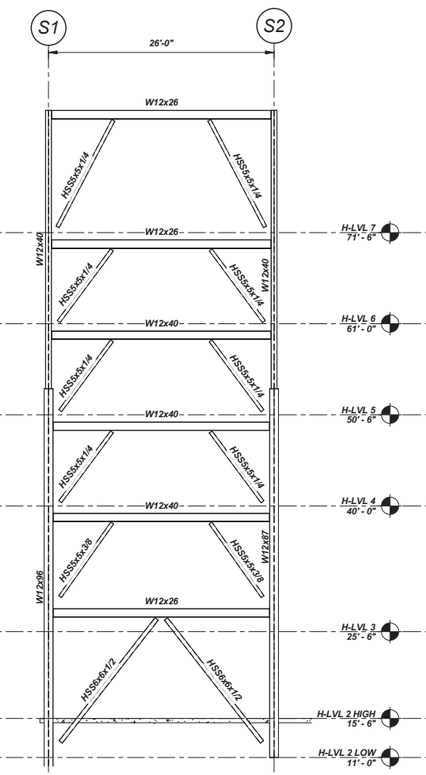
H-BF-4
1/8" = 1'-0"



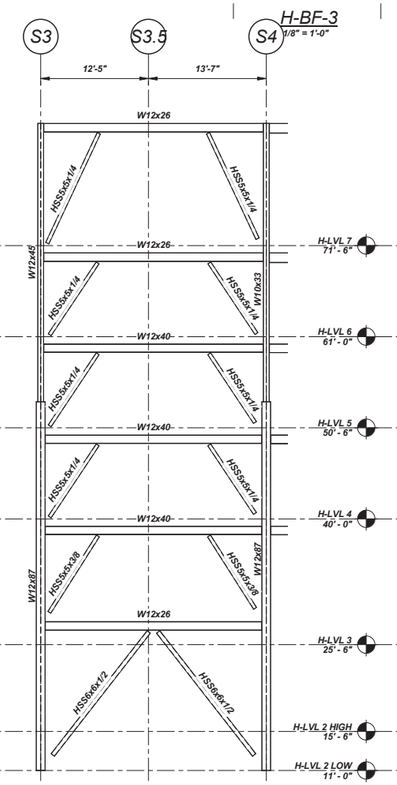
H-BF-5
1/8" = 1'-0"



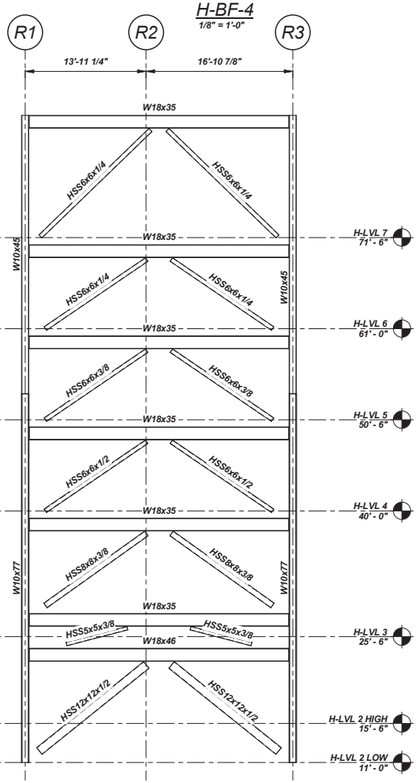
H-BF-6
1/8" = 1'-0"



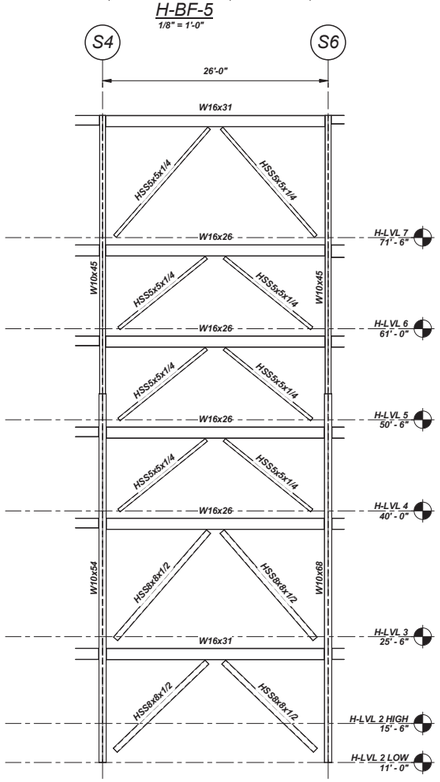
H-BF-7
1/8" = 1'-0"



H-BF-8
1/8" = 1'-0"



H-BF-9
1/8" = 1'-0"



H-BF-10
1/8" = 1'-0"

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Portland Square

PHASE 1- PRELIMINARY SCHEMATICS

Owner /Developers
NORTH RIVER, LLC
New York, NY

1/8" = 1'-0"

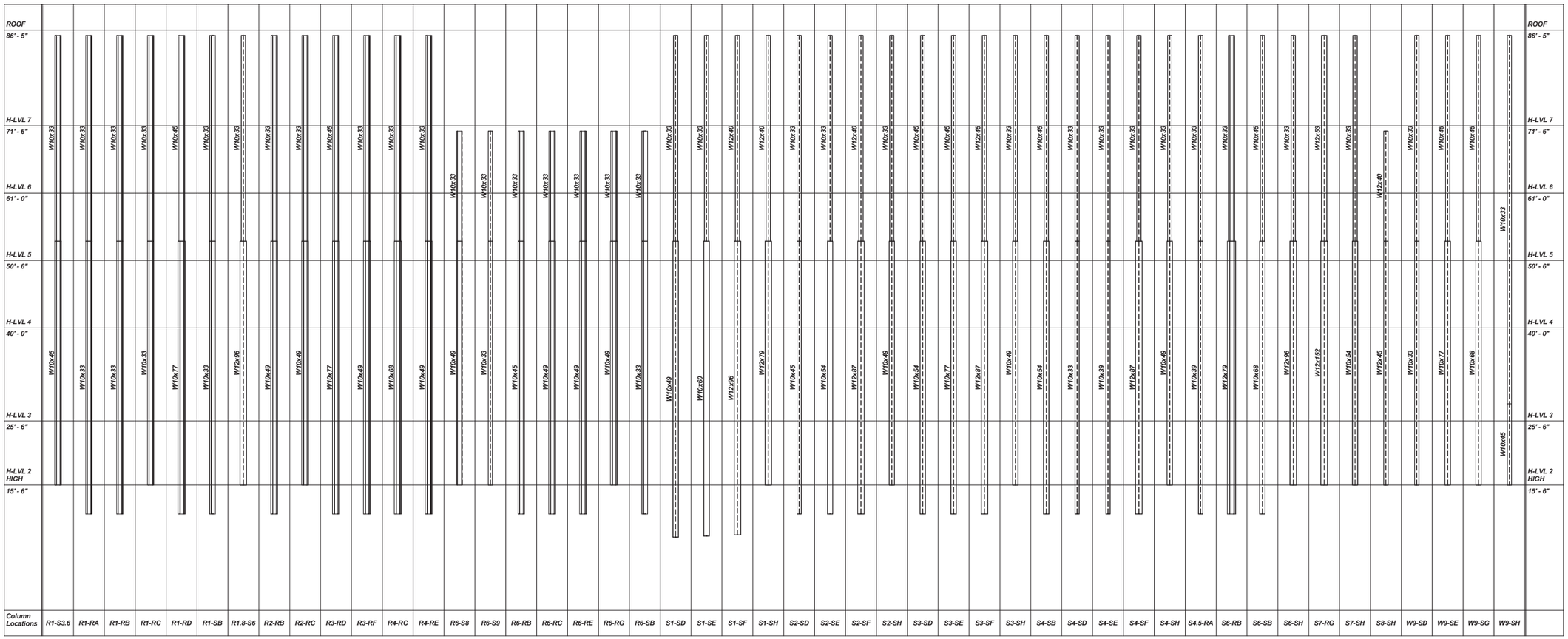
HOTEL BRACED FRAME ELEVATIONS

S1.9

JUNE 30, 2016

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HOTEL GRAPHICAL COLUMN SCHEDULE

1/8" = 1'-0"

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Portland Square

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Owner /Developers
NORTH RIVER, LLC
New York, NY

1/8" = 1'-0"

COLUMN SCHEDULE

S1.10

JUNE 30, 2016

Portland Water District
FROM SEBAGO LAKE TO CASCO BAY

January 14, 2020

Lauren Swett, PE
Woodard and Curran
41 Hutchins Drive
Portland, ME 04102

RE: 3-6 Portland Square, Capacity to Serve

Dear Lauren:

Based on the information provided to date, the Portland Water District can grant a conceptual level Capacity to Serve determination, in support of the Portland Square Master Development Plan, for the above referenced project with respect to water and sewer treatment capacity. This letter is not an approval of the project at this time nor shall it be used to demonstrate approval from the District for any reason beyond support of the Portland Square Master Development Plan. The development team will need to submit plans to PWD for review and approval at site plan application with the City of Portland for each phase of the project. PWD will issue a separate Ability to Serve determination letter for each phase of the project after plans have been reviewed and approved by the district. Only after receiving an Ability to Serve determination may the developer commence with water and wastewater improvements.

This Capacity to Serve determination shall be used to identify the condition of the existing water and wastewater system, and the steps to be taken by the development team, at their cost, to bring the existing infrastructure up to current standards to service the proposed development.

The District owns and operates water mains in Spring Street, Cotton Street, Fore Street and Cross Street immediately adjacent to the proposed project at 3-6 Portland Square. The existing 12-inch ductile iron water main (1972) in Spring Street has the capacity to serve the proposed development. The existing 6-inch cast iron water main (1888) in Cotton Street, and the existing 6-inch cast iron water main (1883) in Cross Street do not have the capacity to serve the proposed development and must be renewed by the developer; size to be determined by the District once domestic water and fire sprinkler demands are calculated. The existing 8-inch cast iron water main (1886) in Fore Street will need to be renewed by the development team with an 8-inch ductile iron water main, along the frontage of the property between Center Street and Cross Street; limits of renewal to be determined by PWD.

225 DOUGLASS STREET P.O. BOX 3553 PORTLAND, MAINE 04104-3553
PHONE: 207.774.5961 FAX: 207.761.8307 WEB: WWW.PWD.ORG

The sewer collection system adjacent to the site is owned and operated by the City of Portland. The East End Wastewater Treatment Facility has the capacity to serve the wastewater generated at this site. The type of wastewater generated is not expected to require treatment beyond what is typical for a similar use.

This Capacity to Serve determination is made based on information provided by the development team regarding the size, use, and proposed phasing of the project. As redevelopment continues on the peninsula, contemplated improvements associated with this project will be evaluated at each phase to ensure proper development of the water and wastewater systems.

As the project progresses, we advise you to submit any preliminary design plans to the MEANS Group for water and wastewater infrastructure for District review and approval. The District will work with you to ensure that your design meets our current standards.

Sincerely,
Portland Water District



Robert Bartels, PE
Senior Project Engineer

CARROLL ASSOCIATES

3 Portland Square
Neighborhood Meeting Certification

I, Patrick J. Carroll hereby certify that a neighborhood meeting was held on January 30, 2020 at One Portland Square, Lower Level at 5:30 pm.

I also certify that on January 15, 2020 invitations were mailed to the following:

1. All addresses on the mailing list provided by the Planning Division which includes property owners within 500 feet of the proposed development or within 1000 feet of a proposed industrial subdivision or industrial zone change.

2. Residents on the "interested parties" list.

3. A digital copy of the notice was also provided to the Planning Division (jmy@portlandmaine.gov and ldobson@portlandmaine.gov) and the assigned planner to be forwarded to those on the interested citizen list who receive e-mail notices.

Signed,



February 7, 2020

Attached to this certification are:

1. Copy of the invitation sent
2. Sign-in sheet
3. Meeting minutes

CARROLL ASSOCIATES

Neighborhood Meeting Invitation

January 13, 2020

Dear Neighbor:

Please join us for a neighborhood meeting to discuss our plans for **Three Portland Square**, the proposed development for a 2.26 Acre site located at Spring, Cotton, Cross, and Fore Streets in Portland. This project represents Phase 2 of the Proposed Portland Square Master Development Plan which is currently undergoing Review.

Meeting Location: 1 Portland Square, Café on lower level

Meeting Date: Thursday, January 30, 2020

Meeting Time: 5:30 pm

(The City code requires that property owners within 500 feet (1000 feet for proposed industrial subdivisions and industrial zone changes) of the proposed development and residents on an "interested parties list", be invited to participate in a neighborhood meeting. A sign-in sheet will be circulated and minutes of the meeting will be taken. Both the sign-in sheet and minutes will be submitted to the Planning Board.)

If you have any questions, please call my office at 207-772-1552.

Signed,

CARROLL ASSOCIATES



Patrick J. Carroll, Principal

Note:

Under Section 14-32(C) and 14-524(a)d of the City Code of Ordinances, an applicant for a Level III development, subdivision of over five lots/units, or zone change is required to hold a neighborhood meeting within 30 days of submitting a preliminary application or 21 days of submitting a final site plan application, if a preliminary plan was not submitted. The neighborhood meeting must be held at least seven days prior to the Planning Board public hearing on the proposal. Should you wish to offer additional comments on this proposed development, you may contact the Planning Division at 874-8721 or send written correspondence to the Planning and Urban Development Department, Planning Division, 4th Floor, 389 Congress Street Portland, ME 04101 or by email: to bab@portlandmaine.gov

Three Portland Square

01/30/2020

Neighborhood meeting minutes

Attendees: see attached sign-in sheet.

- Presentation from Pat Carroll, Steve Weatherhead, Larry Osmer:
- This meeting is required for site plan approval process
- Planning Board workshop 02/25, expected public hearing 2nd March meeting.
- Slide show (attached)
    - Neighborhood context
    - Project boundaries
    - Master Development Plan
    - Program & square footages of each building and use group
    - Overview typical floor plans
    - Cross-section
    - Site improvements / landscaping plan / site features and amenities
    - New plaza level at Spring Street between 1 & 3 Portland Square
    - Utility connections
    - Construction management plan
        - Construction traffic & access, loading & unloading
        - No shutdown of Cotton Street near Fore, sequencing of work on Cotton Street to avoid service disruption to Rivalries parking lot
    - Renderings and architectural expression
        - Height & setbacks
        - Materials & fenestration
        - Relation to neighborhood scale & context

- Questions from attendees:
    - Q: What is the project timeline? A: Aiming for site plan approval in February, construction permits summer 2020, occupancy 2022.
    - Q: Expecting excavation will require blasting? A: Small amount of ledge removal, not sure if will require blasting.
    - Q: Are you planning to build both buildings at the same time? A: Yes, aiming to fast track garage and open that a few months ahead of time to bring parking online ASAP.
    - Q: What is the plan for construction crew parking? A: Construction management plan discusses a mix of strategies, including parking in neighborhood garages and carpooling / van pooling.
    - Q: Why was parking count reduced from ~1,200 to ~850? A: This was a balance of parking and maximizing rentable square footage. Combination of cost estimating and pushback from lack of active uses on Spring Street led to current design. Suggest attending workshop 02/25. Refer to VHB parking study materials. Traffic Demand Management Plan encourages car pooling, using alternate modes of transportation, car charging stations, etc.
    - Q: How many spaces are currently on upper lot? A: 236
    - Q: Make sure you have exceptional lighting around the whole project. A: We are following new municipal lighting guidelines.

- Q: Was the alley requested by City? Seems like a dead space. A: Alley was required to maintain separations between building and maintain light to both adjacent buildings. We are working now to activate the alley with interesting lighting and street furniture.
- Q: Is there a solar component? A: We haven't gotten to that yet, we have talked about it.
- Q: Is Cross Street one way or two way? A: Two way going to Fore, one way going to Union.
- Q: How will work on Cotton Street affect the steps and elevations for the parking lot on the west side of Cotton Street? How to service 2 and 10 Cotton Street? Rivalries takes all deliveries through front door. A: Sequencing plan shows phased work on Cotton Street that maintains access on Cotton Street. Any disruption of Cotton Street would be temporary. Need to understand access needs on Cotton Street. During this time, this would be a business interruption for the tenants in these buildings. We will do our best to accommodate tenants and their deliveries.
- Where is service and loading entrance for 3PS? A: Upper Cross Street, near 1PS.

(1)

NORTH RIVER COMPANY

3 PORTLAND SQUARE
NEIGHBORHOOD MEETING
01.30.2020

NAME	ADDRESS
DAN JACQUES	ONE PORTLAND SQUARE, PORTLAND 04101
LARRY OSMER	FRANKLIN STREET, PORTLAND 04101
ANDY JACKSON	PEAKS ISLAND " 04101
PATRICK CARROLL	517 COMMERCE ST. PORTLAND ME 04101
Erin Kay	217 Commercial St Portland ME 04107
Steve Weatherlead	Winton Scott Architects
Ellen Thompson	17 South St, Portland, ME
BRAD FRIES	17 South St, Portland ME
DREW SWENSON	6 CITY CENTER " "
CARLO GIOBBI	14 PLEASANT ST - PORTLAND
Gerard Kiladjian	468 Fore St. Ptld.
Megan McDevitt	Woodard & Curran
MATTHEW TONELLO	CONSIGLI CONSTRUCTION CO., INC.
Hank Conklin	269 Commercial St 3E
Carol Pierson	
Catherine Lawson	261 Commercial St.
JAMIE GOUPEE	ONE PORTLAND SQUARE, PORTLAND 04101

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T 207.774.2112
F 207.774.6635

February 7, 2020

Matt Grooms, Planner
City of Portland Planning Division
389 Congress Street
Portland, ME 04101

Re: 3 Portland Square Level III Site Plan Submittal – North River IV, LLC
Response to Planning Staff Comments

Dear Matt:

Thank you for coordinating the review of the proposed development of Phase 2 of the Portland Square Project located at 3 Portland Square in Portland, Maine. We received the January 21, 2020 memo from Wright-Pierce, the 3rd party peer reviewer for the City of Portland, and provide the following response and additional information.

Since our previous submission, adjustments have been made to the stormwater management system to avoid conflicts with the building footings. Additionally, design of the stormwater treatment system, and coordination with the manufactures of the system components have progressed. The following stormwater management documents are enclosed with this letter. They include modifications to the stormwater management system and changes to address comments from Wright-Pierce:

- C-201 Grading, Drainage and Erosion Control Plan
- C-304 Civil Details - 5
- Post-Development HydroCAD Model

Additionally, we received a response from the Maine Department of Inland Fisheries & Wildlife (MDIFW) confirming there are no locations of Endangered, Threatened, or Special Concern species within the project area. The MDIFW response letter is enclosed for your reference.

To support the Level III Site Plan process, we provide the following responses to the comments we received from Wright-Pierce dated January 21, 2020.

Basic Standard

Per the City's Technical Manual "Portland Stormwater Management Standards and Maine Dep Chapter 500 Stormwater Management", an Erosion & Sediment Control management plan, notes, and details per the Chapter 500 Rules must be provided to meet the Basic Standard.

- *Erosion and Sedimentation Control best practices were shown on the Erosion and Sedimentation Control Plan, and are indicated on the Grading and Drainage Plan. No further action necessary.*
    - Noted.
- *A written inspection, maintenance and housekeeping plan was provided. No further action necessary.*
    - Noted.

General Standard

The applicant has provided information regarding the size and scope of the project indicating the project is subject to the General Standard under the requirements of the Site Location of Development Act (SLODA). The project is being reviewed under the redevelopment guidelines and requirements.

The applicant has provided an impact analysis to compare pre-development and post-development land use pollutant rankings under MaineDEP redevelopment guidelines. This analysis indicated that the proposed development had a lower pollutant ranking than the existing site and is therefore required to treat 50% of the proposed site's disturbed surface area, with priority placed on the highest-ranked pollutant for the site.

- *Pollutant ranking for both the existing and proposed parking areas was noted as 5 in the narrative, and 4 in the calculations. Please confirm the correct value and update calculations as necessary.*
    - The narrative incorrectly referred to the parking area pollutant ranking. The calculations are correct. The parking areas are pollutant impact ranking 4 (medium use parking lot) for both the existing and proposed condition. Currently, the surface parking lot is used primarily during working hours and does not appear to have high turnover rates. Similarly, the proposed parking garage is being provided to service the surrounding office uses and is not anticipated to have a high turnover rate.
- *Calculations are provided for determining the amount of area requiring treatment. Please confirm the following items:*
    - *Total square feet of site required to receive treatment* – 50% of total redevelopment area of 2.31 acres = 50,307 SF
    - *Total square feet of proposed site receiving treatment* – 50,612 SF
    - *Total % of high-pollutant ranking surfaces receiving treatment*
        - Pollutant Ranking 5 – No areas exist on site
        - Pollutant Ranking 4 – 80.8% of 1.16 acres
        - Pollutant Ranking 3 – 13.2% of 0.61 acres
        - Pollutant Ranking 2 – 32.6% of 0.44 acres
        - Pollutant Ranking 1 – 0% of 0.10 acres
        - Pollutant Ranking 0 – No areas exist on site

          Note that all areas listed above have not changed, and are consistent with previously submitted stormwater calculations.
    - *Total percentage of non-roof impervious area receiving treatment* – 70.2%
- *Proprietary R-Tank systems and Jellyfish filters have been provided for runoff treatment. Please provide the following clarifications:*
    - *Inverts for pipe elevations for Jellyfish filters and R-Tank systems;*
        - The invert elevations for the R-Tank systems and the Peak Diversion StormFilter have been added to the Grading, Drainage and Erosion Control Plan (Sheet C-201).
    - *Filterra units are shown on the October 2019 plan set, which is the most recent grading plan available; updated plans and narrative with the December 2019 Stormwater Management Report did not have Filterra Units. Please confirm if Filterra units are still proposed.*
        - Filterra units are no longer proposed and have been removed from the plans. The current plans do not show any Filterra Units.

- *The applicant has indicated a maintenance agreement for stormwater treatment systems will be provided as the design progresses. An executed maintenance contract for the BMP system is required and may be included as a Condition of Approval.*
    - Noted.

Flooding Standard

The applicant has submitted calculations indicating the total surface flows to the separated storm drain at the intersection of Fore Street and Cross Street.

- *These calculations indicate runoff rates will be less in the proposed condition than in the existing condition in 24-hour, 2-year, 10-year, and 25- year interval storm events. No further action necessary.*
    - The stormwater management system on the site has been modified to avoid building footings. We have also revised our treatment device from a Jelly Fish to a Peak Diversion StormFilter. We have revised the detail sheet to reflect this change. This has also resulted in changes to invert elevations, which changed the post-development HydroCAD model. As shown below, there continues to be a net decrease in the post-development rate of runoff during all storms at the Site's study point. An updated HydroCAD model is attached.

Study Point		Peak Runoff Rate (cfs)		
		2-Year Storm	10-Year Storm	25-Year Storm
1	Pre-Development	5.44	8.96	11.79
	Post-Development	5.16	8.12	9.89

- *See comment 3d, below, for additional City requirements for connections to the existing system.*
    - Noted, see further response below.

Grading and Drainage

- *Catch basin details have been provided. Please confirm intent for 'Drain Basin – 24"' Sheet C-301 and '24" Diam. Catch Basin" Sheet C-302. Please confirm catch basins have 3-foot sumps.*
    - The 'Drain Basin – 24' detail has been removed from Sheet C-301. Catch basins to be provided within the City of Portland Right-of-Way will be standard catch basins with 3-foot sumps.
- *A catch basin at the corner of Cross Street and Fore Street is within the pedestrian tipdown ramp. Standard granite inlet details may not be appropriate for this application and additional detailing may be necessary.*
    - This catch basin has been shifted to be located outside of the tipdown.
- *Sheet C1-C3 for a project in the Boyd Street community were provided. These pages were not reviewed as we anticipate they were accidentally uploaded and part of another project. Please confirm if these plans are used for reference.*
    - Please disregard these plan sheets.

Utility Connections

- *Utility work within the Right-Of-Way is being reviewed by others.*
    - Noted.

- *Ability to serve letters have not been provided for all utilities impacted by the proposed project, but have been requested by the applicant for applicable utilities. The applicant has indicated that ability to serve letters will be submitted to Planning upon receipt.*
    - Woodard & Curran met with Brad Roland from Portland Public Works on Friday January 17, 2020 to discuss separated sewer and storm drain surrounding the site. The drainage plan is being updated per this discussion, and further utility coordination is ongoing relative to changes to infrastructure in Cotton Street.

      Ability to serve approval from Public Works for sewer and Portland Water District for public water will be provided when available.
- *It is understood that grease trap sizing is being reviewed by Department of Public Works. Applicant shall defer to comments from Department of Public Works on this item.*
    - Noted.
- *Connection to Existing Stormwater Systems: E-mail, or otherwise written, confirmation from the Department of Public Works accepting this connection is requested to confirm that this connection is appropriate under Land Use section 14- 526 (b) 3 a. (iv); and 14-526 (c) 3 a. This confirmation is typically provided similar to a capacity to serve letter, and can be a condition of approval.*
    - Noted. Further coordination is ongoing with the Department of Public Works on the proposed stormdrain modifications proposed for Cotton Street.
- *Applicant has stated utilities are being sized to coordinate with future phases of development. No further action necessary.*
    - Noted.

If you have any questions or require additional information, please do not hesitate to contact me at (207) 558-3763 or by email at lswett@woodardcurran.com.

Sincerely,

WOODARD & CURRAN INC.

Lauren Swett

Lauren Swett, PE
Technical Manager

Enclosures: Revised Grading, Drainage and Erosion Control Plan (Sheet C-201) (also uploaded separately to eplan)
Revised Civil Details-5 (Sheet C-304) (also uploaded separately to eplan)
Revised Post-Development HydroCAD Model
MDIFW Response Letter

Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

CARROLL ASSOCIATES
LANDSCAPE ARCHITECTS
217 Commercial St, Suite 200
Portland, ME 04101
207.772.1552
www.carroll-assoc.com

WINTON SCOTT
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Portland, ME 04101
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ENGINEERS, INC.
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Portland, ME 04101
207.879.1838
www.beckerstructural.com

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www.haleyaldrich.com

GORRILL PALMER
707 Sable Oaks Drive, Suite 30
South Portland, ME 04106
207.239.7470
www.gorrillpalmer.com

Revisions		
1	2.7.2020	SITE PLAN RESPONSE TO COMMENTS

Drawing Title: GRADING, DRAINAGE AND EROSION CONTROL PLAN

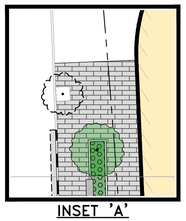
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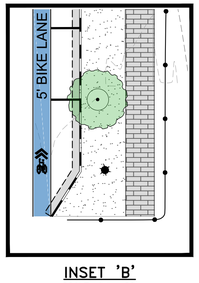
STATE OF MAINE
LAUREN JANE SWETT
12284
PROFESSIONAL ENGINEER
LICENSED
Lauren J. Swett
2/7/2020

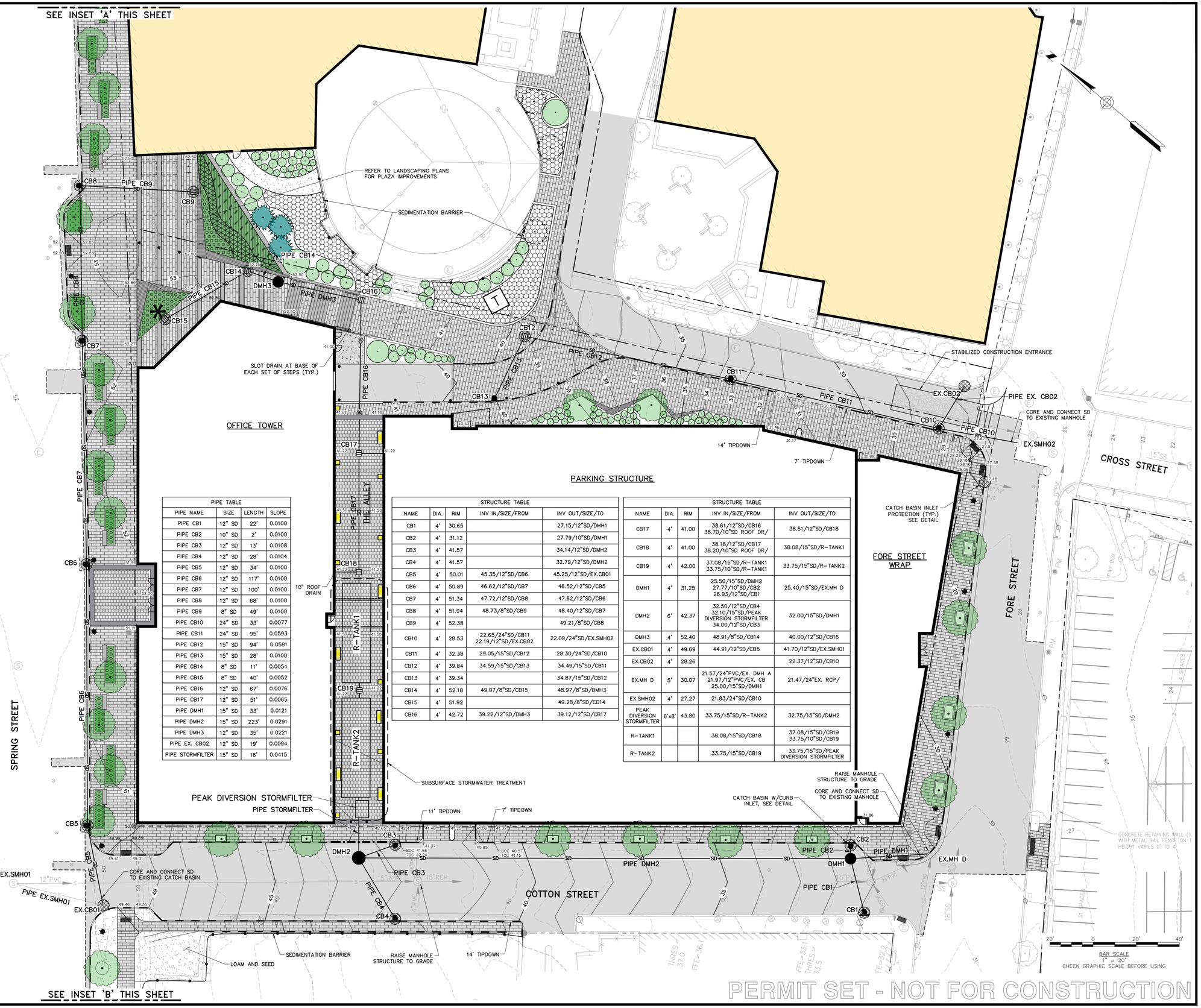
Date: FEBRUARY 7, 2020

Phase: PERMITTING

C-201







PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
PIPE CB1	12" SD	22'	0.0100
PIPE CB2	10" SD	2'	0.0100
PIPE CB3	12" SD	13'	0.0108
PIPE CB4	12" SD	28'	0.0104
PIPE CB5	12" SD	34'	0.0100
PIPE CB6	12" SD	117'	0.0100
PIPE CB7	12" SD	100'	0.0100
PIPE CB8	12" SD	68'	0.0100
PIPE CB9	8" SD	49'	0.0100
PIPE CB10	24" SD	33'	0.0077
PIPE CB11	24" SD	95'	0.0593
PIPE CB12	15" SD	94'	0.0581
PIPE CB13	15" SD	28'	0.0100
PIPE CB14	8" SD	11'	0.0054
PIPE CB15	8" SD	40'	0.0052
PIPE CB16	12" SD	67'	0.0076
PIPE CB17	12" SD	51'	0.0065
PIPE DMH1	15" SD	33'	0.0121
PIPE DMH2	15" SD	223'	0.0291
PIPE DMH3	12" SD	35'	0.0221
PIPE EX. CB02	12" SD	19'	0.0094
PIPE STORMFILTER	15" SD	16'	0.0415

STRUCTURE TABLE				
NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO
CB1	4'	30.65		27.15/12"SD/DMH1
CB2	4'	31.12		27.79/10"SD/DMH1
CB3	4'	41.57		34.14/12"SD/DMH2
CB4	4'	41.57		32.79/12"SD/DMH2
CB5	4'	50.01	45.35/12"SD/CB6	45.25/12"SD/EX.CB01
CB6	4'	50.89	46.62/12"SD/CB7	46.52/12"SD/CB5
CB7	4'	51.34	47.72/12"SD/CB8	47.62/12"SD/CB6
CB8	4'	51.94	48.73/8"SD/CB9	48.40/12"SD/CB7
CB9	4'	52.38		49.21/8"SD/CB8
CB10	4'	28.53	22.65/24"SD/CB11 22.19/12"SD/EX.CB02	22.09/24"SD/EX.SMH02
CB11	4'	32.38	29.05/15"SD/CB12	28.30/24"SD/CB10
CB12	4'	39.84	34.59/15"SD/CB13	34.49/15"SD/CB11
CB13	4'	39.34		34.87/15"SD/CB12
CB14	4'	52.18	49.07/8"SD/CB15	48.97/8"SD/DMH3
CB15	4'	51.92		49.28/8"SD/CB14
CB16	4'	42.72	39.22/12"SD/DMH3	39.12/12"SD/CB17

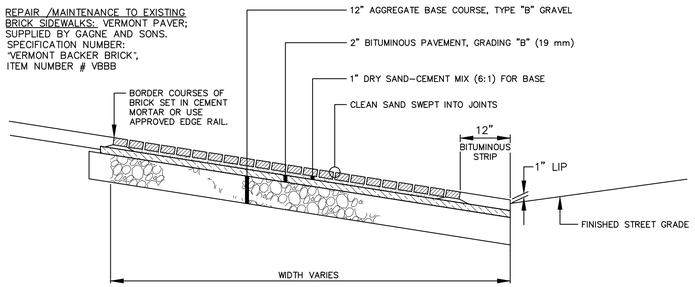
STRUCTURE TABLE				
NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO
CB17	4'	41.00	38.61/12"SD/CB16 38.70/10"SD ROOF DR/	38.51/12"SD/CB18
CB18	4'	41.00	38.18/12"SD/CB17 38.20/10"SD ROOF DR/	38.08/15"SD/R-TANK1
CB19	4'	42.00	37.08/15"SD/R-TANK1 33.75/10"SD/R-TANK1	33.75/15"SD/R-TANK2
DMH1	4'	31.25	25.50/15"SD/DMH2 27.77/10"SD/CB2 26.93/12"SD/CB1	25.40/15"SD/EX.MH D
DMH2	6'	42.37	32.50/12"SD/CB4 32.10/15"SD/PEAK DIVERSION STORMFILTER 34.00/12"SD/CB3	32.00/15"SD/DMH1
DMH3	4'	52.40	48.91/8"SD/CB14	40.00/12"SD/CB16
EX.CB01	4'	49.69	44.91/12"SD/CB5	41.70/12"SD/EX.SMH01
EX.CB02	4'	28.26		22.37/12"SD/CB10
EX.MH D	5'	30.07	21.57/24"PVC/EX. DMH A 21.97/12"PVC/EX. CB 25.00/15"SD/DMH1	21.47/24"EX. RCP/
EX.SMH02	4'	27.27	21.83/24"SD/CB10	
PEAK DIVERSION STORMFILTER	6'x8'	43.80	33.75/15"SD/R-TANK2	32.75/15"SD/DMH2
R-TANK1			38.08/15"SD/CB18	37.08/15"SD/CB19 33.75/10"SD/CB19
R-TANK2			33.75/15"SD/CB19	33.75/15"SD/PEAK DIVERSION STORMFILTER

PERMIT SET - NOT FOR CONSTRUCTION

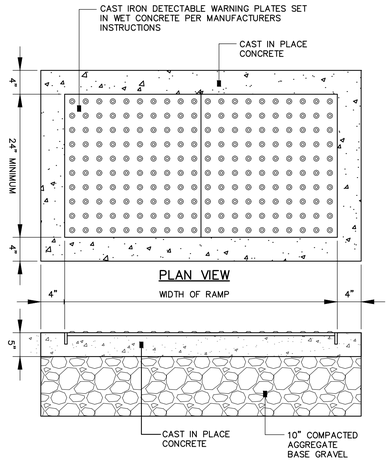
BRICKS TO BE USED:

NEW CONSTRUCTION:
4"x8" PINE HALL PATHWAY PAVER BRICK; MFG. BY PINE HALL BRICK CO., MADISON, NORTH CAROLINA. LACHANCE ITEM # 193623, PINE HALL PATHWAY PAVER BRICK.

REPAIR /MAINTENANCE TO EXISTING BRICK SIDEWALKS: VERMONT PAVER; SUPPLIED BY GAGNE AND SONS. SPECIFICATION NUMBER: "VERMONT BACKER BRICK", ITEM NUMBER # VBBB



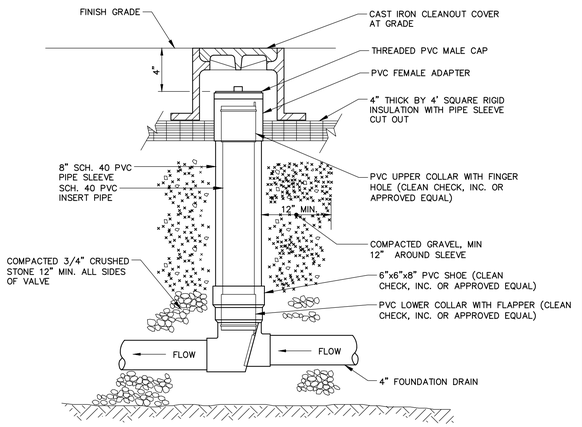
BRICK DRIVEWAY APRON
N.T.S.



SECTION VIEW

NOTES:
1. ALL DETECTABLE WARNING PLATES SHALL BE UNCOATED CAST IRON. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.
2. CAST IN PLACE CONCRETE SHALL MEET SPECIFICATIONS FOR MAINE D.O.T. CLASS A STRUCTURAL CONCRETE, MINIMUM COMPRESSIVE STRENGTH 4,000 PSI. THE EXPOSED CONCRETE BORDER SHALL RECEIVE A UNIFORM BROOM FINISH PERPENDICULAR TO THE FLOW OF PEDESTRIAN TRAFFIC.
3. TRUNCATED DOMES SHALL BE ALIGNED IN ROWS, PARALLEL AND PERPENDICULAR TO THE PREDOMINANT DIRECTION OF TRAVEL. TRUNCATED DOME BRICKS AND GRANITE PAVERS ARE NOT ALLOWED.
4. SIZE: THE DETECTABLE WARNING PLATES SHALL EXTEND 24 INCHES MINIMUM IN THE DIRECTION OF TRAVEL AND THE PLATE WIDTH + CONCRETE SHALL EXTEND THE WIDTH OF THE CURB RAMP, LANDING, OR BLENDED TRANSITION TO THE STREET.
5. ORIENTATION: THE DETECTABLE WARNING PANEL SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 INCHES MINIMUM AND 8 INCHES MAXIMUM FROM THE CURB LINE. THE PANEL SHALL BE ORIENTED TO THE DIRECTION OF TRAVEL AS IDENTIFIED BY THE POINT OF EGRESS.

SIDEWALK RAMP DETECTABLE WARNING
N.T.S.

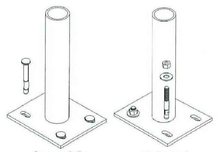


NOTES:
1. MATERIALS AND INSTALLATION PER MANUFACTURER'S INSTRUCTIONS.
2. SEE MECHANICAL PLANS FOR DETAIL OF BACK FLOW PREVENTOR LOCATED IN BELOW BUILDING PARKING LOT.

BACKFLOW PREVENTER
N.T.S.

Tools Needed for Installation

Tape Measure
Marker or Pencil
Masonry Drill Bit
Drill (Hammer drill recommended)
Hammer
Wrench 9/16"
Level
Washers (for leveling if necessary)

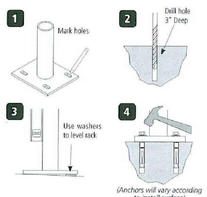


Recommended Base Materials:

Solid concrete is the best base material for installation. Ask your Dero Rack representative which anchor is appropriate for your application to ensure the proper anchors are shipped with your rack. Be sure nothing is underneath the base material that could be damaged by drilling.

Installation:

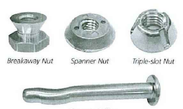
3/8" anchors are shipped with the rack. Place the rack in the desired location. Use a marker or pencil to outline the holes of the flange onto the base material. Drill the holes in accordance with the specifications shipped with the anchors. Make sure the holes are at least 6" away from any cracks in the base material.



Tamper Resistant Fasteners

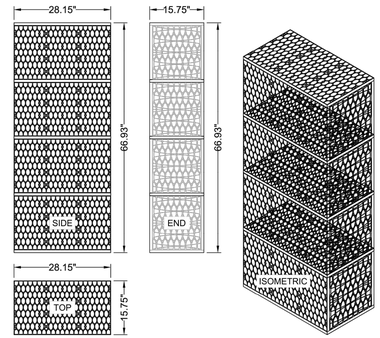
The concrete spike is a permanent anchor. The top of the wedge anchor can also be pounded sideways after installation so that it cannot be removed. Other tamper resistant fasteners are also available for purchase.

When using the special tamper resistant nuts, always set and first tighten the anchors. Once the rack is installed, replace two nuts from the bracket (opposite sides from each other) with the tamper resistant fastener. DO NOT OVERTIGHTEN the tamper resistant nut.



If you have any questions about installation or other features of the Bike Rack, please call us toll free at 1-800-298-4915

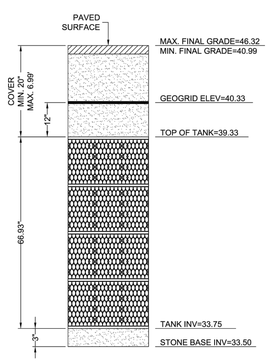
TYPICAL BIKE RACK DETAIL IN R.O.W.
N.T.S.



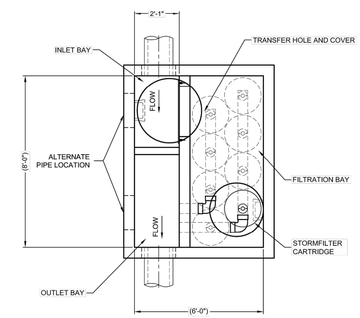
MODULE DATA

GEOMETRY:	**LOAD RATING:**
LENGTH = 28.15 IN. (715 MM)	33.4 PSI, (MODULE ONLY)
WIDTH = 15.75 IN. (400 MM)	HS20, (WITH ACF COVER SYSTEM)
HEIGHT = 66.93 IN. (1700 MM)	**MATERIAL:**
TANK VOLUME = 17.17 CF	100% RECYCLED POLYPROPYLENE
STORAGE VOLUME = 16.31 CF	**SMALL PLATES PER**
VOID INTERNAL VOLUME: 95%	**SEGMENT/TOTAL:**
VOID SURFACE AREA: 90%	5/20

R-TANKHD - QUAD MODULE
N.T.S.



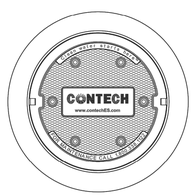
QUAD R-TANKHD-ELEVATION
N.T.S.



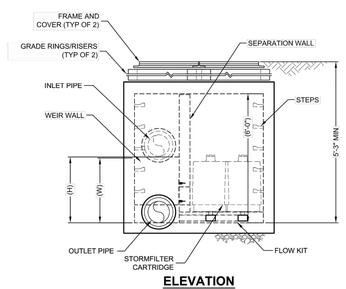
PLAN

STORMFILTER DESIGN NOTES									
• THE 8' x 6' PEAK DIVERSION STORMFILTER TREATMENT CAPACITY VARIES BY CARTRIDGE COUNT AND LOCALLY APPROVED SURFACE AREA SPECIFIC FLOW RATE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD. • THE PEAK DIVERSION STORMFILTER IS AVAILABLE IN A LEFT INLET (AS SHOWN) OR RIGHT INLET CONFIGURATION. • ALL PARTS AND INTERNAL ASSEMBLY PROVIDED BY CONTECH UNLESS OTHERWISE NOTED.									
CARTRIDGE SELECTION									
CARTRIDGE HEIGHT	27"			18"			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H)	3.05'			2.3'			1.8'		
HEIGHT OF WEIR (W)	3.00'			2.25'			1.75'		
SPECIFIC FLOW RATE (gpm/sf)	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf
CARTRIDGE FLOW RATE (gpm)	22.5	18.79	11.25	15	12.53	7.5	10	8.35	5

* 1.67 gpm/sf SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



ELEVATION

PERFORMANCE SPECIFICATION
FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. **RADIAL MEDIA DEPTH SHALL BE 7 INCHES.** FILTER MEDIA CONTACT TIME SHALL BE AT LEAST **36 SECONDS.**
SPECIFIC FLOW RATE SHALL BE **2 GPM/SF (MAXIMUM)**. SPECIFIC FLOW RATE IS THE MEASURE OF THE FLOW (GPM) DIVIDED BY THE MEDIA SURFACE CONTACT AREA (SF). MEDIA VOLUMETRIC FLOW RATE SHALL BE **6 GPM/CF OF MEDIA (MAXIMUM).**

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.ContechES.com
4. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
5. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
F. CONTRACTOR TO REMOVE THE TRANSFER HOLE COVER WHEN THE SYSTEM IS BROUGHT ONLINE.

8'x6' PEAK DIVERSION STORMFILTER
N.T.S.

NOTES:
ALL RAMPS SHALL COMPLY WITH ADA STANDARDS.

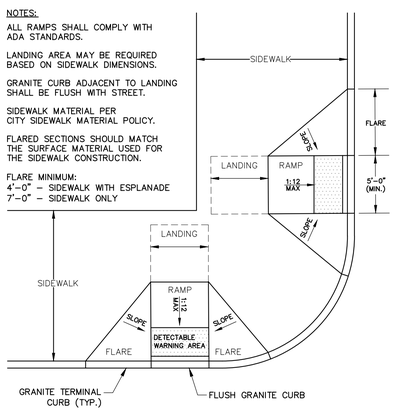
LANDING AREA MAY BE REQUIRED BASED ON SIDEWALK DIMENSIONS.

GRANITE CURB ADJACENT TO LANDING SHALL BE FLUSH WITH STREET.

SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY.

FLARED SECTIONS SHOULD MATCH THE SURFACE MATERIAL USED FOR THE SIDEWALK CONSTRUCTION.

FLARE MINIMUM:
4'-0" - SIDEWALK WITH ESPLANADE
7'-0" - SIDEWALK ONLY



SIDEWALK RAMP AT INTERSECTION

ADA ACCESSIBLE CURB RAMPS
N.T.S.

PERMIT SET - NOT FOR CONSTRUCTION

Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

CARROLL ASSOCIATES LANDSCAPE ARCHITECTS
217 Commercial St, Suite 200
Portland, ME 04101
207.772.1552
www.carroll-assoc.com

WINTON SCOTT ARCHITECTS, PA
5 Milk Street
Portland, ME 04101
774-4811
www.wintonscott.com

BECKER STRUCTURAL ENGINEERS, INC.
75 York Street, Suite 3
Portland, ME 04101
207.879.1838
www.beckerstructural.com

WOODARD & CURRAN
41 Hutchins Dr.
Portland, ME 04101
207.558.3785
www.woodardcurran.com

HALEY & ALDRICH, INC.
75 Washington Ave, Suite 1A
Portland, ME 04101
207.482.4609
www.haleyaldrich.com

GORRILL PALMER
707 Sable Oaks Drive, Suite 30
South Portland, ME 04106
207.239.7470
www.gorrillpalmer.com

Revisions		
1	2.7.2020	SITE PLAN RESPONSE TO COMMENTS

Drawing Title: CIVIL DETAILS - 5

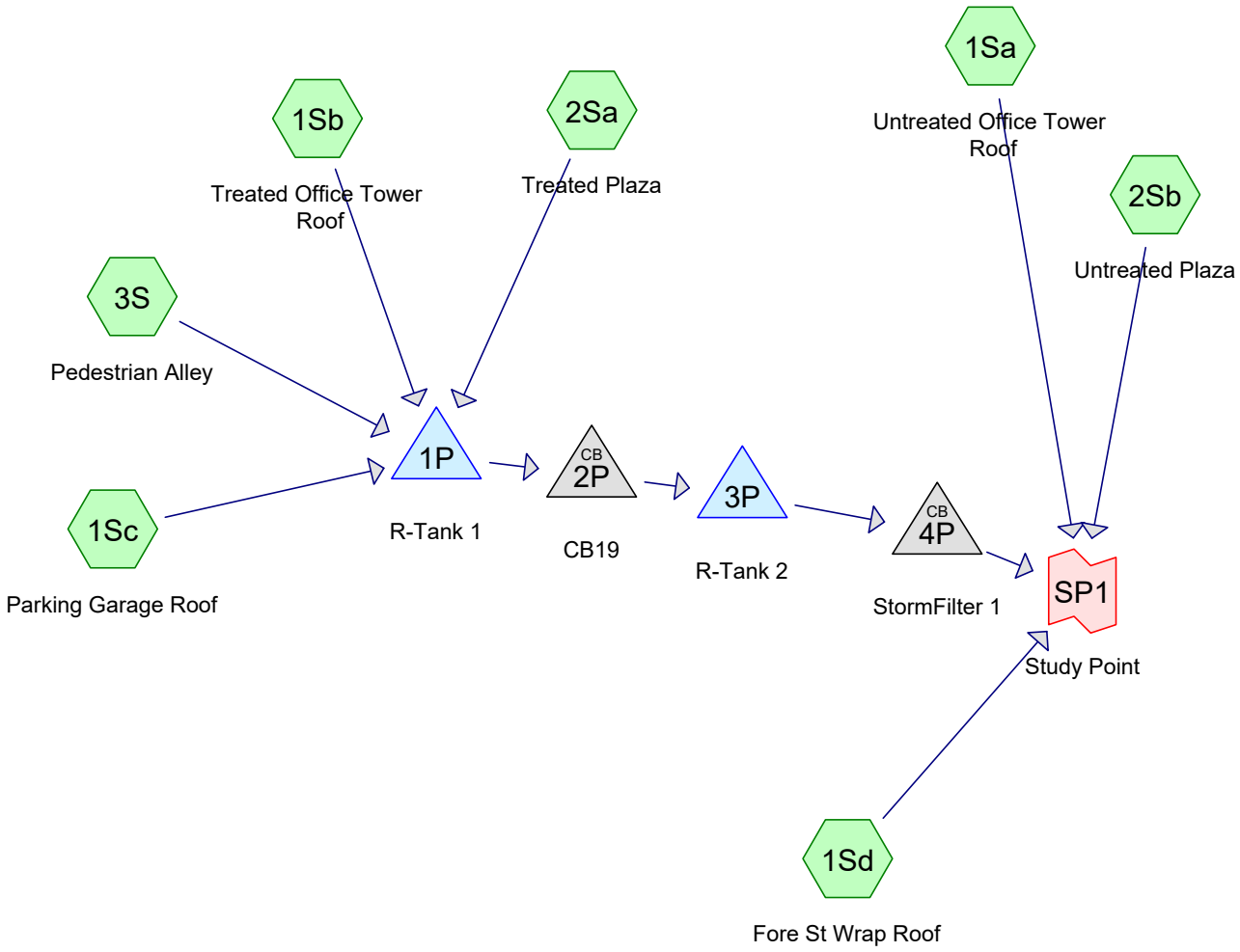
Scale: AS NOTED



Date: FEBRUARY 7, 2020
Phase: PERMITTING

C-304

C:\Users\lcoulombe\onedrive - woodard & curran_pcfolders\documents_000 projects_0231886.00 carroll assoc - port square redev\Civil\0231886.00-C-300 - C-305-DETAILS-PORT SCHEMATIC.dwg, Feb 07, 2020 - 2:42pm



Subcat Reach Pond Link

Routing Diagram for C2. Post Stormwater Analysis
Prepared by Woodard Curran, Printed 2/7/2020
HydroCAD® 10.00-21 s/n 01204 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.161	49	50-75% Grass cover, Fair, HSG A (2Sa, 2Sb)
2.149	98	Impervious (1Sa, 1Sb, 1Sc, 1Sd, 2Sa, 2Sb, 3S)
2.310	**95**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1Sa: Untreated Office Runoff Area=18,158 sf 100.00% Impervious Runoff Depth>2.98"
Tc=6.0 min CN=98 Runoff=1.30 cfs 0.103 af

Subcatchment1Sb: Treated Office Tower Runoff Area=3,500 sf 100.00% Impervious Runoff Depth>2.98"
Tc=6.0 min CN=98 Runoff=0.25 cfs 0.020 af

Subcatchment1Sc: Parking Garage Roof Runoff Area=41,170 sf 100.00% Impervious Runoff Depth>2.98"
Tc=6.0 min CN=98 Runoff=2.95 cfs 0.234 af

Subcatchment1Sd: Fore St Wrap Roof Runoff Area=5,745 sf 100.00% Impervious Runoff Depth>2.98"
Tc=6.0 min CN=98 Runoff=0.41 cfs 0.033 af

Subcatchment2Sa: Treated Plaza Runoff Area=2,515 sf 90.74% Impervious Runoff Depth>2.45"
Tc=6.0 min CN=93 Runoff=0.16 cfs 0.012 af

Subcatchment2Sb: Untreated Plaza Runoff Area=25,855 sf 73.75% Impervious Runoff Depth>1.76"
Tc=6.0 min CN=85 Runoff=1.23 cfs 0.087 af

Subcatchment3S: Pedestrian Alley Runoff Area=3,670 sf 100.00% Impervious Runoff Depth>2.98"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.021 af

Pond 1P: R-Tank 1 Peak Elev=35.89' Storage=1,040 cf Inflow=3.62 cfs 0.287 af
Outflow=2.72 cfs 0.284 af

Pond 2P: CB19 Peak Elev=34.88' Inflow=2.72 cfs 0.284 af
15.0" Round Culvert n=0.013 L=2.0' S=0.0000 '/' Outflow=2.72 cfs 0.284 af

Pond 3P: R-Tank 2 Peak Elev=34.87' Storage=575 cf Inflow=2.72 cfs 0.284 af
15.0" Round Culvert n=0.013 L=4.0' S=0.0000 '/' Outflow=2.66 cfs 0.282 af

Pond 4P: StormFilter 1 Peak Elev=38.51' Inflow=2.66 cfs 0.282 af
Outflow=2.66 cfs 0.282 af

Link SP1: Study Point Inflow=5.16 cfs 0.505 af
Primary=5.16 cfs 0.505 af

Total Runoff Area = 2.310 ac Runoff Volume = 0.510 af Average Runoff Depth = 2.65"
6.98% Pervious = 0.161 ac 93.02% Impervious = 2.149 ac

Summary for Subcatchment 1Sa: Untreated Office Tower Roof

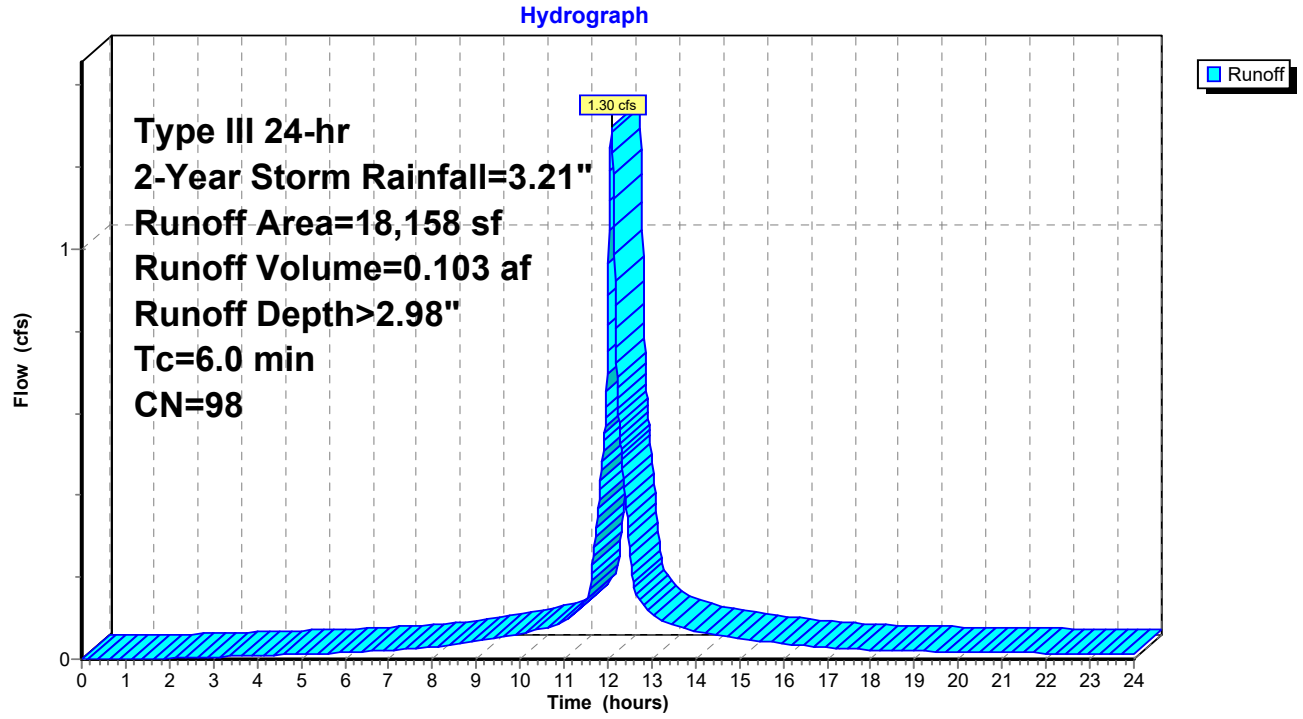
Runoff = 1.30 cfs @ 12.08 hrs, Volume= 0.103 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
*	18,158	98	Impervious
	18,158		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sa: Untreated Office Tower Roof



Summary for Subcatchment 1Sb: Treated Office Tower Roof

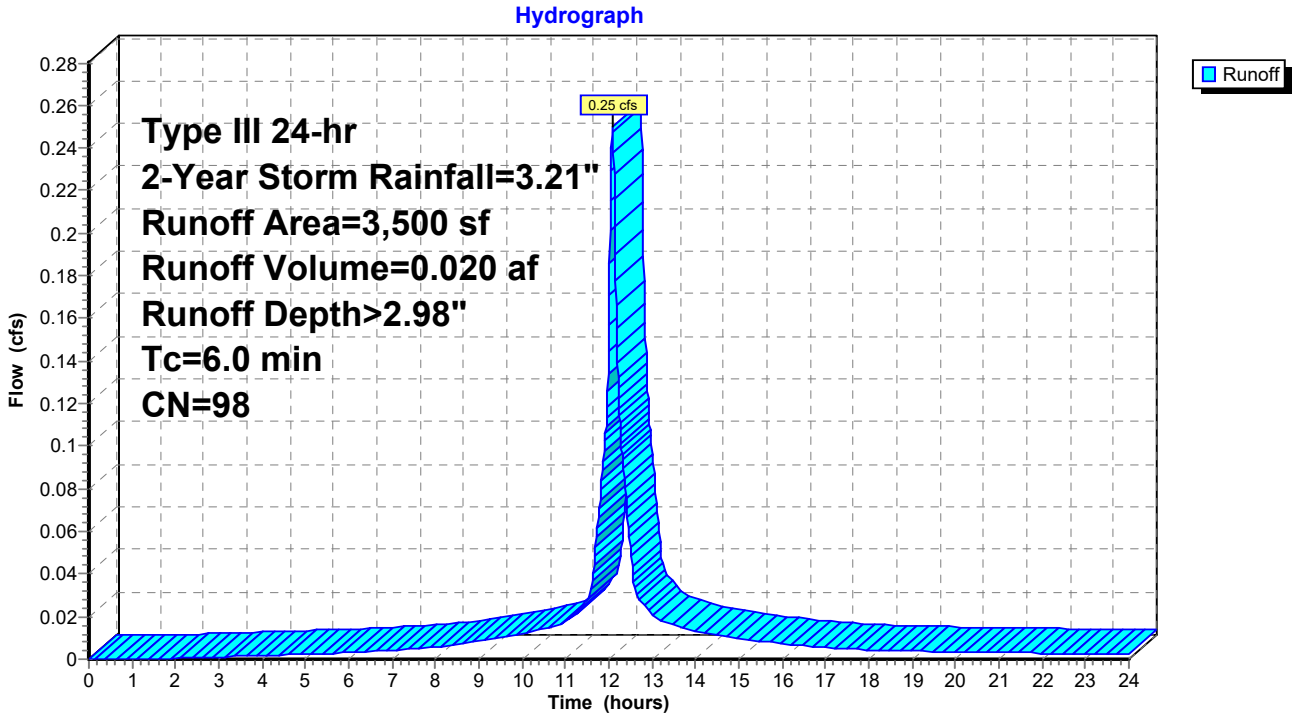
Runoff = 0.25 cfs @ 12.08 hrs, Volume= 0.020 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
*	3,500	98	Impervious
	3,500		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sb: Treated Office Tower Roof



Summary for Subcatchment 1Sc: Parking Garage Roof

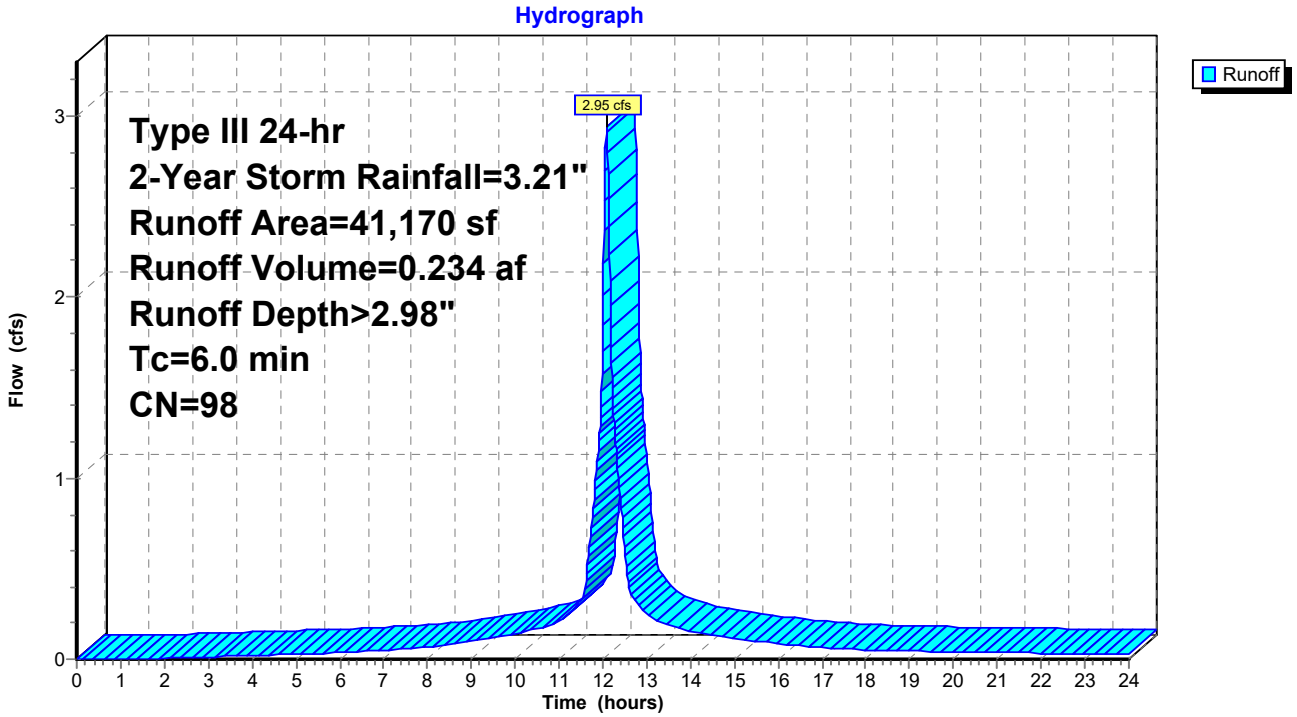
Runoff = 2.95 cfs @ 12.08 hrs, Volume= 0.234 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
*	41,170	98	Impervious
	41,170		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sc: Parking Garage Roof



Summary for Subcatchment 1Sd: Fore St Wrap Roof

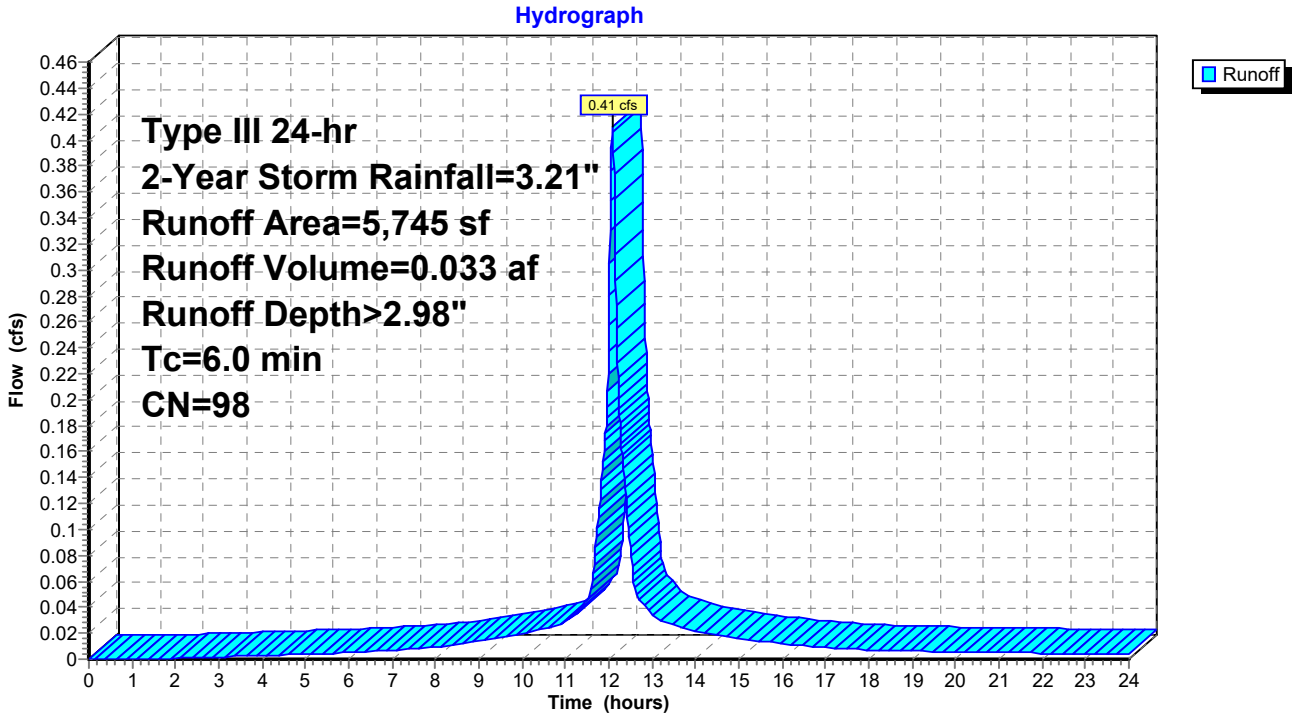
Runoff = 0.41 cfs @ 12.08 hrs, Volume= 0.033 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
*	5,745	98	Impervious
	5,745		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sd: Fore St Wrap Roof



Summary for Subcatchment 2Sa: Treated Plaza

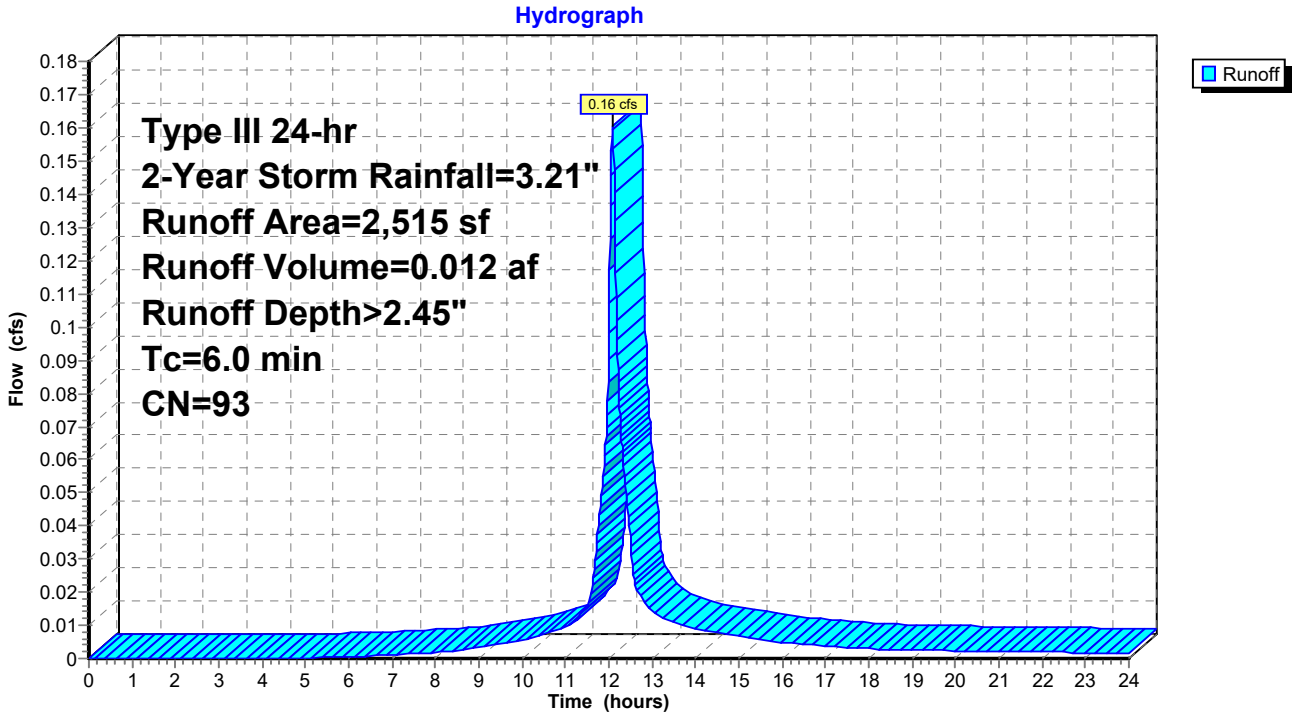
Runoff = 0.16 cfs @ 12.09 hrs, Volume= 0.012 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
	233	49	50-75% Grass cover, Fair, HSG A
*	2,282	98	Impervious
	2,515	93	Weighted Average
	233		9.26% Pervious Area
	2,282		90.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2Sa: Treated Plaza



Summary for Subcatchment 2Sb: Untreated Plaza

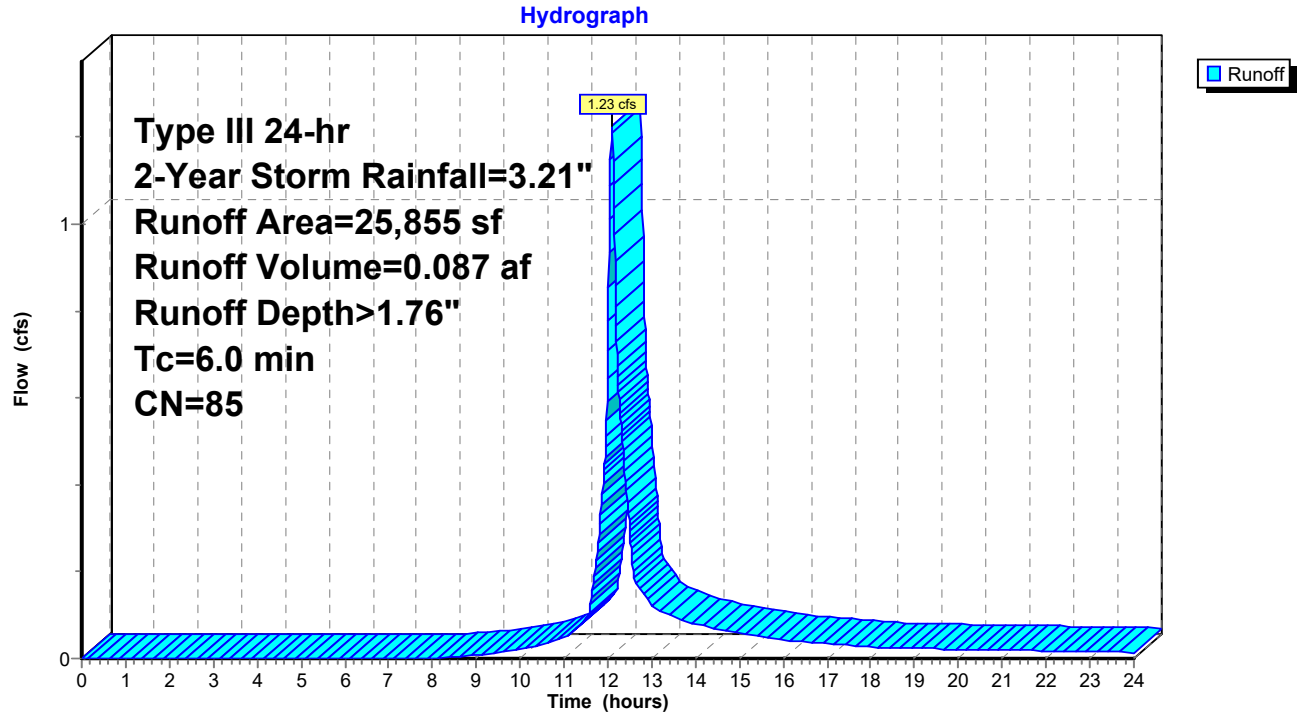
Runoff = 1.23 cfs @ 12.09 hrs, Volume= 0.087 af, Depth> 1.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
	6,787	49	50-75% Grass cover, Fair, HSG A
*	19,068	98	Impervious
	25,855	85	Weighted Average
	6,787		26.25% Pervious Area
	19,068		73.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2Sb: Untreated Plaza



Summary for Subcatchment 3S: Pedestrian Alley

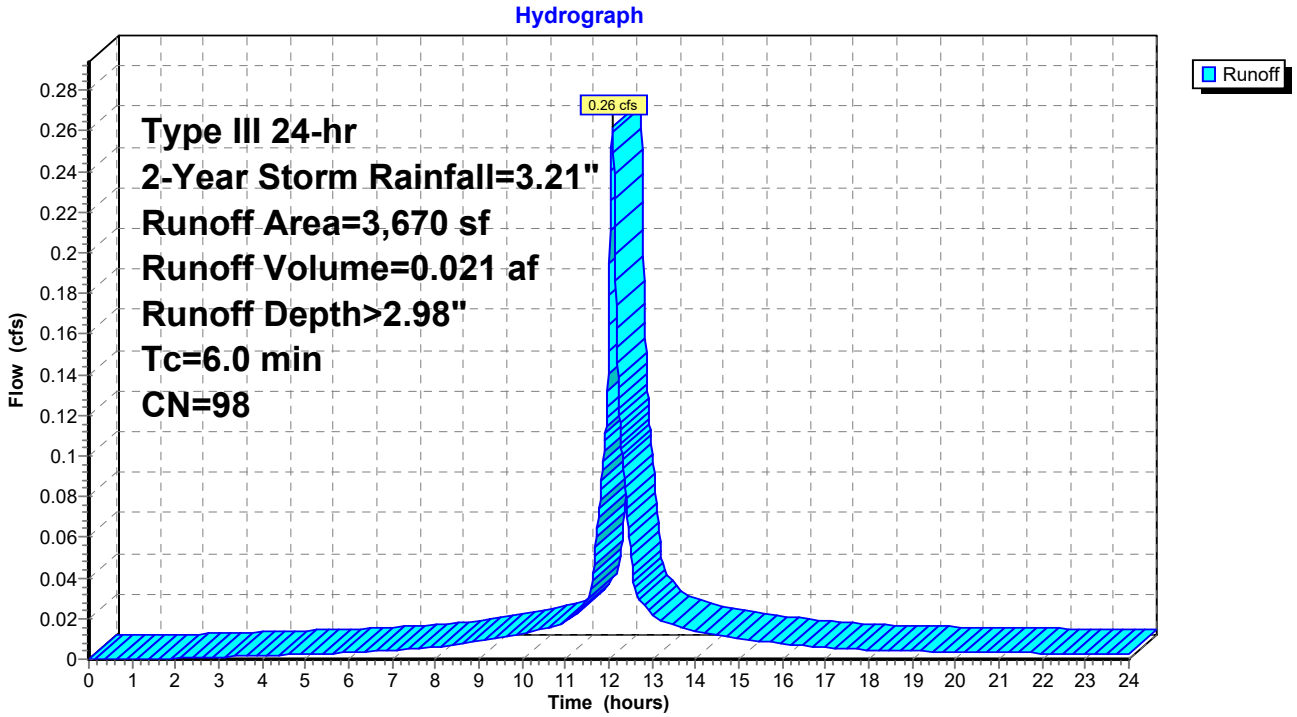
Runoff = 0.26 cfs @ 12.08 hrs, Volume= 0.021 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
*	3,670	98	Impervious
	3,670		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Pedestrian Alley



Summary for Pond 1P: R-Tank 1

Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 2.95" for 2-Year Storm event
Inflow = 3.62 cfs @ 12.08 hrs, Volume= 0.287 af
Outflow = 2.72 cfs @ 12.15 hrs, Volume= 0.284 af, Atten= 25%, Lag= 4.1 min
Primary = 2.72 cfs @ 12.15 hrs, Volume= 0.284 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 35.89' @ 12.15 hrs Surf.Area= 614 sf Storage= 1,040 cf
Flood Elev= 39.33' Surf.Area= 614 sf Storage= 2,613 cf

Plug-Flow detention time= 17.3 min calculated for 0.284 af (99% of inflow)
Center-of-Mass det. time= 11.1 min (768.4 - 757.3)

Volume	Invert	Avail.Storage	Storage Description
#1	33.50'	818 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,194 cf Overall - 2,148 cf Embedded = 2,045 cf x 40.0% Voids
#2	33.75'	2,041 cf	**R-Tank Quad Modules (Prismatic)** Listed below (Recalc) Inside #1 2,148 cf Overall x 95.0% Voids
		2,859 cf	Total Available Storage

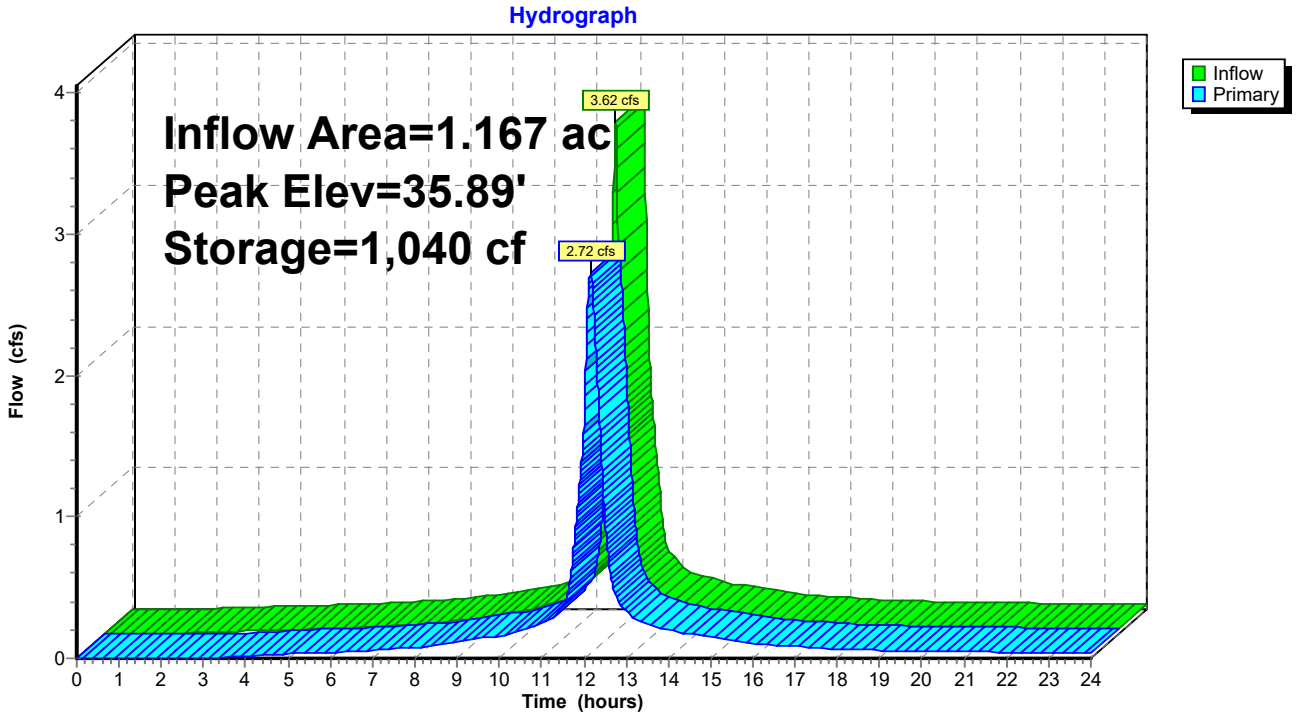
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.50	614	0	0
40.33	614	4,194	4,194

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.75	385	0	0
39.33	385	2,148	2,148

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	**10.0" Round Culvert** L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.75' / 33.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Primary	38.08'	**15.0" Round Culvert** L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.08' / 38.08' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.72 cfs @ 12.15 hrs HW=35.89' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 2.72 cfs @ 4.99 fps)
└—**2=Culvert** (Controls 0.00 cfs)

Pond 1P: R-Tank 1



Summary for Pond 2P: CB19

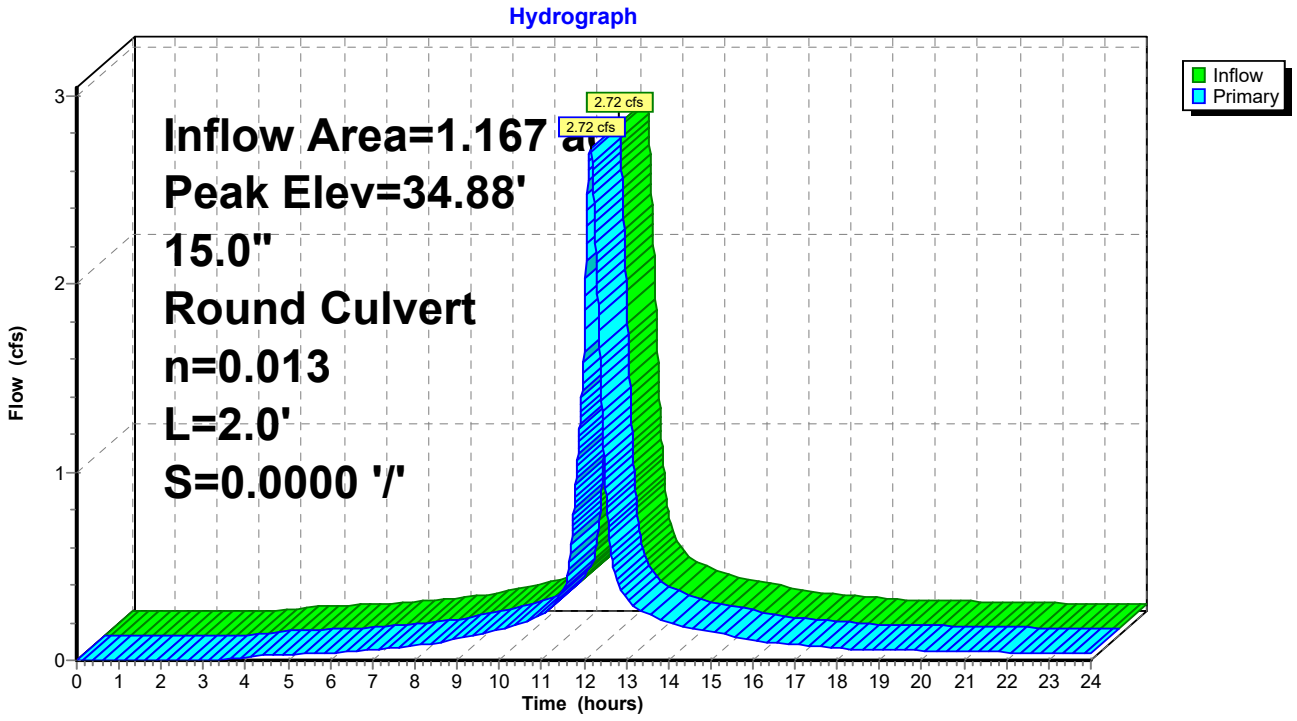
Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 2.92" for 2-Year Storm event
Inflow = 2.72 cfs @ 12.15 hrs, Volume= 0.284 af
Outflow = 2.72 cfs @ 12.15 hrs, Volume= 0.284 af, Atten= 0%, Lag= 0.0 min
Primary = 2.72 cfs @ 12.15 hrs, Volume= 0.284 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 34.88' @ 12.15 hrs
Flood Elev= 41.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	**15.0" Round Culvert** L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.75' / 33.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.72 cfs @ 12.15 hrs HW=34.88' (Free Discharge)
1=Culvert (Barrel Controls 2.72 cfs @ 3.07 fps)

Pond 2P: CB19



Summary for Pond 3P: R-Tank 2

Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 2.92" for 2-Year Storm event
Inflow = 2.72 cfs @ 12.15 hrs, Volume= 0.284 af
Outflow = 2.66 cfs @ 12.19 hrs, Volume= 0.282 af, Atten= 2%, Lag= 2.1 min
Primary = 2.66 cfs @ 12.19 hrs, Volume= 0.282 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 34.87' @ 12.19 hrs Surf.Area= 614 sf Storage= 575 cf
Flood Elev= 39.33' Surf.Area= 614 sf Storage= 2,613 cf

Plug-Flow detention time= 15.3 min calculated for 0.281 af (99% of inflow)
Center-of-Mass det. time= 9.3 min (777.6 - 768.4)

Volume	Invert	Avail.Storage	Storage Description
#1	33.50'	818 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,194 cf Overall - 2,148 cf Embedded = 2,045 cf x 40.0% Voids
#2	33.75'	2,041 cf	**R-Tank Quad Modules (Prismatic)** Listed below (Recalc) Inside #1 2,148 cf Overall x 95.0% Voids
		2,859 cf	Total Available Storage

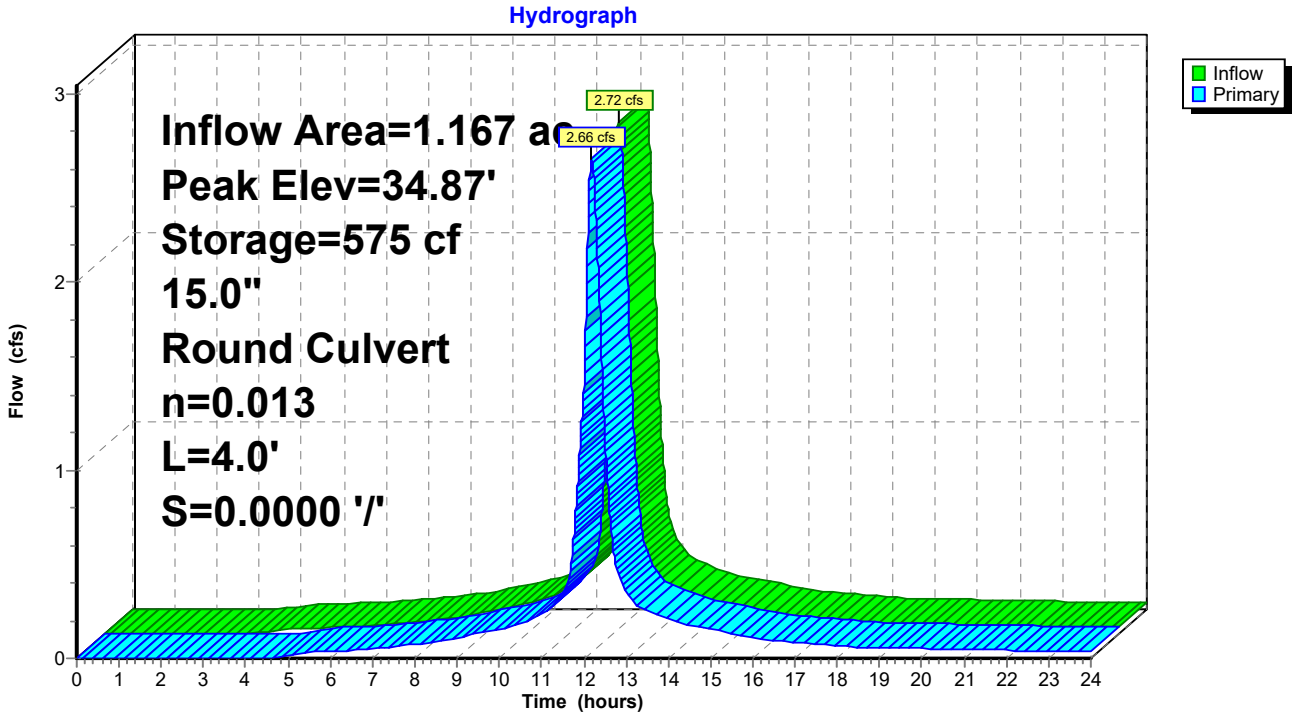
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.50	614	0	0
40.33	614	4,194	4,194

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.75	385	0	0
39.33	385	2,148	2,148

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	**15.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.75' / 33.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.66 cfs @ 12.19 hrs HW=34.87' (Free Discharge)
1=Culvert (Barrel Controls 2.66 cfs @ 3.02 fps)

Pond 3P: R-Tank 2



Summary for Pond 4P: StormFilter 1

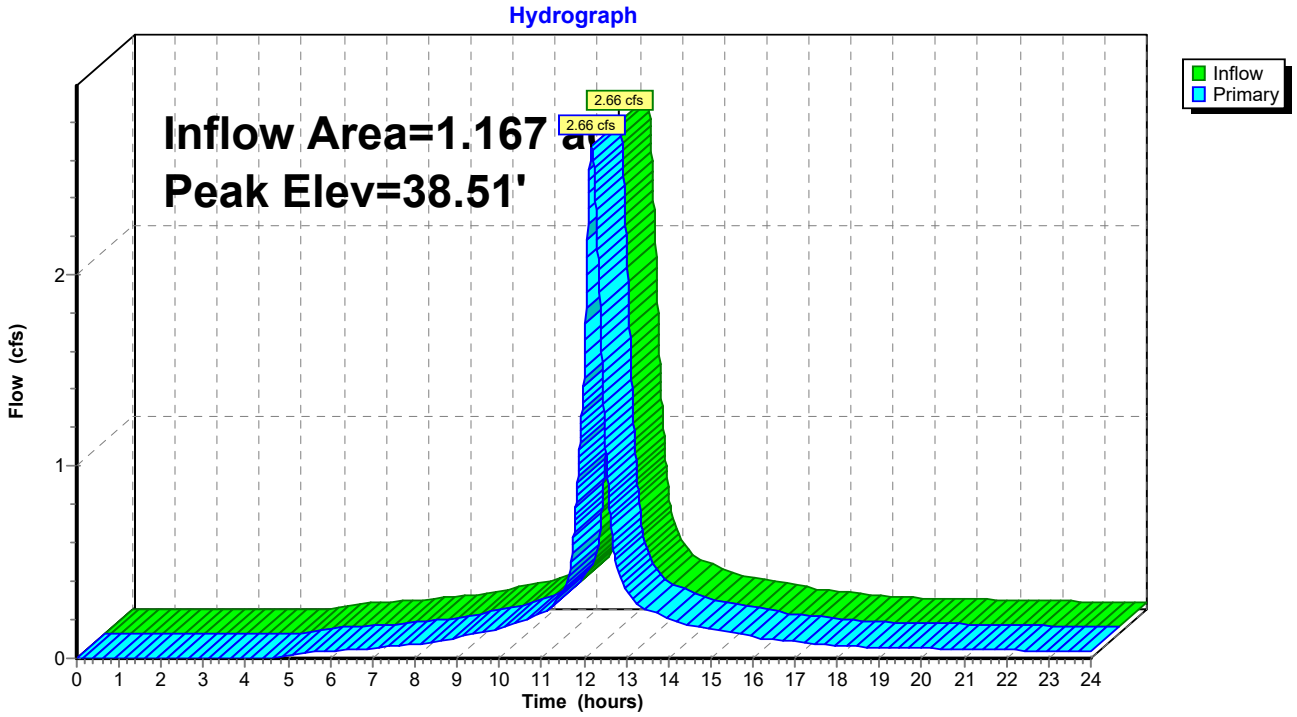
Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 2.89" for 2-Year Storm event
Inflow = 2.66 cfs @ 12.19 hrs, Volume= 0.282 af
Outflow = 2.66 cfs @ 12.19 hrs, Volume= 0.282 af, Atten= 0%, Lag= 0.0 min
Primary = 2.66 cfs @ 12.19 hrs, Volume= 0.282 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 38.51' @ 12.19 hrs
Flood Elev= 39.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.75'	**15.0" Round Filter Culvert Out** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.75' / 32.50' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	32.75'	**SF Filter-1 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.129 0.198 0.267 0.337 0.406 0.475 0.545 0.614 0.683 0.753 0.822 0.891
#3	Device 1	38.08'	**2.1' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=2.66 cfs @ 12.19 hrs HW=38.51' (Free Discharge)
└**1=Filter Culvert Out** (Passes 2.66 cfs of 10.57 cfs potential flow)
  ├**2=SF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 1.77 cfs @ 1.94 fps)

Pond 4P: StormFilter 1

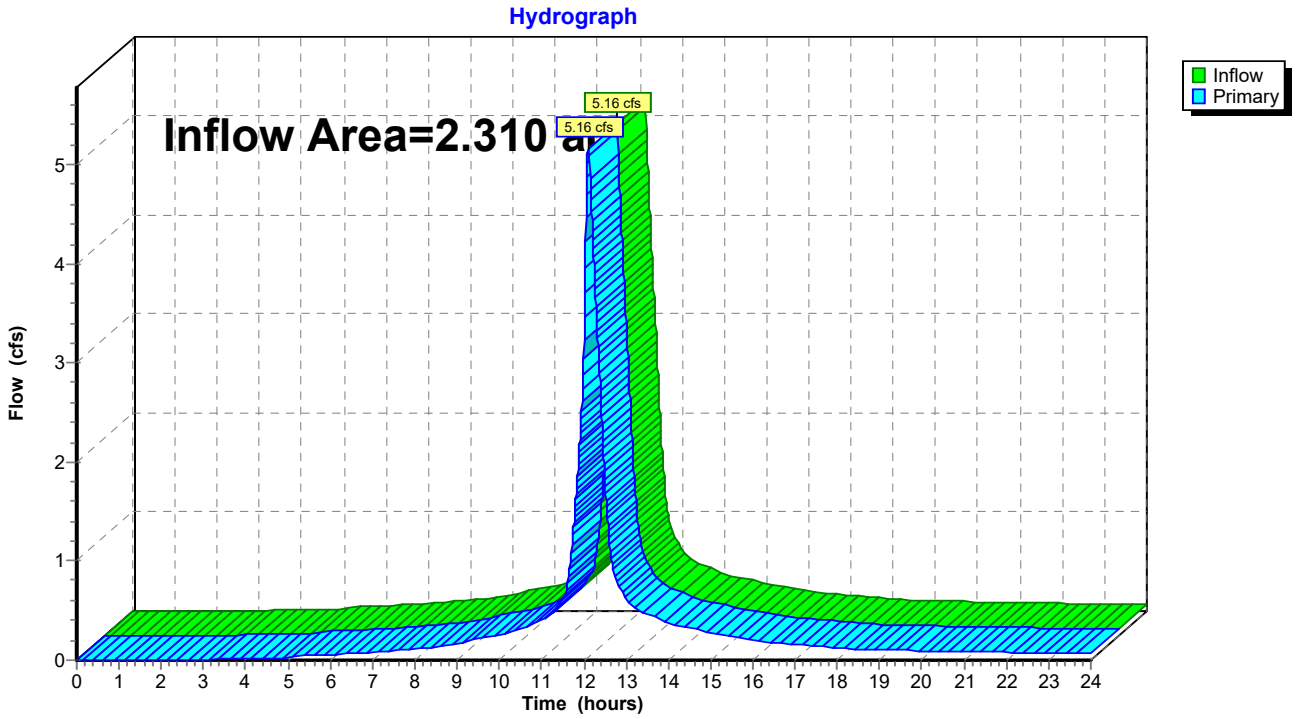


Summary for Link SP1: Study Point

Inflow Area = 2.310 ac, 93.02% Impervious, Inflow Depth > 2.62" for 2-Year Storm event
Inflow = 5.16 cfs @ 12.11 hrs, Volume= 0.505 af
Primary = 5.16 cfs @ 12.11 hrs, Volume= 0.505 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link SP1: Study Point



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1Sa: Untreated Office Runoff Area=18,158 sf 100.00% Impervious Runoff Depth>4.78"
Tc=6.0 min CN=98 Runoff=2.05 cfs 0.166 af

Subcatchment1Sb: Treated Office Tower Runoff Area=3,500 sf 100.00% Impervious Runoff Depth>4.78"
Tc=6.0 min CN=98 Runoff=0.39 cfs 0.032 af

Subcatchment1Sc: Parking Garage Roof Runoff Area=41,170 sf 100.00% Impervious Runoff Depth>4.78"
Tc=6.0 min CN=98 Runoff=4.64 cfs 0.376 af

Subcatchment1Sd: Fore St Wrap Roof Runoff Area=5,745 sf 100.00% Impervious Runoff Depth>4.78"
Tc=6.0 min CN=98 Runoff=0.65 cfs 0.053 af

Subcatchment2Sa: Treated Plaza Runoff Area=2,515 sf 90.74% Impervious Runoff Depth>4.21"
Tc=6.0 min CN=93 Runoff=0.27 cfs 0.020 af

Subcatchment2Sb: Untreated Plaza Runoff Area=25,855 sf 73.75% Impervious Runoff Depth>3.38"
Tc=6.0 min CN=85 Runoff=2.33 cfs 0.167 af

Subcatchment3S: Pedestrian Alley Runoff Area=3,670 sf 100.00% Impervious Runoff Depth>4.78"
Tc=6.0 min CN=98 Runoff=0.41 cfs 0.034 af

Pond 1P: R-Tank 1 Peak Elev=37.65' Storage=1,843 cf Inflow=5.72 cfs 0.462 af
Outflow=3.87 cfs 0.459 af

Pond 2P: CB19 Peak Elev=35.18' Inflow=3.87 cfs 0.459 af
15.0" Round Culvert n=0.013 L=2.0' S=0.0000 '/' Outflow=3.87 cfs 0.459 af

Pond 3P: R-Tank 2 Peak Elev=35.17' Storage=712 cf Inflow=3.87 cfs 0.459 af
15.0" Round Culvert n=0.013 L=4.0' S=0.0000 '/' Outflow=3.80 cfs 0.456 af

Pond 4P: StormFilter 1 Peak Elev=38.67' Inflow=3.80 cfs 0.456 af
Outflow=3.80 cfs 0.456 af

Link SP1: Study Point Inflow=8.12 cfs 0.842 af
Primary=8.12 cfs 0.842 af

Total Runoff Area = 2.310 ac Runoff Volume = 0.848 af Average Runoff Depth = 4.41"
6.98% Pervious = 0.161 ac 93.02% Impervious = 2.149 ac

Summary for Subcatchment 1Sa: Untreated Office Tower Roof

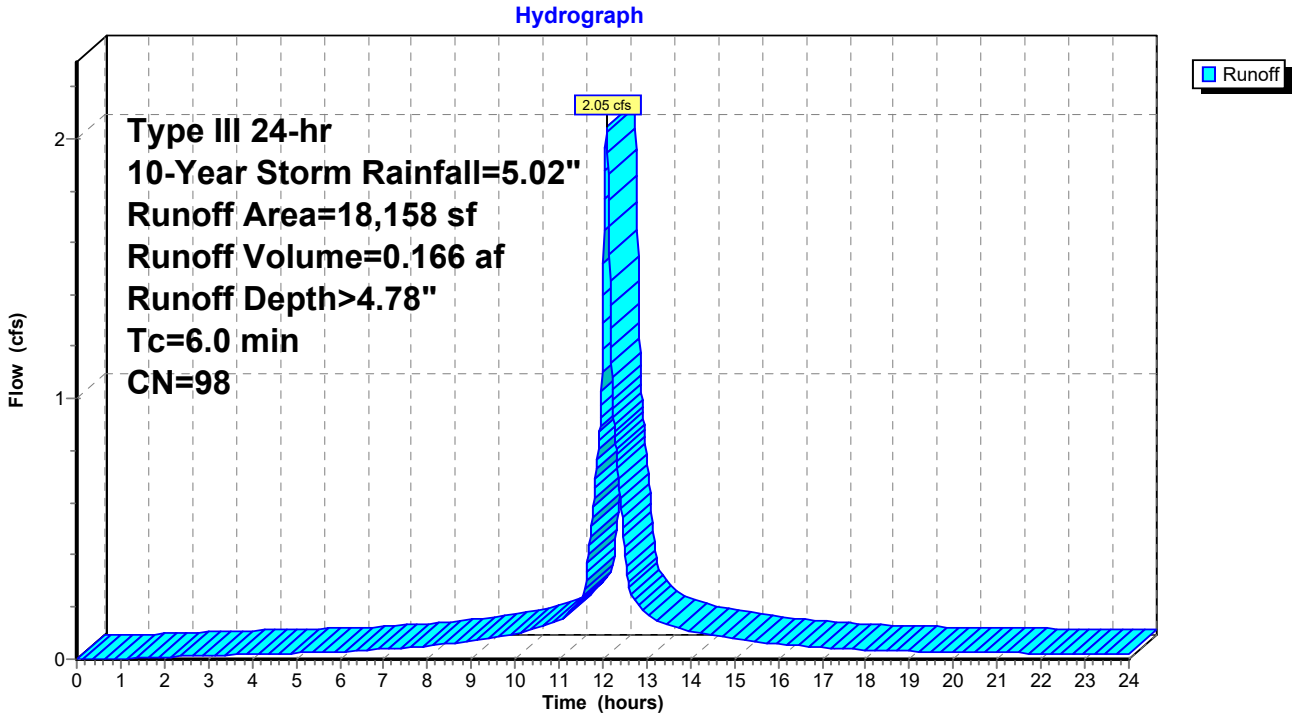
Runoff = 2.05 cfs @ 12.08 hrs, Volume= 0.166 af, Depth> 4.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
*	18,158	98	Impervious
	18,158		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sa: Untreated Office Tower Roof



Summary for Subcatchment 1Sb: Treated Office Tower Roof

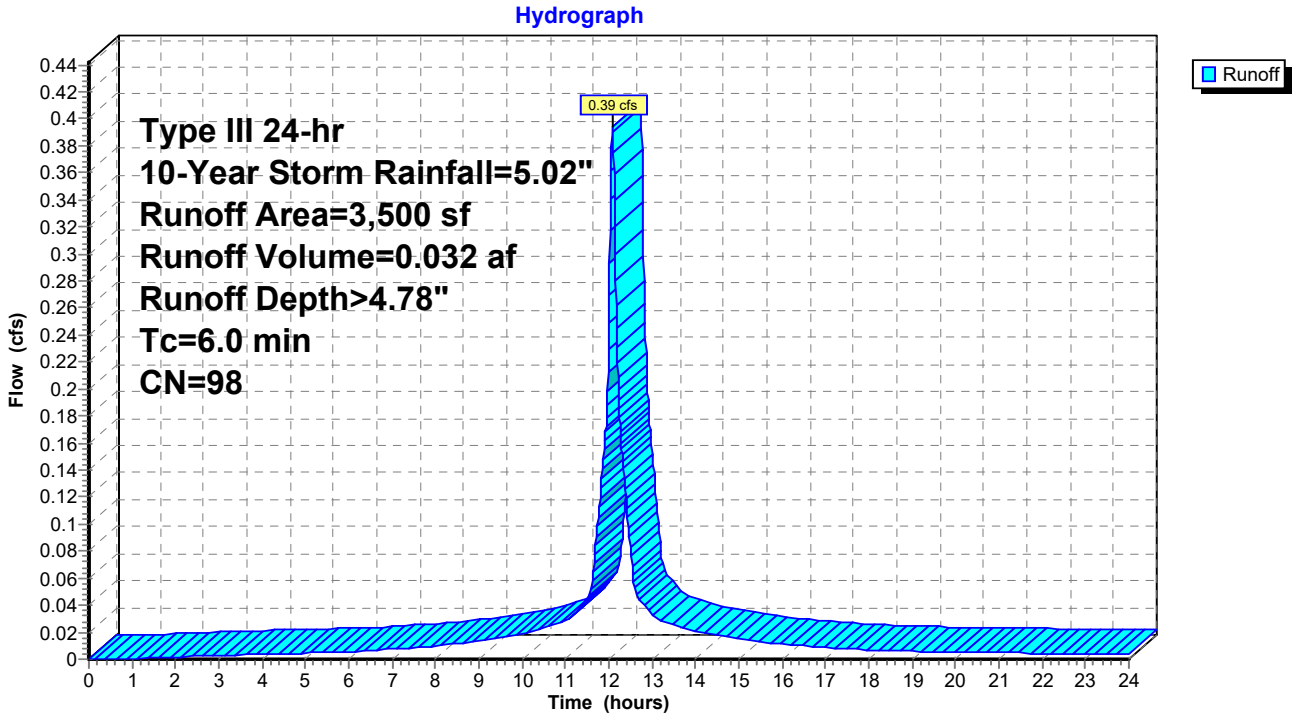
Runoff = 0.39 cfs @ 12.08 hrs, Volume= 0.032 af, Depth> 4.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
*	3,500	98	Impervious
	3,500		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sb: Treated Office Tower Roof



Summary for Subcatchment 1Sc: Parking Garage Roof

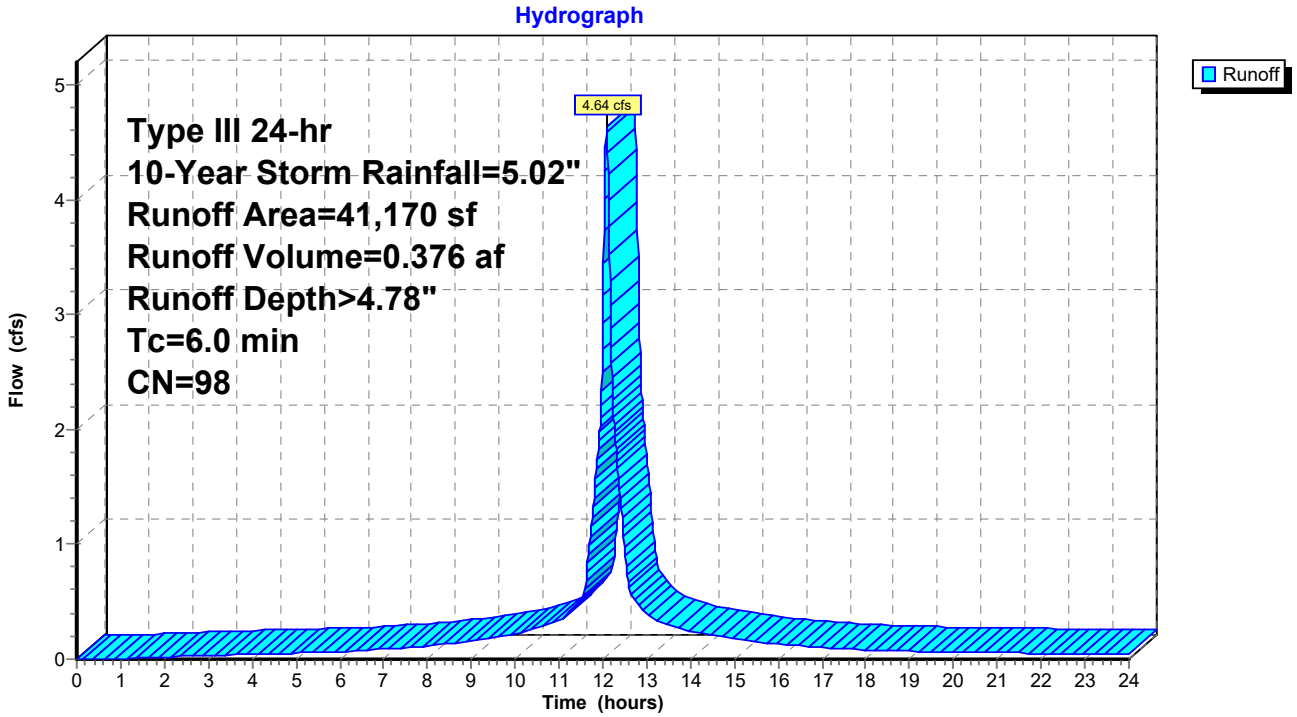
Runoff = 4.64 cfs @ 12.08 hrs, Volume= 0.376 af, Depth> 4.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
*	41,170	98	Impervious
	41,170		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sc: Parking Garage Roof



Summary for Subcatchment 1Sd: Fore St Wrap Roof

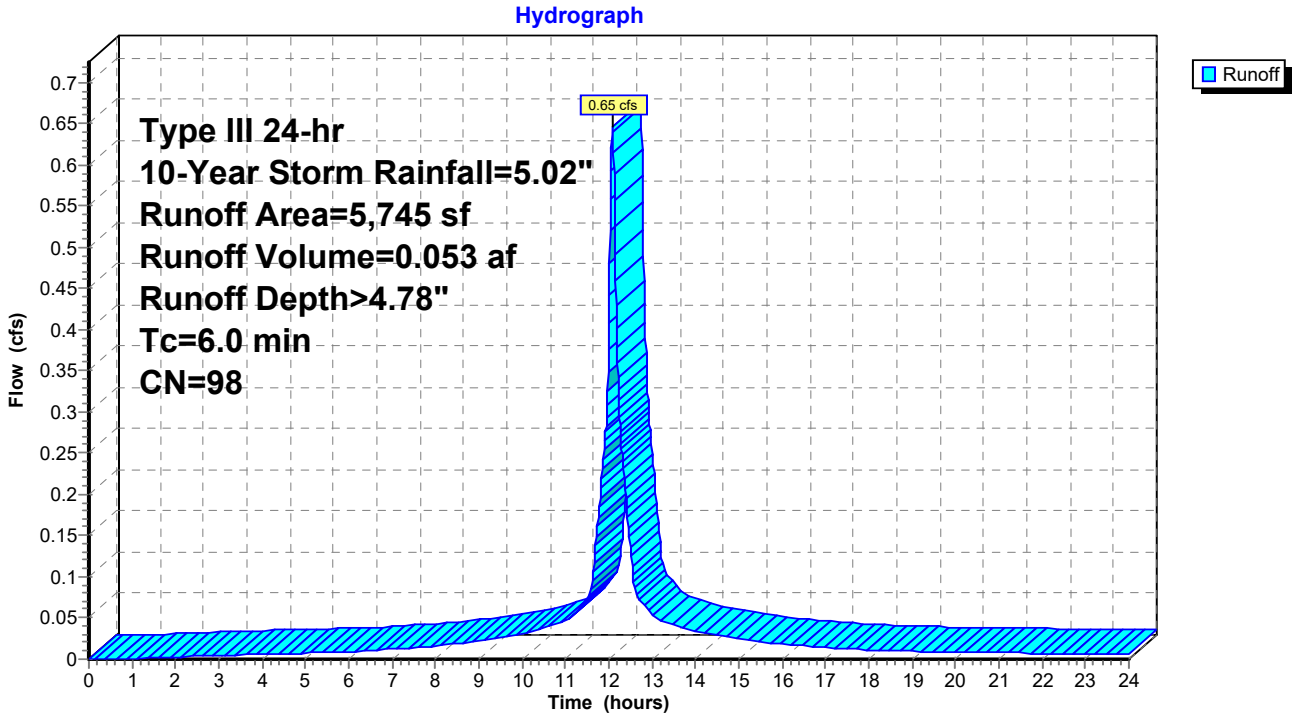
Runoff = 0.65 cfs @ 12.08 hrs, Volume= 0.053 af, Depth> 4.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
*	5,745	98	Impervious
	5,745		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sd: Fore St Wrap Roof



Summary for Subcatchment 2Sa: Treated Plaza

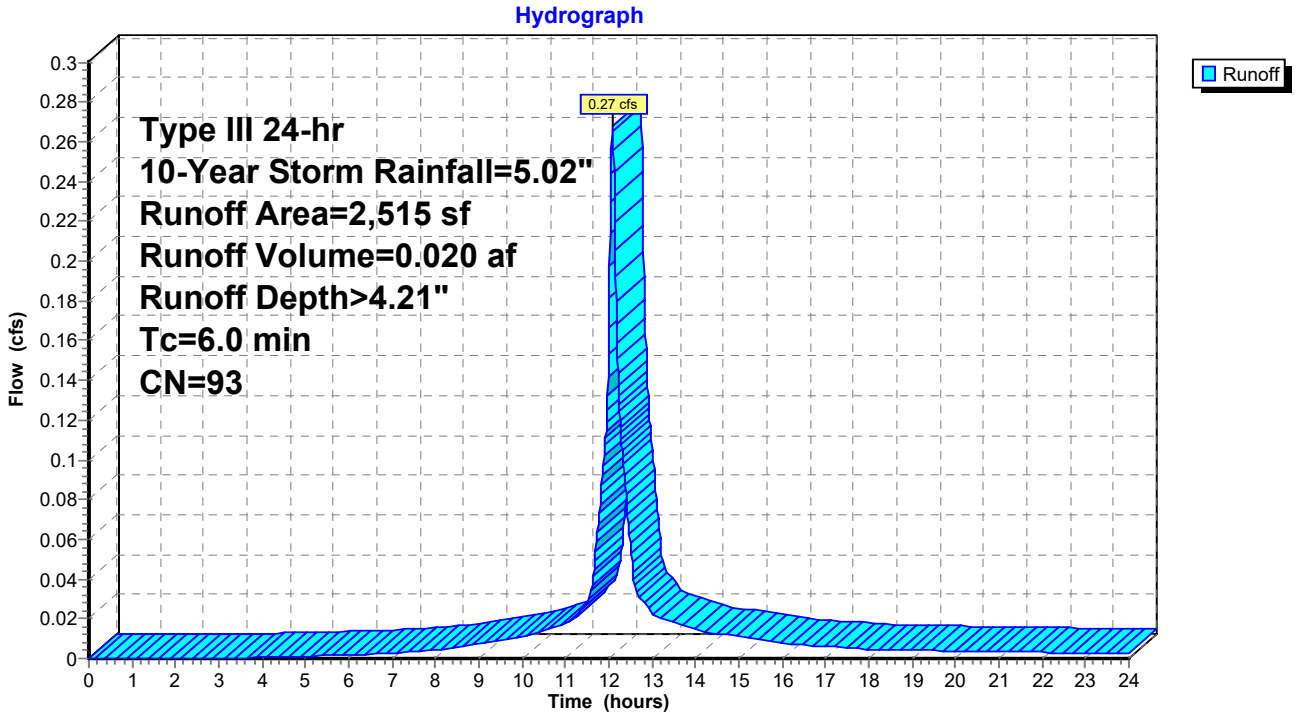
Runoff = 0.27 cfs @ 12.08 hrs, Volume= 0.020 af, Depth> 4.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
	233	49	50-75% Grass cover, Fair, HSG A
*	2,282	98	Impervious
	2,515	93	Weighted Average
	233		9.26% Pervious Area
	2,282		90.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2Sa: Treated Plaza



Summary for Subcatchment 2Sb: Untreated Plaza

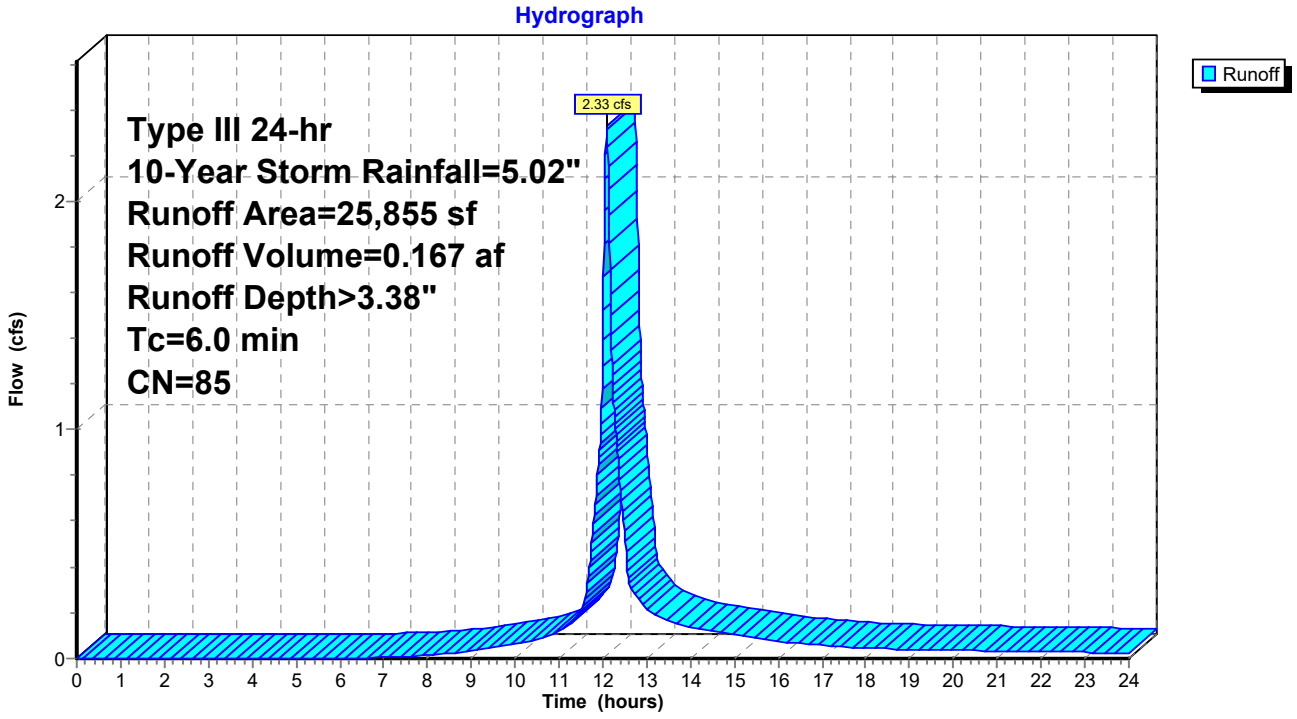
Runoff = 2.33 cfs @ 12.09 hrs, Volume= 0.167 af, Depth> 3.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
	6,787	49	50-75% Grass cover, Fair, HSG A
*	19,068	98	Impervious
	25,855	85	Weighted Average
	6,787		26.25% Pervious Area
	19,068		73.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2Sb: Untreated Plaza



Summary for Subcatchment 3S: Pedestrian Alley

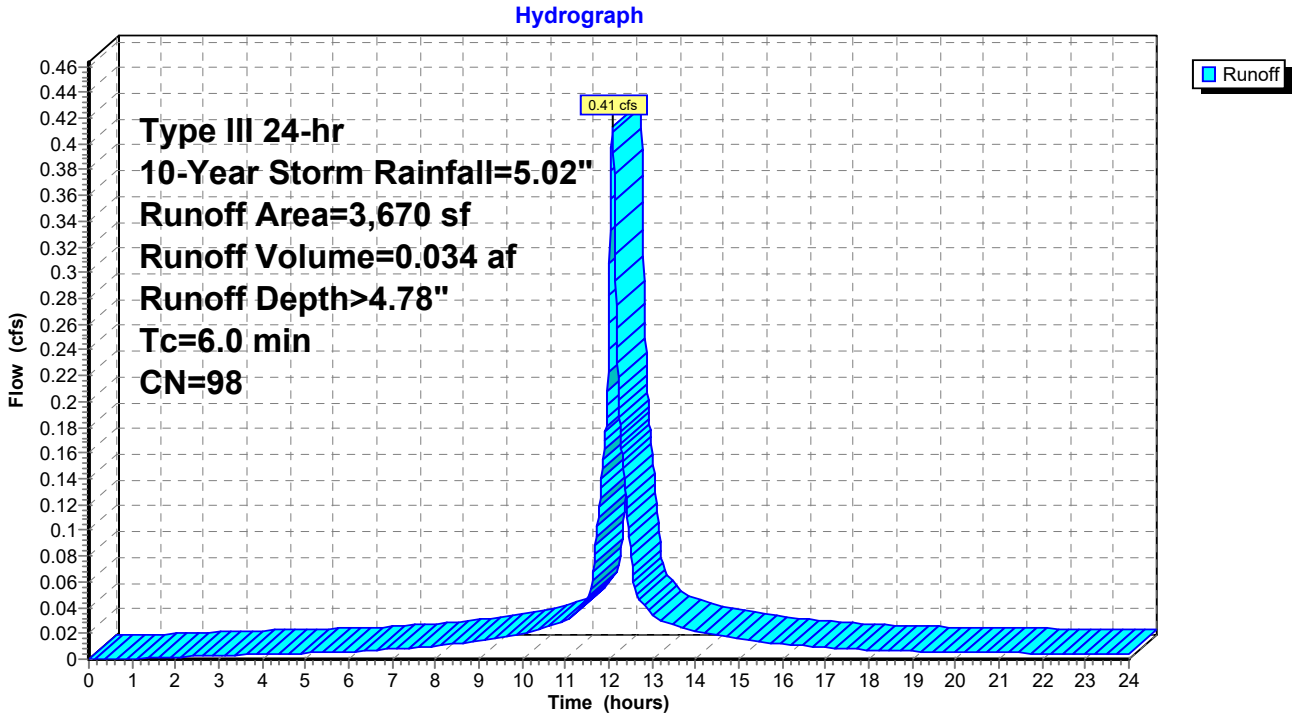
Runoff = 0.41 cfs @ 12.08 hrs, Volume= 0.034 af, Depth> 4.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
*	3,670	98	Impervious
	3,670		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Pedestrian Alley



Summary for Pond 1P: R-Tank 1

Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 4.75" for 10-Year Storm event
Inflow = 5.72 cfs @ 12.08 hrs, Volume= 0.462 af
Outflow = 3.87 cfs @ 12.17 hrs, Volume= 0.459 af, Atten= 32%, Lag= 5.0 min
Primary = 3.87 cfs @ 12.17 hrs, Volume= 0.459 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 37.65' @ 12.17 hrs Surf.Area= 614 sf Storage= 1,843 cf
Flood Elev= 39.33' Surf.Area= 614 sf Storage= 2,613 cf

Plug-Flow detention time= 13.8 min calculated for 0.459 af (99% of inflow)
Center-of-Mass det. time= 9.4 min (758.1 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1	33.50'	818 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,194 cf Overall - 2,148 cf Embedded = 2,045 cf x 40.0% Voids
#2	33.75'	2,041 cf	**R-Tank Quad Modules (Prismatic)** Listed below (Recalc) Inside #1 2,148 cf Overall x 95.0% Voids
		2,859 cf	Total Available Storage

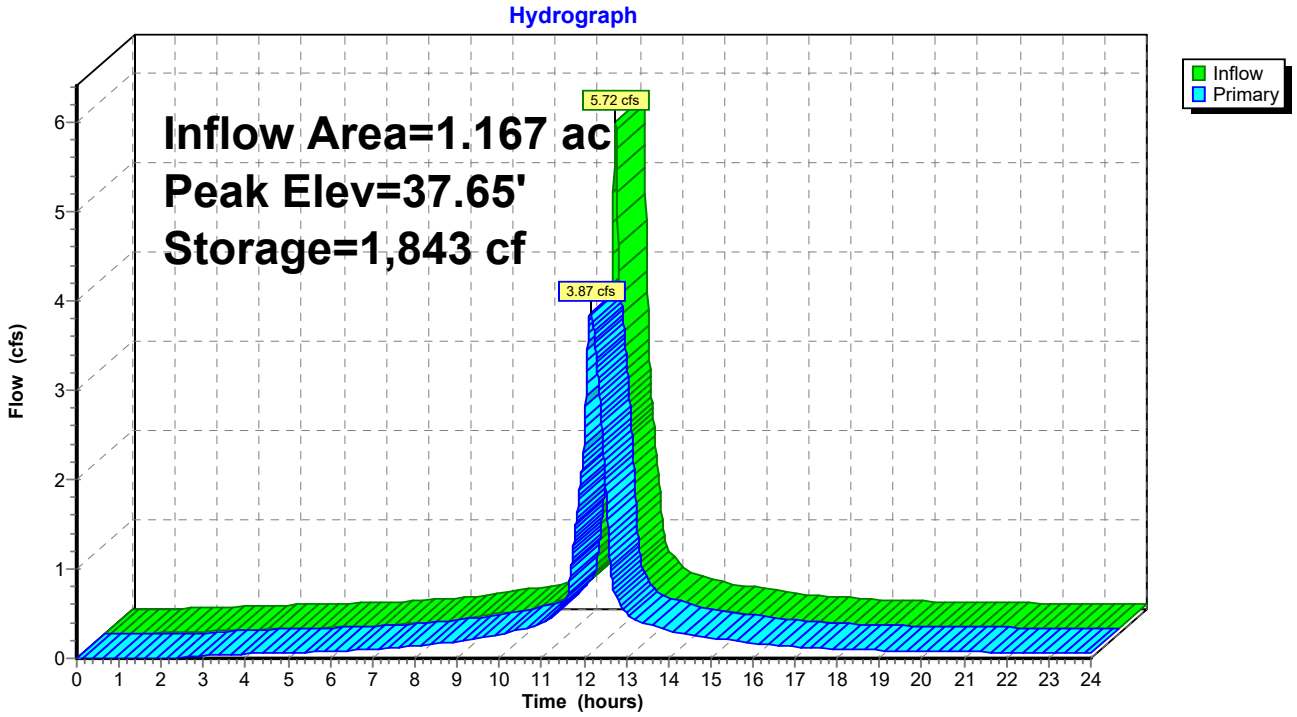
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.50	614	0	0
40.33	614	4,194	4,194

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.75	385	0	0
39.33	385	2,148	2,148

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	**10.0" Round Culvert** L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.75' / 33.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Primary	38.08'	**15.0" Round Culvert** L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.08' / 38.08' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.87 cfs @ 12.17 hrs HW=37.64' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 3.87 cfs @ 7.09 fps)
└—**2=Culvert** (Controls 0.00 cfs)

Pond 1P: R-Tank 1



Summary for Pond 2P: CB19

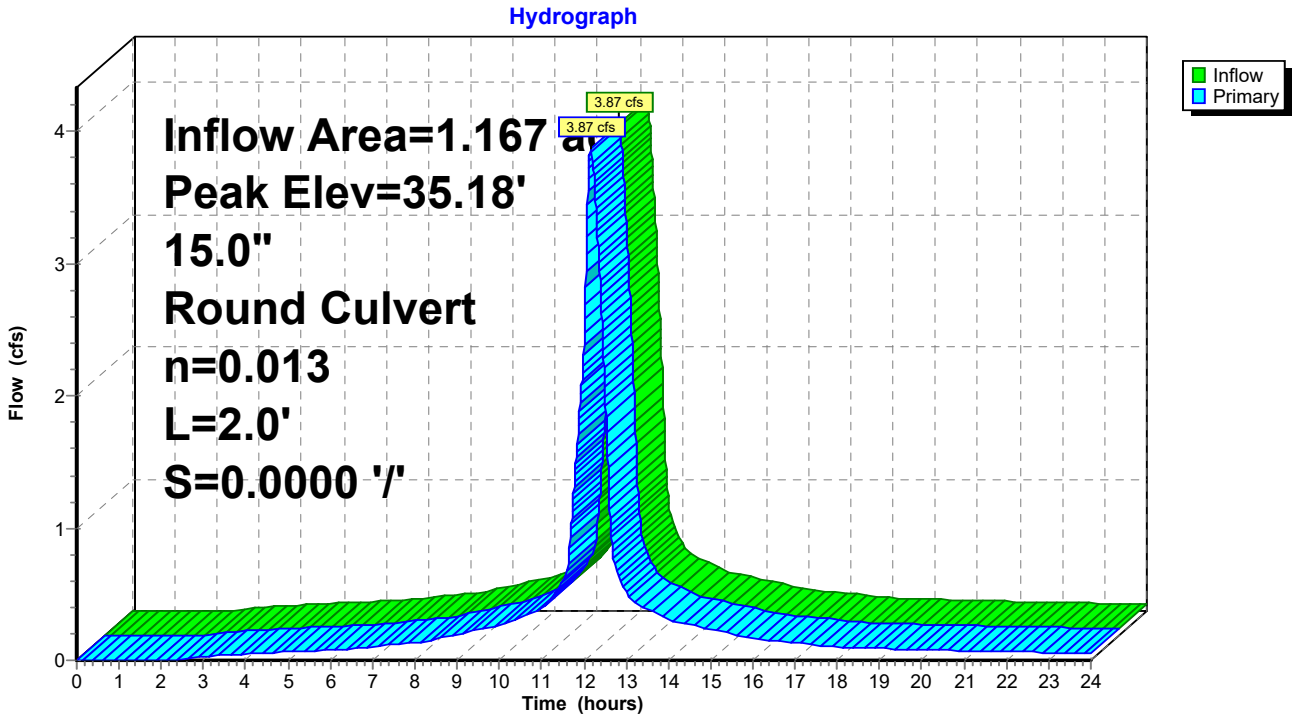
Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 4.72" for 10-Year Storm event
Inflow = 3.87 cfs @ 12.17 hrs, Volume= 0.459 af
Outflow = 3.87 cfs @ 12.17 hrs, Volume= 0.459 af, Atten= 0%, Lag= 0.0 min
Primary = 3.87 cfs @ 12.17 hrs, Volume= 0.459 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 35.18' @ 12.17 hrs
Flood Elev= 41.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	**15.0" Round Culvert** L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.75' / 33.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.87 cfs @ 12.17 hrs HW=35.18' (Free Discharge)
1=Culvert (Barrel Controls 3.87 cfs @ 3.45 fps)

Pond 2P: CB19



Summary for Pond 3P: R-Tank 2

Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 4.72" for 10-Year Storm event
Inflow = 3.87 cfs @ 12.17 hrs, Volume= 0.459 af
Outflow = 3.80 cfs @ 12.21 hrs, Volume= 0.456 af, Atten= 2%, Lag= 2.3 min
Primary = 3.80 cfs @ 12.21 hrs, Volume= 0.456 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 35.17' @ 12.21 hrs Surf.Area= 614 sf Storage= 712 cf
Flood Elev= 39.33' Surf.Area= 614 sf Storage= 2,613 cf

Plug-Flow detention time= 11.6 min calculated for 0.456 af (99% of inflow)
Center-of-Mass det. time= 7.4 min (765.4 - 758.1)

Volume	Invert	Avail.Storage	Storage Description
#1	33.50'	818 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,194 cf Overall - 2,148 cf Embedded = 2,045 cf x 40.0% Voids
#2	33.75'	2,041 cf	**R-Tank Quad Modules (Prismatic)** Listed below (Recalc) Inside #1 2,148 cf Overall x 95.0% Voids
		2,859 cf	Total Available Storage

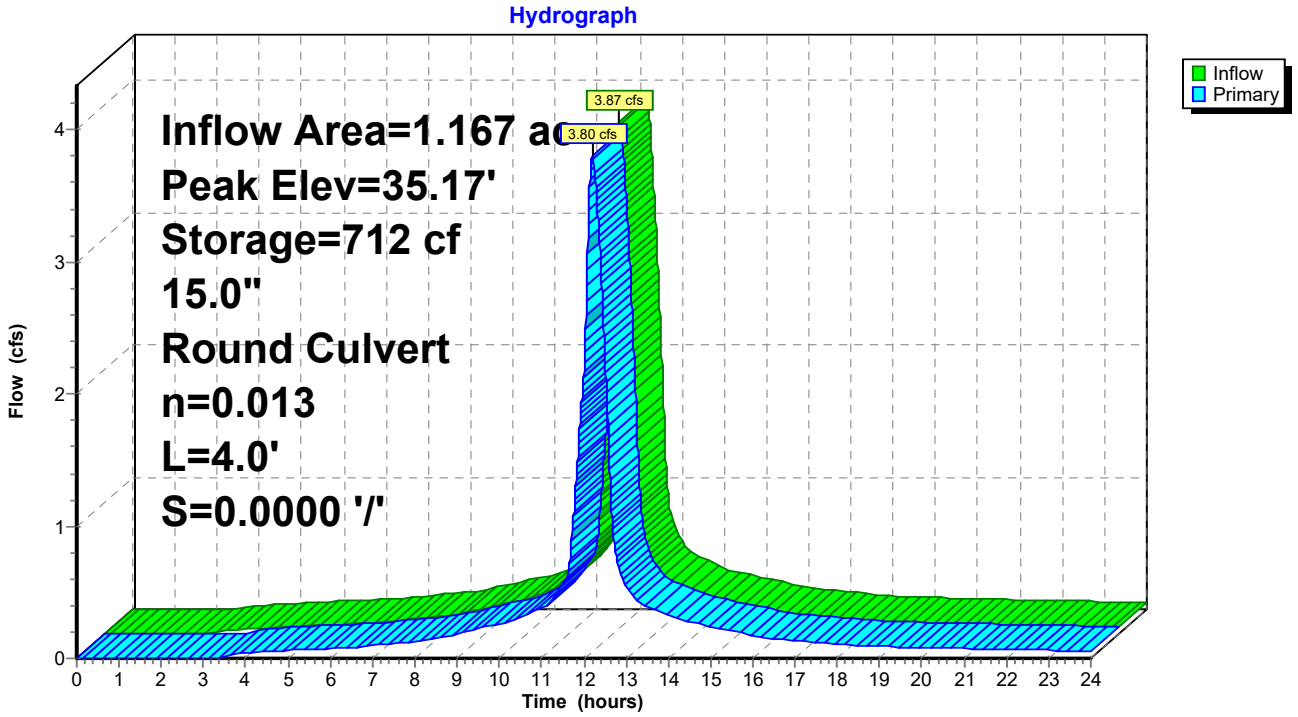
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.50	614	0	0
40.33	614	4,194	4,194

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.75	385	0	0
39.33	385	2,148	2,148

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	**15.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.75' / 33.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.80 cfs @ 12.21 hrs HW=35.17' (Free Discharge)
↑**1=Culvert** (Barrel Controls 3.80 cfs @ 3.41 fps)

Pond 3P: R-Tank 2



Summary for Pond 4P: StormFilter 1

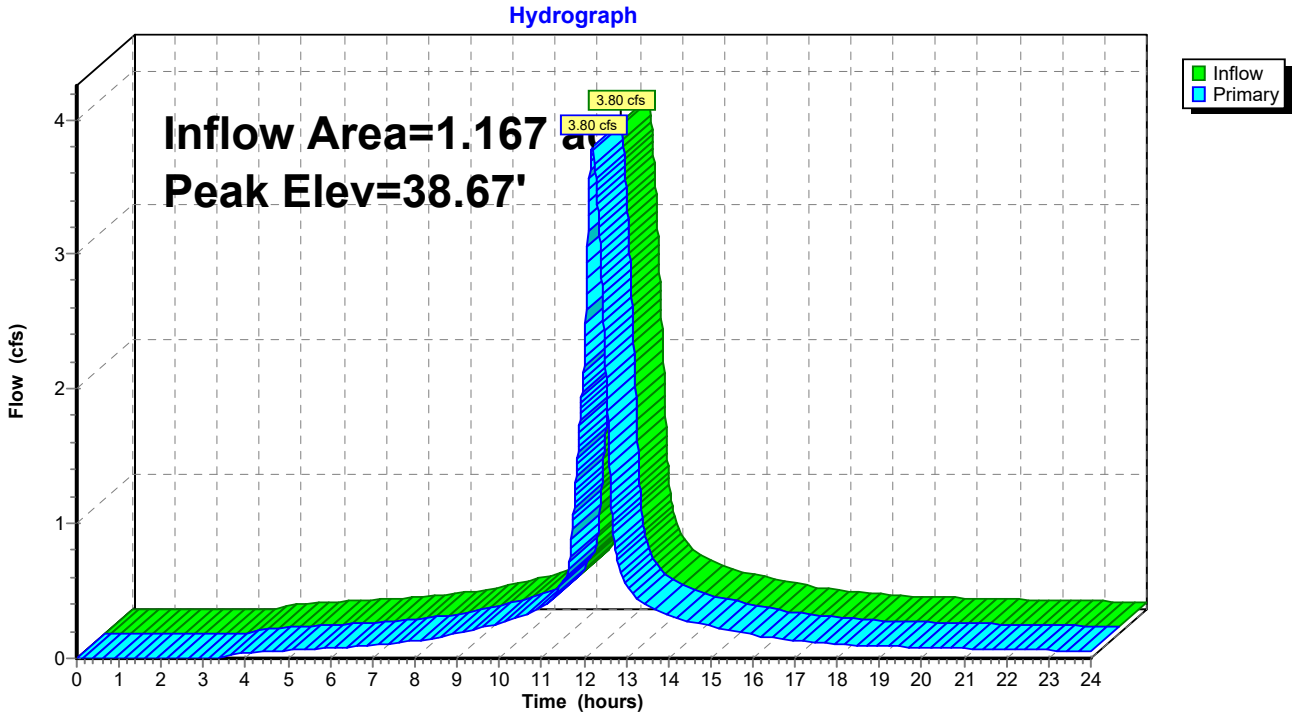
Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 4.69" for 10-Year Storm event
Inflow = 3.80 cfs @ 12.21 hrs, Volume= 0.456 af
Outflow = 3.80 cfs @ 12.21 hrs, Volume= 0.456 af, Atten= 0%, Lag= 0.0 min
Primary = 3.80 cfs @ 12.21 hrs, Volume= 0.456 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 38.67' @ 12.21 hrs
Flood Elev= 39.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.75'	**15.0" Round Filter Culvert Out** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.75' / 32.50' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	32.75'	**SF Filter-1 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.129 0.198 0.267 0.337 0.406 0.475 0.545 0.614 0.683 0.753 0.822 0.891
#3	Device 1	38.08'	**2.1' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=3.79 cfs @ 12.21 hrs HW=38.67' (Free Discharge)
└**1=Filter Culvert Out** (Passes 3.79 cfs of 10.73 cfs potential flow)
  ├**2=SF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 2.90 cfs @ 2.35 fps)

Pond 4P: StormFilter 1

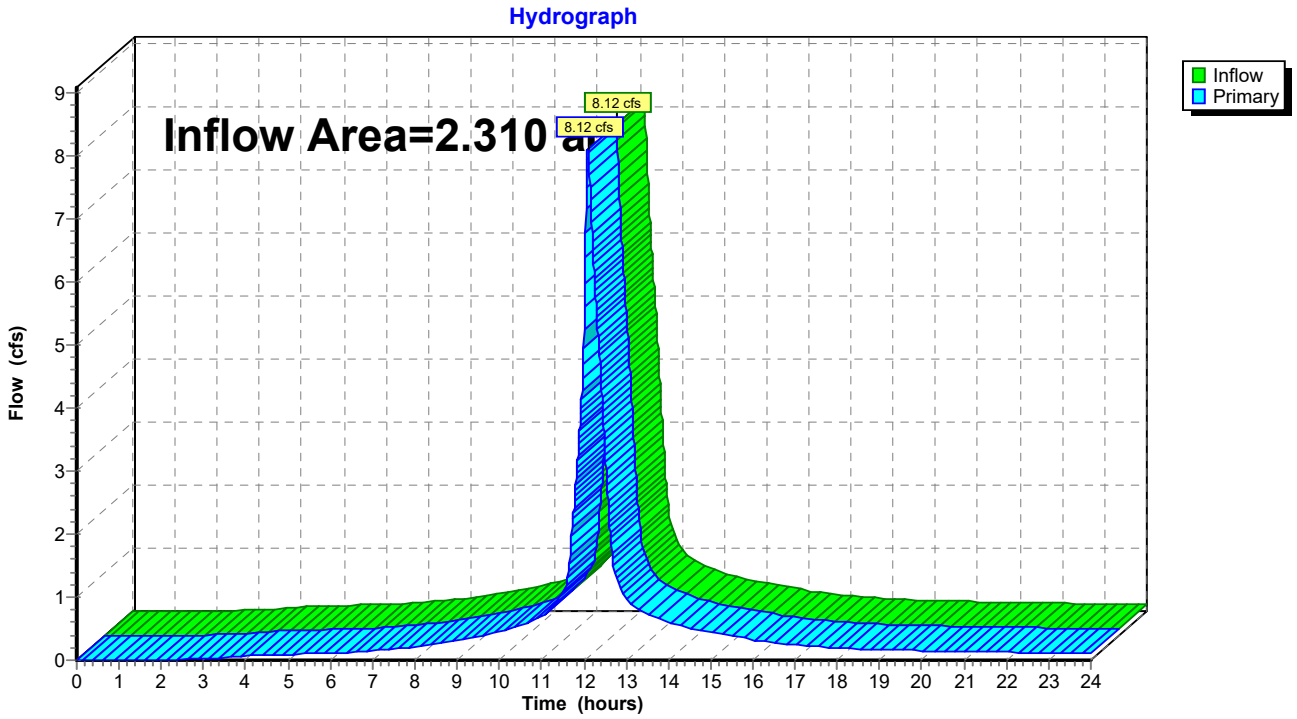


Summary for Link SP1: Study Point

Inflow Area = 2.310 ac, 93.02% Impervious, Inflow Depth > 4.38" for 10-Year Storm event
Inflow = 8.12 cfs @ 12.10 hrs, Volume= 0.842 af
Primary = 8.12 cfs @ 12.10 hrs, Volume= 0.842 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link SP1: Study Point



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1Sa: Untreated Office Runoff Area=18,158 sf 100.00% Impervious Runoff Depth>5.90"
Tc=6.0 min CN=98 Runoff=2.51 cfs 0.205 af

Subcatchment1Sb: Treated Office Tower Runoff Area=3,500 sf 100.00% Impervious Runoff Depth>5.90"
Tc=6.0 min CN=98 Runoff=0.48 cfs 0.039 af

Subcatchment1Sc: Parking Garage Roof Runoff Area=41,170 sf 100.00% Impervious Runoff Depth>5.90"
Tc=6.0 min CN=98 Runoff=5.69 cfs 0.464 af

Subcatchment1Sd: Fore St Wrap Roof Runoff Area=5,745 sf 100.00% Impervious Runoff Depth>5.90"
Tc=6.0 min CN=98 Runoff=0.79 cfs 0.065 af

Subcatchment2Sa: Treated Plaza Runoff Area=2,515 sf 90.74% Impervious Runoff Depth>5.32"
Tc=6.0 min CN=93 Runoff=0.33 cfs 0.026 af

Subcatchment2Sb: Untreated Plaza Runoff Area=25,855 sf 73.75% Impervious Runoff Depth>4.43"
Tc=6.0 min CN=85 Runoff=3.02 cfs 0.219 af

Subcatchment3S: Pedestrian Alley Runoff Area=3,670 sf 100.00% Impervious Runoff Depth>5.90"
Tc=6.0 min CN=98 Runoff=0.51 cfs 0.041 af

Pond 1P: R-Tank 1 Peak Elev=38.66' Storage=2,309 cf Inflow=7.01 cfs 0.571 af
Outflow=5.24 cfs 0.568 af

Pond 2P: CB19 Peak Elev=35.63' Inflow=5.24 cfs 0.568 af
15.0" Round Culvert n=0.013 L=2.0' S=0.0000 '/' Outflow=5.24 cfs 0.568 af

Pond 3P: R-Tank 2 Peak Elev=35.50' Storage=863 cf Inflow=5.24 cfs 0.568 af
15.0" Round Culvert n=0.013 L=4.0' S=0.0000 '/' Outflow=4.91 cfs 0.565 af

Pond 4P: StormFilter 1 Peak Elev=38.79' Inflow=4.91 cfs 0.565 af
Outflow=4.91 cfs 0.565 af

Link SP1: Study Point Inflow=9.89 cfs 1.053 af
Primary=9.89 cfs 1.053 af

Total Runoff Area = 2.310 ac Runoff Volume = 1.060 af Average Runoff Depth = 5.51"
6.98% Pervious = 0.161 ac 93.02% Impervious = 2.149 ac

Summary for Subcatchment 1Sa: Untreated Office Tower Roof

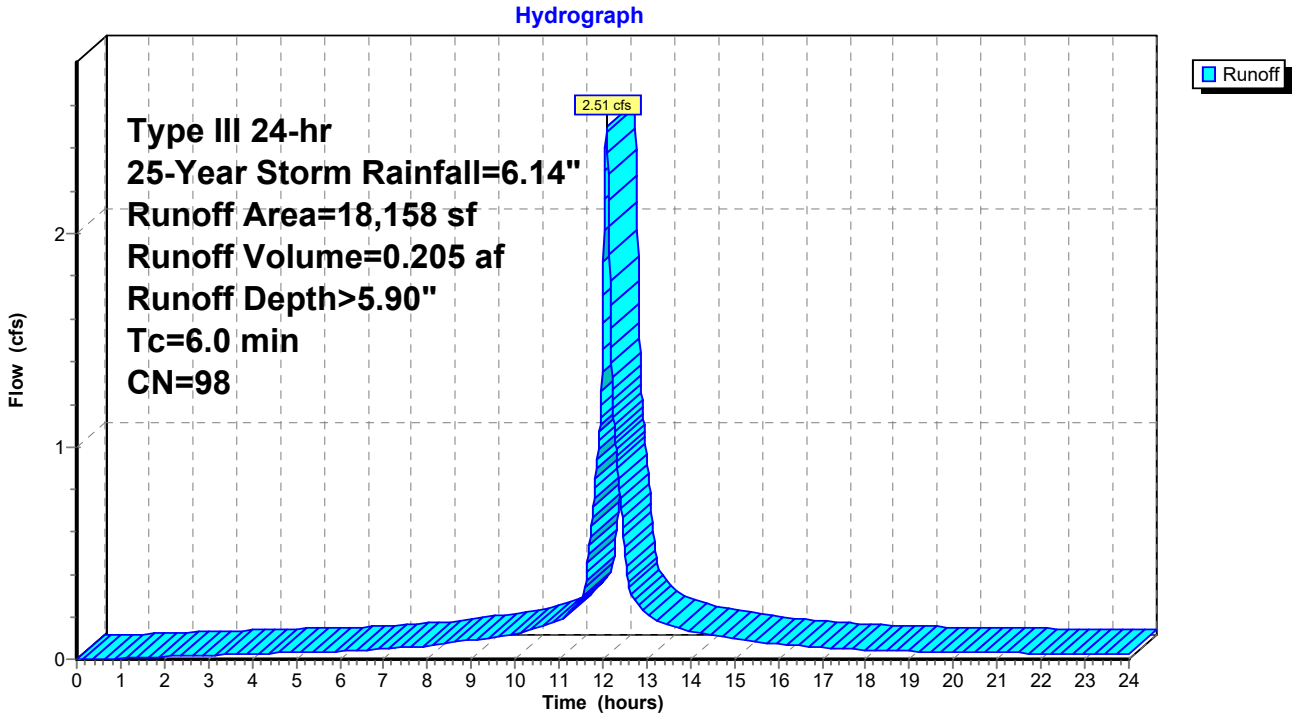
Runoff = 2.51 cfs @ 12.08 hrs, Volume= 0.205 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
*	18,158	98	Impervious
	18,158		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sa: Untreated Office Tower Roof



Summary for Subcatchment 1Sb: Treated Office Tower Roof

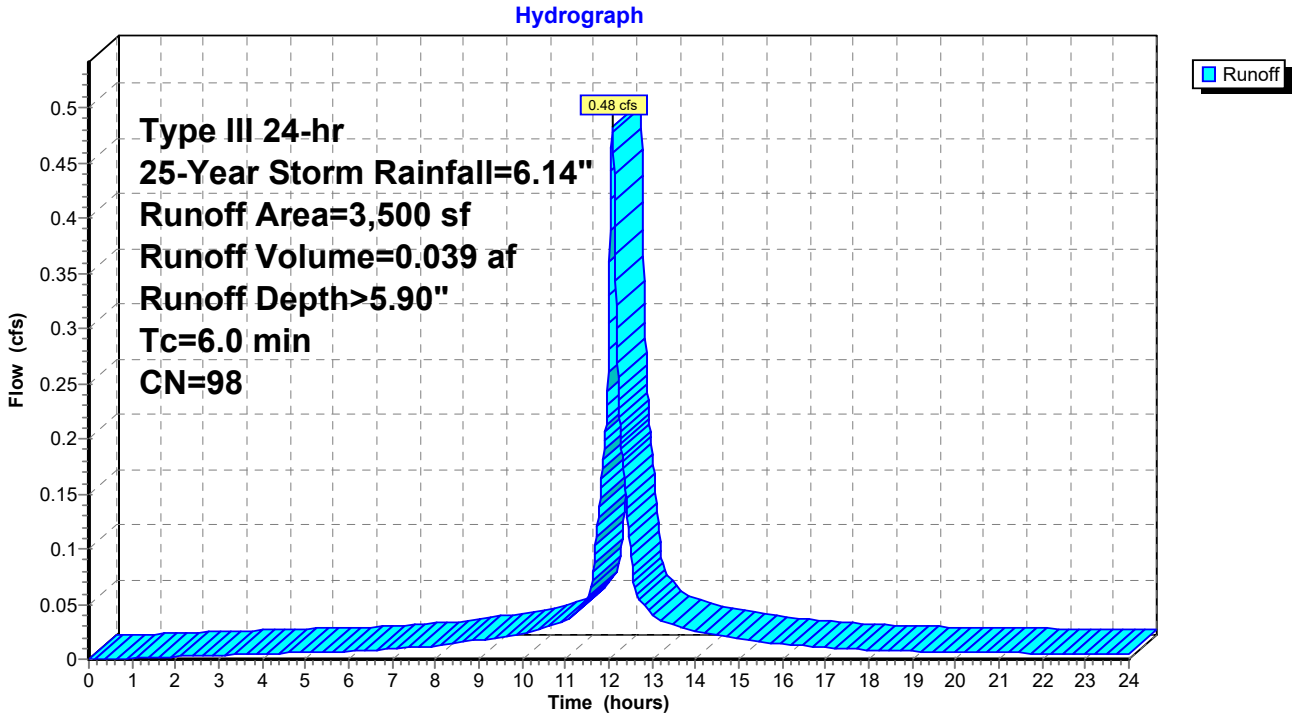
Runoff = 0.48 cfs @ 12.08 hrs, Volume= 0.039 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
*	3,500	98	Impervious
	3,500		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sb: Treated Office Tower Roof



Summary for Subcatchment 1Sc: Parking Garage Roof

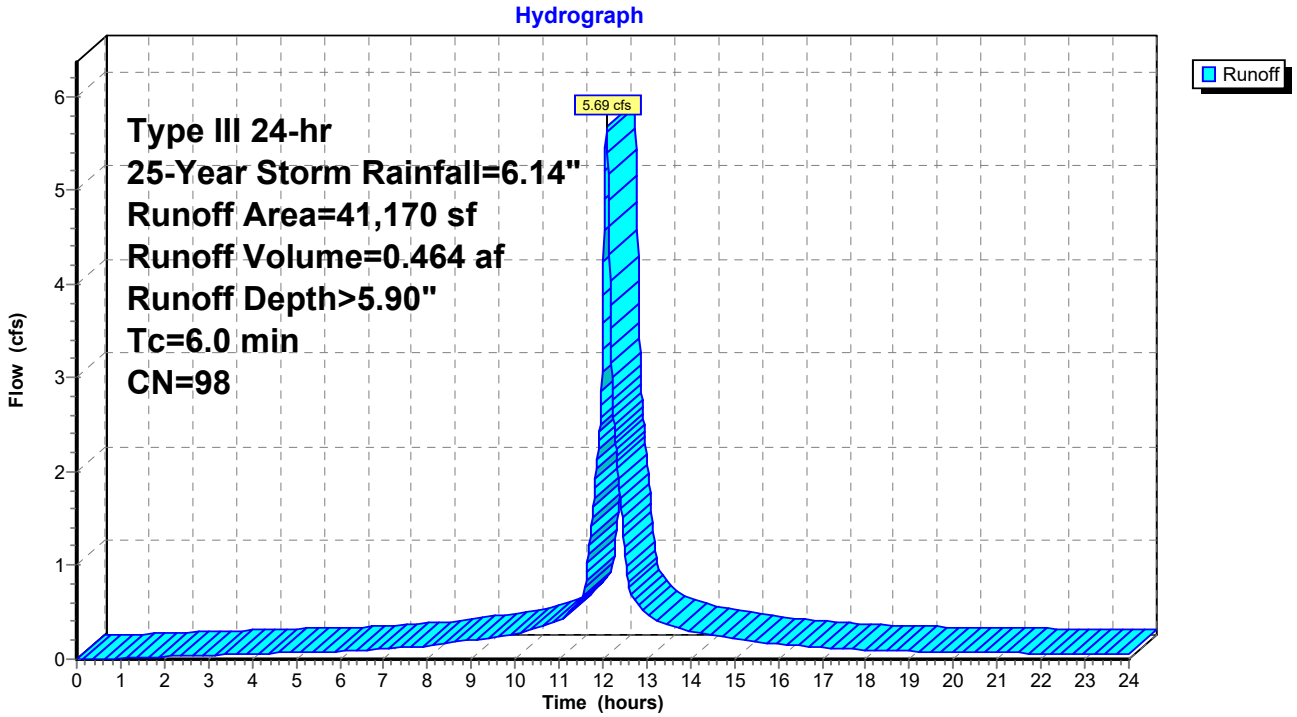
Runoff = 5.69 cfs @ 12.08 hrs, Volume= 0.464 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
*	41,170	98	Impervious
	41,170		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sc: Parking Garage Roof



Summary for Subcatchment 1Sd: Fore St Wrap Roof

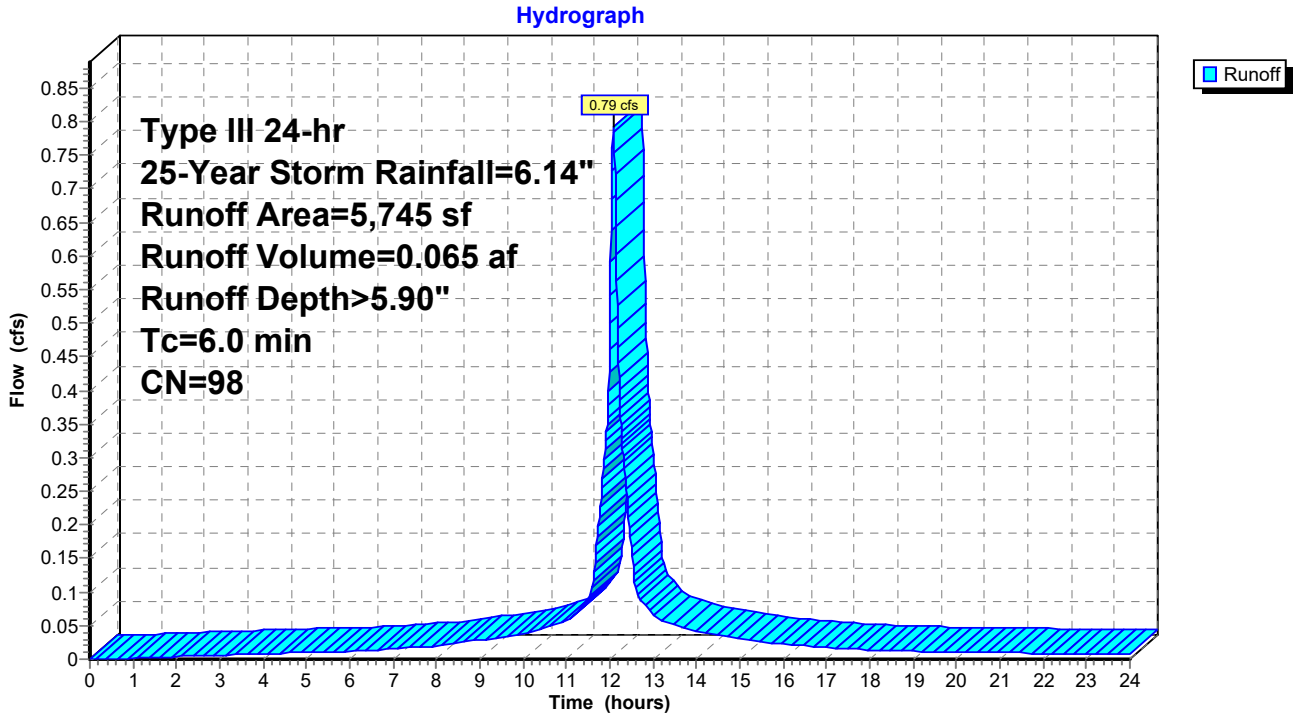
Runoff = 0.79 cfs @ 12.08 hrs, Volume= 0.065 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
*	5,745	98	Impervious
	5,745		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sd: Fore St Wrap Roof



Summary for Subcatchment 2Sa: Treated Plaza

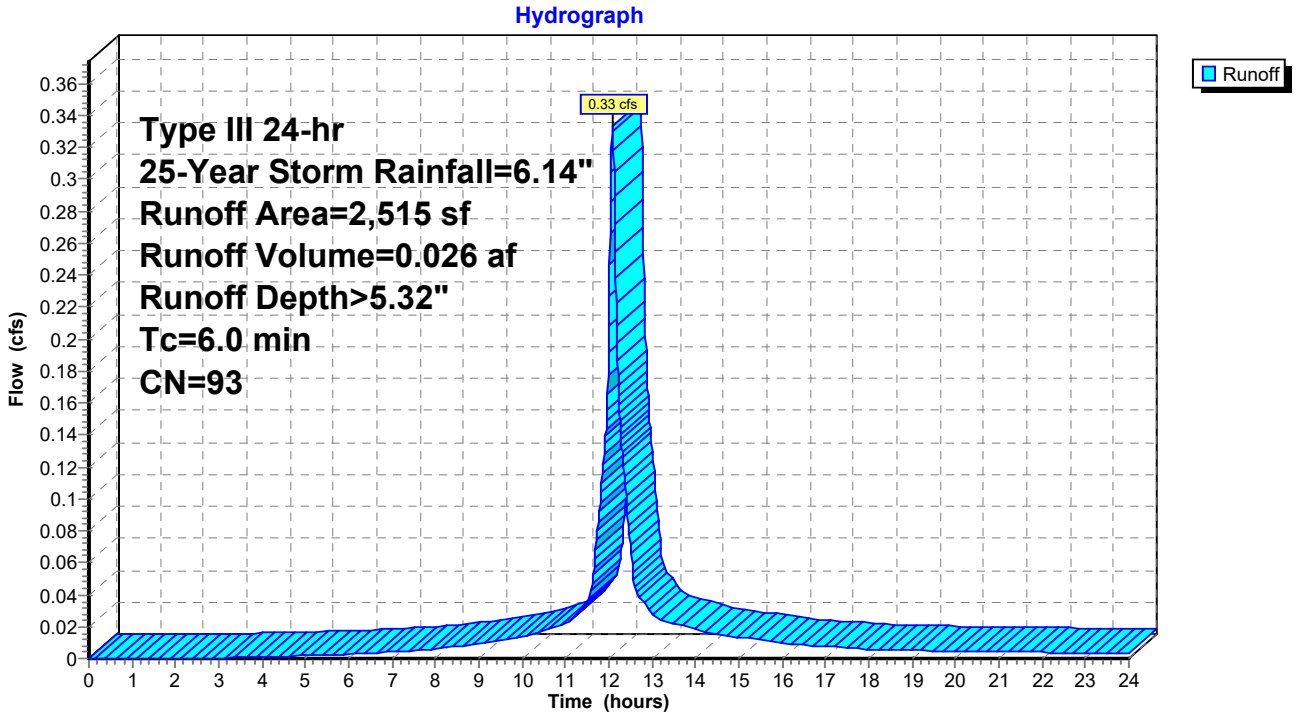
Runoff = 0.33 cfs @ 12.08 hrs, Volume= 0.026 af, Depth> 5.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
	233	49	50-75% Grass cover, Fair, HSG A
*	2,282	98	Impervious
	2,515	93	Weighted Average
	233		9.26% Pervious Area
	2,282		90.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2Sa: Treated Plaza



Summary for Subcatchment 2Sb: Untreated Plaza

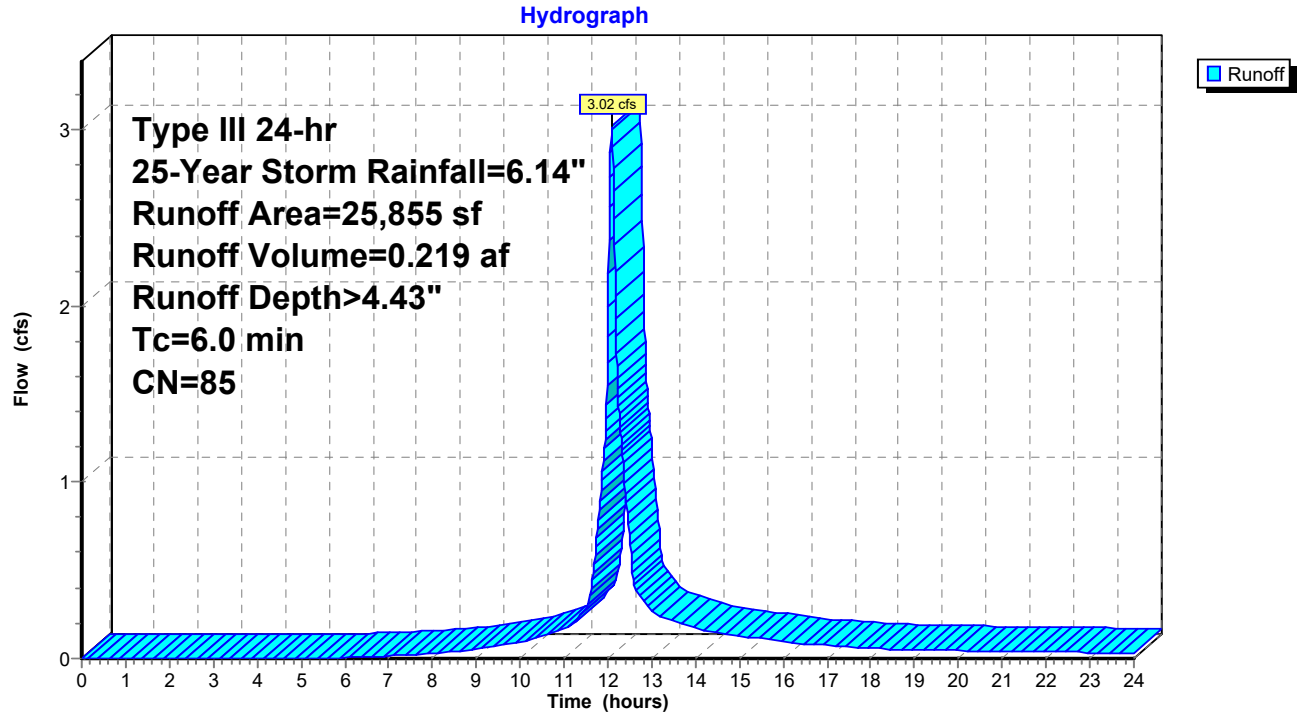
Runoff = 3.02 cfs @ 12.09 hrs, Volume= 0.219 af, Depth> 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
	6,787	49	50-75% Grass cover, Fair, HSG A
*	19,068	98	Impervious
	25,855	85	Weighted Average
	6,787		26.25% Pervious Area
	19,068		73.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2Sb: Untreated Plaza



Summary for Subcatchment 3S: Pedestrian Alley

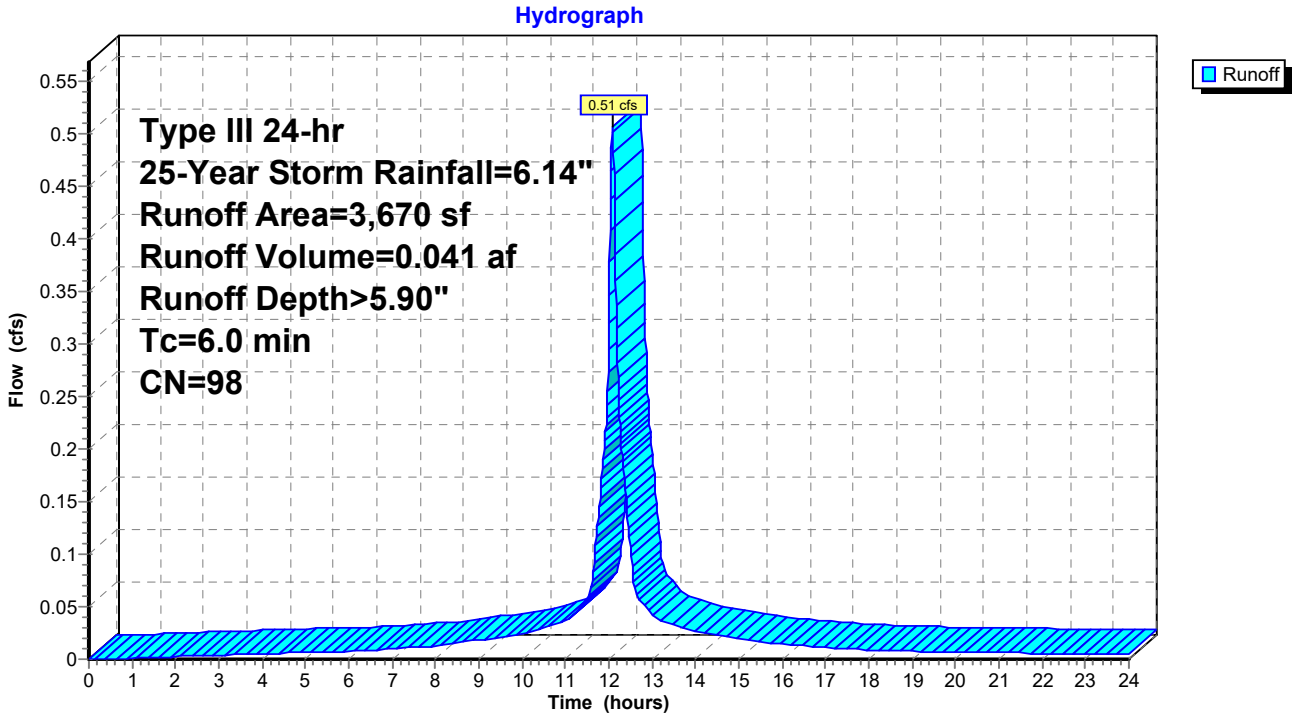
Runoff = 0.51 cfs @ 12.08 hrs, Volume= 0.041 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
*	3,670	98	Impervious
	3,670		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Pedestrian Alley



Summary for Pond 1P: R-Tank 1

Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 5.87" for 25-Year Storm event
Inflow = 7.01 cfs @ 12.08 hrs, Volume= 0.571 af
Outflow = 5.24 cfs @ 12.15 hrs, Volume= 0.568 af, Atten= 25%, Lag= 4.2 min
Primary = 5.24 cfs @ 12.15 hrs, Volume= 0.568 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 38.66' @ 12.15 hrs Surf.Area= 614 sf Storage= 2,309 cf
Flood Elev= 39.33' Surf.Area= 614 sf Storage= 2,613 cf

Plug-Flow detention time= 12.7 min calculated for 0.567 af (99% of inflow)
Center-of-Mass det. time= 8.8 min (754.3 - 745.5)

Volume	Invert	Avail.Storage	Storage Description
#1	33.50'	818 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,194 cf Overall - 2,148 cf Embedded = 2,045 cf x 40.0% Voids
#2	33.75'	2,041 cf	**R-Tank Quad Modules (Prismatic)** Listed below (Recalc) Inside #1 2,148 cf Overall x 95.0% Voids
		2,859 cf	Total Available Storage

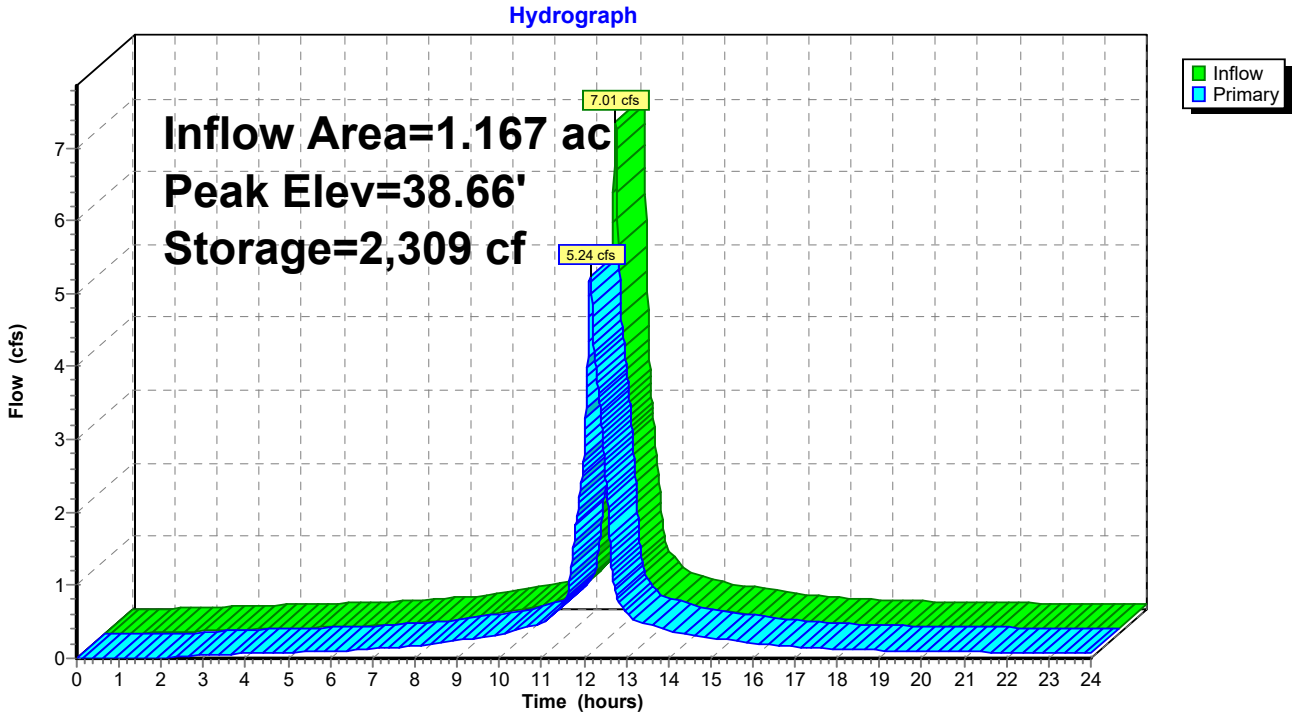
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.50	614	0	0
40.33	614	4,194	4,194

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.75	385	0	0
39.33	385	2,148	2,148

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	**10.0" Round Culvert** L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.75' / 33.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Primary	38.08'	**15.0" Round Culvert** L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.08' / 38.08' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.22 cfs @ 12.15 hrs HW=38.66' (Free Discharge)
└**1=Culvert** (Inlet Controls 4.40 cfs @ 8.06 fps)
└**2=Culvert** (Barrel Controls 0.83 cfs @ 2.18 fps)

Pond 1P: R-Tank 1



Summary for Pond 2P: CB19

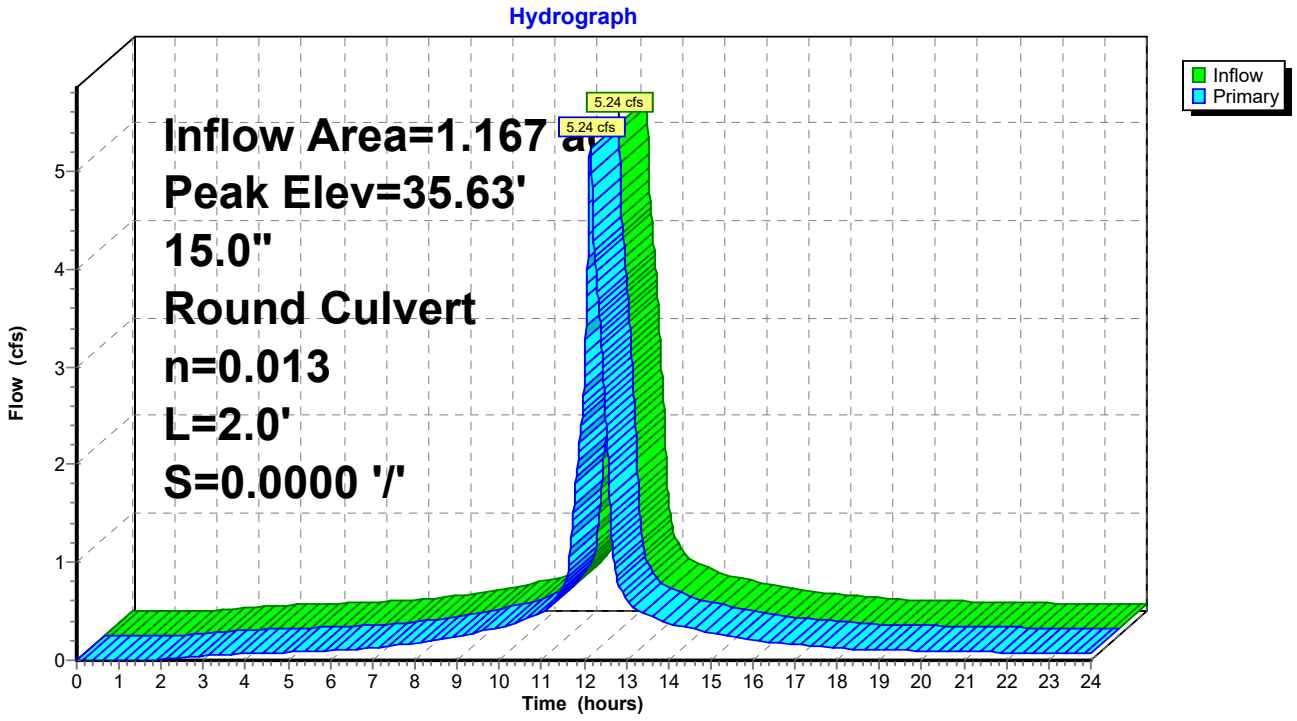
Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 5.84" for 25-Year Storm event
Inflow = 5.24 cfs @ 12.15 hrs, Volume= 0.568 af
Outflow = 5.24 cfs @ 12.15 hrs, Volume= 0.568 af, Atten= 0%, Lag= 0.0 min
Primary = 5.24 cfs @ 12.15 hrs, Volume= 0.568 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 35.63' @ 12.15 hrs
Flood Elev= 41.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	**15.0" Round Culvert** L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.75' / 33.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.23 cfs @ 12.15 hrs HW=35.63' (Free Discharge)
1=Culvert (Inlet Controls 5.23 cfs @ 4.26 fps)

Pond 2P: CB19



Summary for Pond 3P: R-Tank 2

Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 5.84" for 25-Year Storm event
Inflow = 5.24 cfs @ 12.15 hrs, Volume= 0.568 af
Outflow = 4.91 cfs @ 12.19 hrs, Volume= 0.565 af, Atten= 6%, Lag= 2.0 min
Primary = 4.91 cfs @ 12.19 hrs, Volume= 0.565 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 35.50' @ 12.19 hrs Surf.Area= 614 sf Storage= 863 cf
Flood Elev= 39.33' Surf.Area= 614 sf Storage= 2,613 cf

Plug-Flow detention time= 10.3 min calculated for 0.564 af (99% of inflow)
Center-of-Mass det. time= 6.6 min (760.9 - 754.3)

Volume	Invert	Avail.Storage	Storage Description
#1	33.50'	818 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,194 cf Overall - 2,148 cf Embedded = 2,045 cf x 40.0% Voids
#2	33.75'	2,041 cf	**R-Tank Quad Modules (Prismatic)** Listed below (Recalc) Inside #1 2,148 cf Overall x 95.0% Voids
		2,859 cf	Total Available Storage

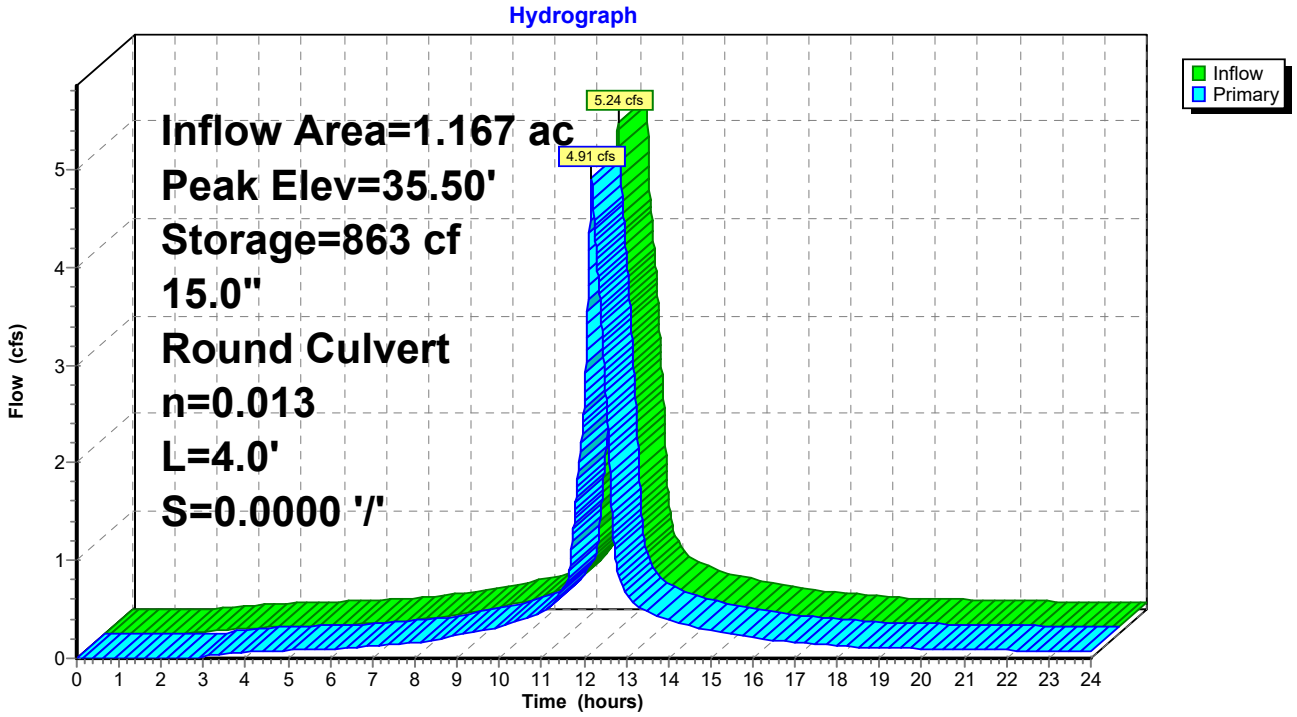
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.50	614	0	0
40.33	614	4,194	4,194

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.75	385	0	0
39.33	385	2,148	2,148

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	**15.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.75' / 33.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.94 cfs @ 12.19 hrs HW=35.50' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 4.94 cfs @ 4.02 fps)

Pond 3P: R-Tank 2



Summary for Pond 4P: StormFilter 1

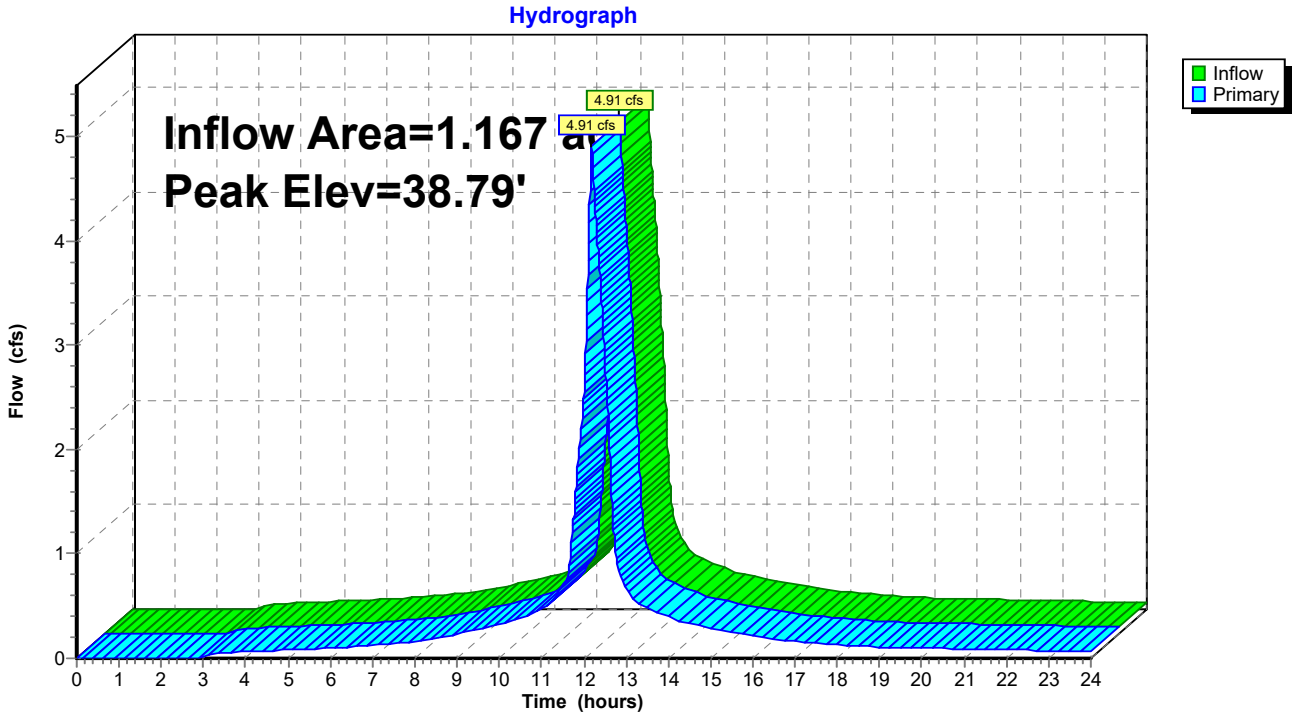
Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 5.80" for 25-Year Storm event
Inflow = 4.91 cfs @ 12.19 hrs, Volume= 0.565 af
Outflow = 4.91 cfs @ 12.19 hrs, Volume= 0.565 af, Atten= 0%, Lag= 0.0 min
Primary = 4.91 cfs @ 12.19 hrs, Volume= 0.565 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 38.79' @ 12.19 hrs
Flood Elev= 39.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.75'	**15.0" Round Filter Culvert Out** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.75' / 32.50' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	32.75'	**SF Filter-1 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.129 0.198 0.267 0.337 0.406 0.475 0.545 0.614 0.683 0.753 0.822 0.891
#3	Device 1	38.08'	**2.1' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=4.90 cfs @ 12.19 hrs HW=38.79' (Free Discharge)
└**1=Filter Culvert Out** (Passes 4.90 cfs of 10.85 cfs potential flow)
  ├**2=SF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 4.01 cfs @ 2.69 fps)

Pond 4P: StormFilter 1

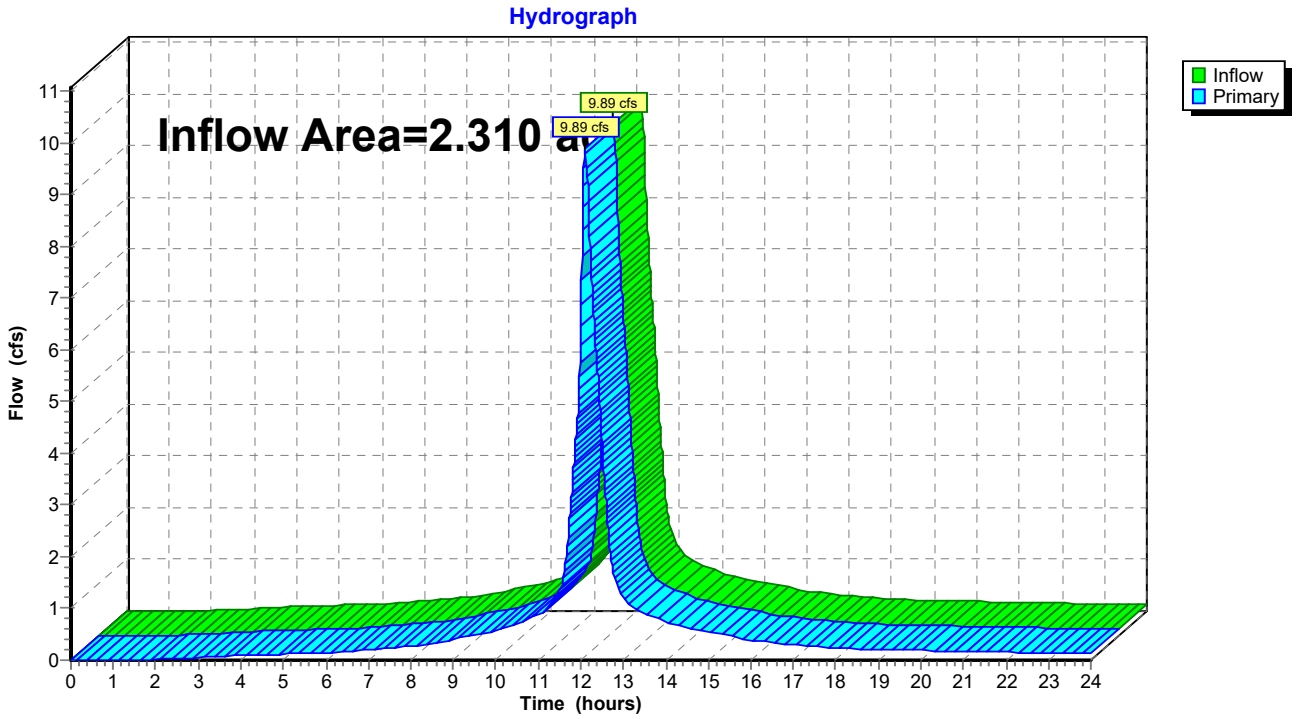


Summary for Link SP1: Study Point

Inflow Area = 2.310 ac, 93.02% Impervious, Inflow Depth > 5.47" for 25-Year Storm event
Inflow = 9.89 cfs @ 12.10 hrs, Volume= 1.053 af
Primary = 9.89 cfs @ 12.10 hrs, Volume= 1.053 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link SP1: Study Point



JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

JUDITH CAMUSO
COMMISSIONER

January 28, 2020

Lauren Swett
Woodard & Curran
41 Hutchins Drive
Portland, ME 04102

RE: Information Request –Redevelop Spring Cotton and Fore Street Project, Portland

Dear Lauren:

Per your request received on January 03, 2020, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within the vicinity of the *Redevelop Spring Cotton and Fore Street* project in Portland.

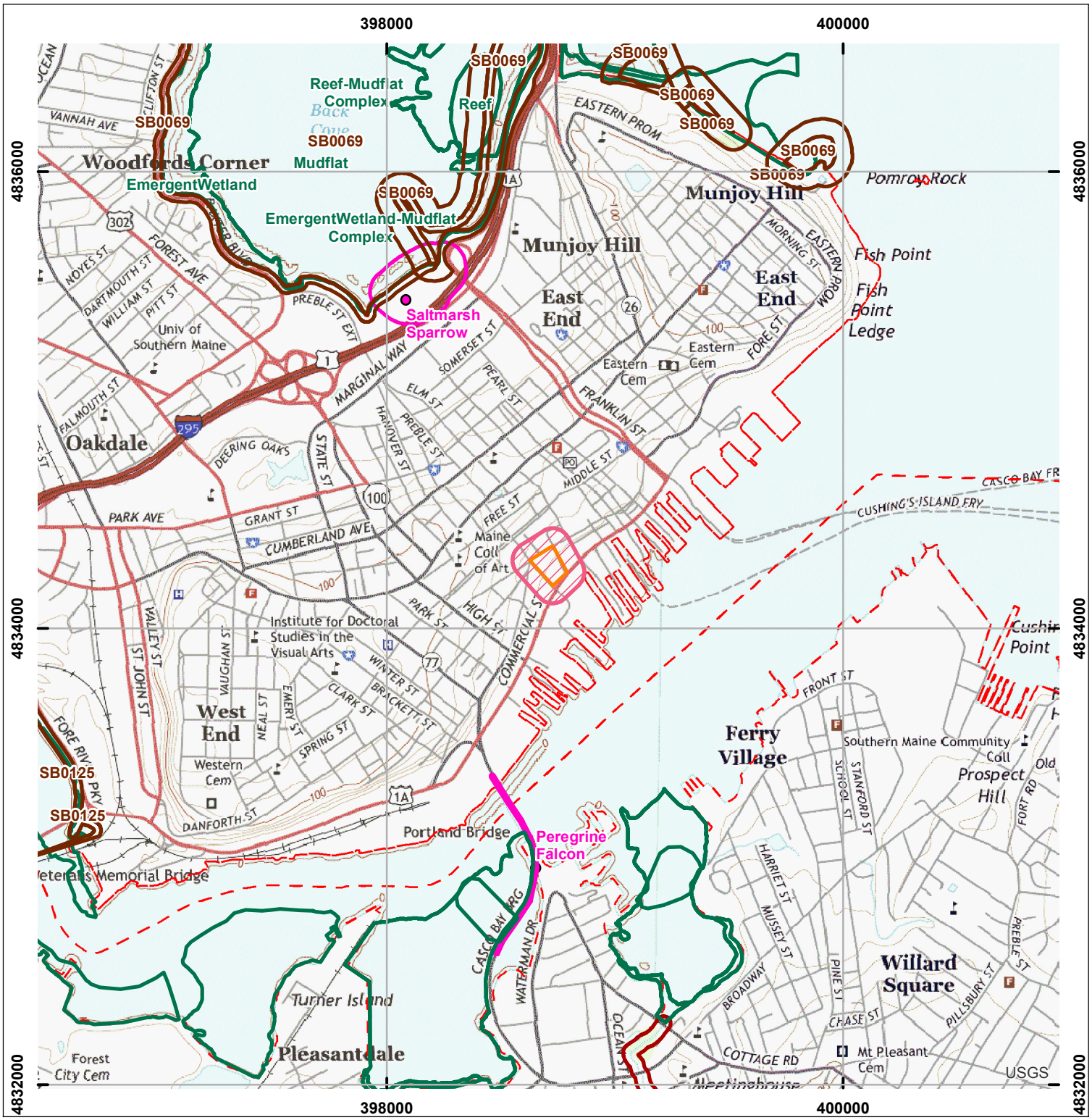
Our information indicates no locations of Endangered, Threatened, or Special Concern species within the project area that would be affected by your project. Additionally, our Department has not mapped any Essential or Significant Wildlife Habitats or inland fisheries habitats that would be directly affected by your project.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program, Maine Department of Marine Resources, and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

Becca Settele
Wildlife Biologist



Environmental Review of Fish and Wildlife Observations and Priority Habitats

Project Name: Portland, Redevelop Spring Cotton and Fore Street (Version 1)

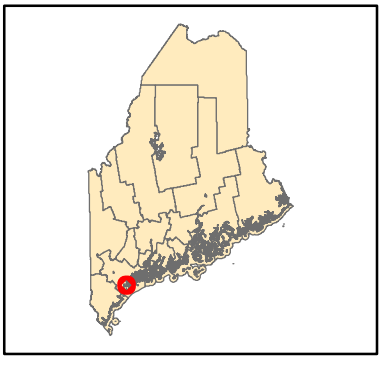
Maine Department of Inland Fisheries and Wildlife

0 0.125 0.25 0.5 0.75 1 Miles

Projection: UTM, NAD83, Zone 19N

Date: 1/8/2020

- ProjectPoints
- ProjectLines
- ProjectPolys
- ProjectSearchAreas
- Maine Cliff and Talus Areas
- Deer Winter Area
- LUPC p-fw
- Cooperative DWAs
- Seabird Nesting Islands
- Shorebird Areas
- Inland Waterfowl and Wading Bird
- 2008 Iwwh - Shoreland Zoning
- Tidal Waterfowl and Wading Bird
- Significant Vernal Pools
- Environmental Review Polygons
- Roseate Tern
- Piping Plover and Least Tern
- Aquatic ETSc - 2.5 mi review
- Rare Mussels - 5 mi review
- Maine Heritage Fish Waters
- Arctic Charr Habitat
- Redfin Pickerel and Swamp Darter Habitats - buffer100ft
- Special Concern occupied habitats - 100ft buffer
- Wild Lake Trout Habitats



CARROLL ASSOCIATES

February 7, 2020

Mr. Matthew Grooms
Senior Planner
City of Portland Planning Division
389 Congress Street, 4th Floor
Portland, ME 04101

RE: Three Portland Square, Level III Site Plan Application
Response to Staff Comments

Dear Matt,

We are in receipt of Review Staff Comments relating to the Portland Square Project and offer the following Responses:

Matt Grooms, Site Plan Review Comments dated 01/27/2020

Comment #1. *The applicant should provide information on where gates internal to the garage would be located, and assess how gate placement will impact vehicle queues and the potential for conflict between vehicles and pedestrians.*
Response*:* The parking garage gates are located at the entry/ exit of the two entrances typical of most garages in Portland. There is little vehicle queuing available between the travel lane and gate. G/P is assessing the amount of vehicle queuing available on Cotton and Cross Streets and will be submitting a memorandum addressing this under a separate cover.

Comment #2. *The project as shown meets all zoning dimensional requirements for the B-3 zone.*
Response. We agree.

Comment #3. *The project shall conform with the street and site lighting requirements of the City's Technical Manual. Reuse of existing cobrahead and town & country light fixtures is not permitted, and shall be replaced as necessary with either the downtown combo fixtures along Spring Street or Old Port Fixtures elsewhere within the development. Please see Sec. 10 of the City's Technical Manual for more information.*

Comment #4. *S8 light fixtures, proposed within the alley between the office building and parking garage, exceed the allowable lumen count. The lighting cut sheet provides a lesser lumen count, and so applicant should confirm that the amount listed in the memo is correct.*

Comment #5. *Roof mounted S9 light fixtures exceed permissible light trespass limits. If considering roof-top parking as a surface lot, then maximum foot candle limits are 4.0, with an average foot candle of 0.5.*
Response to Comments #2-5. See Response Letter and revised Site Lighting submittals from Bartlett Design.

Comment #6. *Site lighting exceeds allowable light trespass of 1.0 foot candles at the property line. Given the downtown location of this project and requirements of the B-3 zone related to building location, staff recommend that the applicant submit a formal waiver request to permit the current lighting scheme.*
Response. We will submit a Waiver Request for this Standard.

Comment #7. *City staff will coordinate with the applicant to plant additional street trees along Spring, Union and Fore Street along frontages for Portland Square One and Two.*
Response. We have been in contact with the City Arborist.. We have specific responses to his comments below.
Comment #8. *Regarding the on-street parking configuration along Spring Street, we are waiting for additional concrete guidance from City Management on a final recommendation. This will be forwarded as soon as it is received.*
Response. We understand the latest City position on the Spring Street design is to provide the parallel parking as proposed. We will continue to work through the details of that design with City Staff.

Jeff Tarling, Landscape Review Comments dated 01/21/2020

Comment #1. *Tree & Landscape topics for 3 Portland Square -First, the original Portland Square tree and landscape elements have been very successful. The groves of mature trees planted at large specimen sizes have created an important established feel to the site. Going forward, it is important to use these features, hopefully saving and protecting the mature trees, as a model for the future phases.*
Response: we agree and intend to preserve and protect much of what currently exists in the 1 Portland Square garden. Proposed improvements in this area will consist of protection of large mature trees, removal/ replacement of overgrown shrubs along the edges of the garden, allowing the garden to be fully integrated with the new proposed development.

Comment #2. *Street trees - we would like to suggest that the city street trees along the original Portland Square buildings and the proposed street trees have a fair chance of survival. No question that limited root zone, compaction and exposure to deicing salts have resulted in about a total loss of most of the street trees. The Ginkgo trees along Fore Street are struggling and likely to be removed later this year. We would recommend revisiting the best methods to grow and maintain Street trees in the current site plan review. The use of raised tree planters, structural soil or better yet, 'Silva Cels' to ensure that the new trees will survive longer. As shown, the Spring Street street tree element is perhaps the highest priority given the boulevard effect of the street and the existing canopy, shade trees. We would recommend large tree planters and the use of Sila Cels to create the needed soil volume to grow canopy trees. Regular raised granite tree planters could be the standard along Union and Fore Streets. Cotton Street is quite narrow and tree pits with tree grates likely the only option. We can work with the project team to revise the tree types if needed.*
Response: We are not proposing any sidewalk work along the Union and Fore Street frontages of One and Two Portland Square, and as such are not proposing to install raised planters or street trees in these locations. Along Spring and Fore Streets raised granite planters are proposed, the Spring Street planters are oversized to 5 ft x 25ft, which we believe should provide adequate soil volume for those trees. The Fore Street planters conform with the City Standard of 5 ft x 8 ft, and the tree grates along Cotton Street are proposed to be 4 ft x 6 ft due to the narrow sidewalk width.

We have researched the use of Silva-cells and believe they are cost prohibitive for this project, adding approximately $50-60,000 or more to the Site Development Cost. We believe they are appropriate in the right situation, but note they have not been installed on any City project that we are aware of in the past, primarily because of their high cost to the project..

Comment #3. *Cross Street Extension will play an even more important role for pedestrian circulation under the proposed master plan. We would like to see additional tree planting / landscape elements near the Four Portland Square edges.*
Response: We agree, and will be adding trees along the west side of Cross Street between Fore Street and the Garage pedestrian entrance.

Comment #4. *Overall the Portland Square Master Plan should improve street tree growing conditions along project edges. Future site plans should be consistent in treatment. Tree and landscapes should also recognize limitations to success - lack of adequate soil volume, deicing salts as major factors.*
Response. We agree with Jeff's objectives and believe the current Landscape Plan achieves those goals.

We continue to value the working relationship with City Staff and believe the level of communication has resulted in a better project for everyone. We look forward to our meeting on February12 and subsequent review with the Planning Board.

With Regards,
CARROLL ASSOCIATES



Patrick J. Carroll, Principal

CC: Peter Pachios, Adam Meyers, Dan Jacques, NR IV
Jim Brady, FC
Stephen Weatherhead, WSA
Barry Sheff, W&C

CARROLL ASSOCIATES

February 7, 2020

Mr. Matthew Grooms
Senior Planner
City of Portland Planning Division
389 Congress Street, 4th Floor
Portland, ME 04101

RE: Three Portland Square, Level III Site Plan Application

Dear Matt,

On behalf of North River IV, LLC, we are pleased to submit responses to the Staff Review comments we received last week regarding the ongoing review of the MDP and Level III Applications for the development of Three Portland Square property currently owned by North River IV. These comments follow our resubmission of plans and support documents on December 20, 2019, as well as a Staff Review meeting convened on January 22, 2020. The following items are attached to this Response Letter and are uploaded to the respective e-Plan site:

- Updated Traffic Demand Management Plan, from VHB, Inc. This update is based on informal comments from Bruce Hyman in an email to VHB dated January 22, 2020.
- Revised Electrical and Lighting Plans and details, from Bartlett Design. This is in response to Site Plan Review comments from Matt Grooms in an email dated January 27, 2020.
- Revised Architectural modeling and building elevations, by Winton Scott Architects, based on informal conversations with Caitlin Cameron, Urban Designer.
- Revised Stormwater and Utility Plans, by Woodard and Curran, based on a Review memo from Wright Pierce, peer reviewer dated January 21, 2020.
- Response to Review Comments from Jeff Tarling, City Arborist, by Carroll Associates.
- Uploading of documentation from the Neighborhood Meeting that was held on January 30, 2020.

Response to Traffic Comments by Tom Errico and Mike Trembley are still being formulated, and will be hopefully submitted prior to our Staff Meeting scheduled for February 12.

Attached and made part of this Application are documents, reports, plans, and images that describe the Three Portland Square responses in full detail. We believe the project provides many benefits to the City of Portland and welcome the opportunity to work closely with City Staff, Planning Board, and interested residents of Portland during its review and approval.

With Regards,
CARROLL ASSOCIATES

Patrick J. Carroll, Principal

CC: Peter Pachios, Adam Meyers, Dan Jacques, NR IV
Jim Brady, FC
Stephen Weatherhead, WSA
Barry Sheff, W&C

Bartlett Design
LIGHTING & ELECTRICAL ENGINEERING
5 PALMER STREET BATH, MAINE 04530
TEL (207) 443-5447
bartlettdesigninc@comcast.net

3 Portland Square
Portland, Maine January 30, 2020

RESPONSE TO CITY REVIEW COMMENTS PERTAINING TO SITE LIGHTING

Site Plan Review Comments:

- The project shall conform with the street and site lighting requirements of the City's Technical Manual. Reuse of existing cobrahead and town & country light fixtures is not permitted, and shall be replaced as necessary with either the downtown combo fixtures along Spring Street or Old Port Fixtures elsewhere within the development. Please see Sec. 10 of the City's Technical Manual for more information.
  RESPONSE:
  The revised Level III Site Submission documents have been revised to provide street lighting that conforms to Section 10 of the City's Technical Manual.

- S8 light fixtures, proposed within the alley between the office building and parking garage, exceed the allowable lumen count. The lighting cut sheet provides a lesser lumen count, and so applicant should confirm that the amount listed in the memo is correct.
  RESPONSE:
  The revised Level III Site Submission documents have been revised to consistently indicate that the lumen rating for the Type S8 lights is 2,117 lumens.

- Roof mounted S9 light fixtures exceed permissible light trespass limits. If considering roof-top parking as a surface lot, then maximum foot candle limits are 4.0, with an average foot candle of 0.5.
  RESPONSE:
  The revised Level III Site Submission documents have been revised to provide lighting levels at the roof parking deck with an average of 0.5 footcandles, and a maximum of 1.9 footcandles.

- Site lighting exceeds allowable light trespass of 1.0 foot candles at the property line. Given the downtown location of this project and requirements of the B-3 zone related to building location, staff recommend that the applicant submit a formal waiver request to permit the current lighting scheme.
  RESPONSE:
  The suggested waiver will be included in the revised Level III site submission documents.

Att. S

September 25, 2019

CONSIGLI
Est. 1905

3 Portland Square
Construction Management Plan

Prepared For: Portland Department of Planning & Urban Development Department

Project Proponent: North River, LLC

Construction Manager: Consigli Construction

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Construction Principles

The purpose of this Construction Management plan is to identify, mitigate and plan for all potential impacts throughout the duration of building the Mixed-Use Development at 3 Portland Square. Consigli Construction will be the contractor associated with the mixed-use parking garage, office and residential project. We committed to a seamless, incident free project by means of typical practices used to ensure that public safety and community are at the forefront of priorities.

Throughout this CM plan we will refer to specific examples of potential construction practices, traffic control scenarios, neighboring building considerations and public safety; as well as measures in which these items will be managed throughout the project to accommodate the community as much as possible. While we will take the necessary precautions to meet City and State requirements for traffic, noise, dust, vibration, etc., this project will be disruptive to adjacent properties compared to the current condition. Along with our subcontractor team members, it is imperative that we have complete participation from all parties affiliated with the project to maintain our strict safety requirements and ensure a quality building for DPD.

The Mixed-Use Development at 3 Portland Square includes the construction of a (6) story parking structured parking garage for (1000) cars, consisting of (24) Residential Units and (5) story office shell space starting a street level and (3) Retail Shell Spaces. The buildings total approximately 489,000 sf that will be primarily built out of precast, steel and concrete. The completion of the project is currently anticipated for February 2022.

Consigli has extensively planned the project's schedule, site logistics and safety protocols that will be thoroughly covered in this report with graphics and narratives. This CM plan will continually be updated to meet the needs of the project, community and the city as the project progresses. We aim to deliver a safe and quality project to DPD, their employees and the City of Portland by means of communication, teamwork and stewardship.

Construction Administration and Communication

Consigli Construction will be the Construction Manager on site throughout the duration of the project. As such, there will be a dedicated team of individuals tasked with managing quality, schedule, site logistics and safety. These personnel will manage and enforce the proposed CMP with all associated subcontractors and material vendors.

TBD – Senior Project Manager
207.XXX.XXXX, @consigli.com

TBD – Project Manager
207.XXX.XXXX, @consigli.com

TBD – Project Superintendent
207.XXX.XXXX, @consigli.com

Site Communication

With the proximity to occupied buildings, community outreach and communication will be imperative throughout construction to keep the public informed of the expected turbulence caused by the project. Site signage will be prominently displayed to show pedestrian access around the site and any updates to the proposed CMP.

Quarterly reporting and updating of the CMP will be required to update the City and community of the following activities:

1) Construction schedule updates
2) Material deliveries, including notice of any oversized loads that may impact public traffic
3) Requests for upcoming off-hours work including weekends and holidays
4) Notice of any upcoming activities that may produce strong noise, vibration or dust that could adversely affect the neighboring communities.
5) Requests for any street openings or public sidewalk work to be completed as part of the construction contract.

Construction Schedule

Project Work Hours

Construction work hours will be in accordance with section 17-18.

The project site is located within zoning group B2 – Business Community but is within proximity of buildings used for residential purposes. As such, work hours will be limited to Monday – Friday 7:00 am – 6:00 pm. Should work extend into Saturdays, the use of heavy equipment will be kept within the time constraints of 8:00 am – 4:00 pm.

Project Schedule/Logistics

The project is anticipated to be approximately 21 months in duration. Beginning in June 2020 the project will be turned over to NRC in February 2022.

Regarding scheduled work to take place within public streets and sidewalks, this work will comply with Section 25-129 – Noise, dust and debris. The installation and connection to public utilities, traffic lane reconfigurations, and sidewalk construction will require work to be executed within Spring Street, Fore Street and Cotton Street. This work will be scheduled and planned with the City of Portland prior to the execution. All logistical concerns will be addressed with the City prior to starting the work. The connection to public utilities is tentatively scheduled to happen in the Spring and Fall of 2021, with sidewalk construction tentatively scheduled to occur during the late Summer of 2021 and Fall of 2022. Temporary barricades, fencing, and signage will be required during the installation to control pedestrian/vehicle movements around the work.

Material Deliveries

The construction will require coordination of material deliveries throughout the duration of the project. The following Traffic Management Plans show the planned lay-down areas, truck routes and safety protocols that will be in place throughout the duration of construction. (See attached for anticipated construction traffic during the project)

1. During the site, concrete and structure erection work or other large deliveries, traffic turning off Commercial Street and Maple Street from the south into the project site will be necessary. A flagger will be employed as needed to assist in navigating loads off these streets to the project site.

Construction activities whether it be work going in place or material and equipment deliveries will create more activity along Spring Street, Fore Street, Cotton Street, and Cross Street.

Material Storage and Laydown Areas

The construction will require careful planning and management of the daily occurrences within the site limits. The Traffic Management Plans are currently outlined with designated fencing limits intend to keep all construction staging, lay down and temporary storage within the project limits and secured by temporary fencing. At certain times physical limits of the site will require usage of the adjacent streets, Spring Street, Fore Street, Cotton Street and Cross Street and will be closely coordinated with the City and abutters.

Specified areas will be granted to on-site subcontractors for staging materials managing their installation. With designated areas delegated to subcontractors, the site will remain accessible by incoming trucks without causing a queuing effect outside of the fence.

Contractor Parking

At the peak of construction, Consigli anticipates that up to 120 people will be on site working various trades associated with the buildings. All contractors, subcontractors and their employees will be prohibited from parking in on-street City spaces in the vicinity of the site and be required to park off-site in identified locations and private parking lots. Several off-site locations have been identified, and contractors, subcontractors and their employees will be encouraged to find their own private lots as well as encouraged to use shuttles, car pooling, taxis/drivers and public transportation. All subcontractors will be educated during the bidding process of this requirement. Language regarding off-street parking will be incorporated into the contract, and each employee will be informed of this requirement during their site safety orientation their first day on-site.

Consigli's on-site construction staff will monitor parking abutting the construction site on Spring Street, Fore Street and Cotton Street. Fines may be issued to construction workers associated with 3 Portland Square found parking outside designated areas.

Fire Protection for Construction Activities

The 2013 Standard for Safeguarding Construction, Alteration and Demolition Operations will be enforced on this project by utilizing best management practices to mitigate the fire risks associated with the construction. Consigli and its subcontractors will execute the following measures to provide a safe and secure work place:

1) PFD Fire Command Center: This centralized location will hold all current project information and will act as the first responders meeting point to obtain the most up to date information of construction. The following documents will be found at this location:
    a. Hot Work Permits: To be filled out daily by any person performing work that will generate a spark or create a potential fire risk on the job site. The permits are to be completed and approved by Consigli prior to work starting.
    b. Updated Construction Schedule
    c. Updated Construction Traffic Management Plan
    d. Pre-Incident Fire Plan

2) On-Site Fuel Storage: There will be a requirement for different flammable liquids throughout construction. A free-standing, 30-minute fire-rated enclosure will be built to safely and securely store all flammable liquids and gases. Fueling trucks will be used as needed but under no circumstances be allowed to be parked or stored on site for any extended period.

3) Means of Egress: The buildings will be permanently equipped with (8) 2-way stair assemblies for means of egress. During construction it is the intent to utilize these stairs to provide emergency egress throughout construction. If needed, we will provide temporary stair towers and these stairs will be identified with temporary signage throughout construction indicating the floor level and exit path direction.

4) Good Housekeeping: Consigli Construction will provide necessary dumpsters for the removal of debris from the site. All subcontractors are responsible for the daily clean-up of their work areas to ensure that no materials or tools are left out over night that could pose a hazard to the building. Daily safety walks by the Construction Superintendent will be utilized to ensure that all working floors are equipped with an inspected fire extinguisher and clear means of egress in the event of an emergency. Trash chutes and/or material hoisting equipment may be utilized to safely and efficiently remove all debris from the project.

5) On-site Security: The project site will be secured everyday by means of a temporary, construction fence and scrim. Lockable gates will be located at (6) locations for site access.

6) Rapid Communication: Evacuation notification will be provided by means of 2-way radios/cellular devices as well as strategically positioned air horns. Upon evacuation of the building all project personnel will report to the muster point location where the Construction Manager and all subcontractor foremen will perform accountability checks. The General Contractor field staff will then be dispatched to all project entry points and the PFD Command Center. Upon arrival of the first responders to the PFD Command Center the General Contractor will provide an accountability and incident briefing.

Public Safety

The construction will be near pedestrian right of ways and will interact with public traffic throughout the duration of the project. Material deliveries, the use of cranes, lifts and other heavy machinery all have the potential to impact typical public activity. As a member of the Portland community, Consigli will strive to limit, mitigate and avoid these potential impacts as much as possible by means of controlling noise, on-site dust, vibrations and traffic. By educating and informing the neighborhoods to the construction activities taking place we will aim to build a project that produces the minimal of impacts to the Spring Street, Fore Street, Cotton Street, and Cross Street communities.

Snow Removal

All contractors associated with the 3 Portland Square development will maintain access to sidewalks in front of their respected site throughout the winter.

Noise

Construction activities throughout the project will create noise that leaves the project site. It is the intent of the project team to limit the exposure to the noise by following section 17-18 of the City of Portland Code of Ordinances. This project site is located within proximity of buildings classified as residential. As such, the project hours will be limited the 7:00 am – 6:00 pm, Monday – Friday. Should any weekend or holiday work be required the use of heavy machinery will not commence before 8:00 am. When this work is required, no less than 2-week advanced notice will be provided to DPD and the neighboring communities.

Work related to the ground improvements, foundations, and the erecting of the structure will likely be the loudest activity experienced during construction. This work will take place from June 2020 – November 2021.

Dust Control/Air Quality

Maintaining an environmentally conscious project site will be a major priority for the project team to ensure safety not only for the neighboring communities but also for the construction workers on site day after day. All soils and debris will be kept within the project limits following the State of Maine Department of Environmental Protection erosion control Best Management Practices:

1) Erosion controlled construction entrances
2) Tarped dump trucks leaving the site with soil/debris
3) On-going sidewalk and street cleaning activities
4) The installation of temporary, compacted staging areas within the job site
5) Using wetting agents to control dust
6) Covering stock piles when material is to be piled for long periods of time
7) Smoking will not be allowed on the job site

Vibration Monitoring

Some of construction practices required for this project will result in ground vibration waves that may transmit to nearby buildings. Prior to any potential vibration causing activities taking place a pre-construction survey will be conducted to review and document existing conditions. The survey will encompass all properties abutting the proposed project to include the following addresses:

To Be Determined

Site demolition, site removals, vibratory compaction and ground improvements will be employed on this project and will be monitored by a third-party monitoring company. A pre-construction meeting will be planned with abutting property owners to discuss geological conditions, construction specifications and methods of installation that create vibration.

Dewatering

Some construction practices such as deep foundations will be required for this project and may require dewatering activities. *Final Plan and Locations To Be Determined.*

Traffic Control

Throughout the construction process Spring Street, Fore Street, Cotton Street, and Cross Street will experience increased traffic due to construction activities. Material deliveries, contractor access and public utility integration will be encountered and mitigated through coordinated Traffic Management Plans (provided within this CM Plan), on-site safety personnel, way-finding signage and well-organized traffic control devices. Consigli will strive to inform and direct the neighborhood to the activities taking place in public areas as they progress through completion. During the Spring and Fall of 2020 and 2021 public utility connections will be made in Spring Street, Fore Street Cotton Street and Cross Street. During the late Summer of 2021 and Spring of 2022, sidewalk improvements will be made adjacent to Spring Street, Fore Street, Cotton Street, and Cross Street.

The main access points to the construction project will be through the Cotton Street gates off Spring Street and Fore Street. To navigate tractor-trailers and other large vehicles to the project site a flagger will be stationed at Spring and Fore Street as needed to usher the trucks into the right of way. Due to the large turn radius of some of these trucks, it may be necessary to close parking spaces along Spring Street and Fore Street to establish the necessary entrance and exit gate. Secondary entrance and exit relief points will be created where Cross Street and Fore Street intersect. Work associated with foundations, utilities, sidewalk improvements and general site access will impact public parking spaces. Parking spaces adjacent to the site along Cotton Street are expected to be closed for most of the project. Periodic parking impacts will also occur adjacent to the site along Spring Street. Temporary lane closures will be required adjacent to the site along Spring Street and Fore Street for a variety of construction activities and will be closely coordinated with the City.

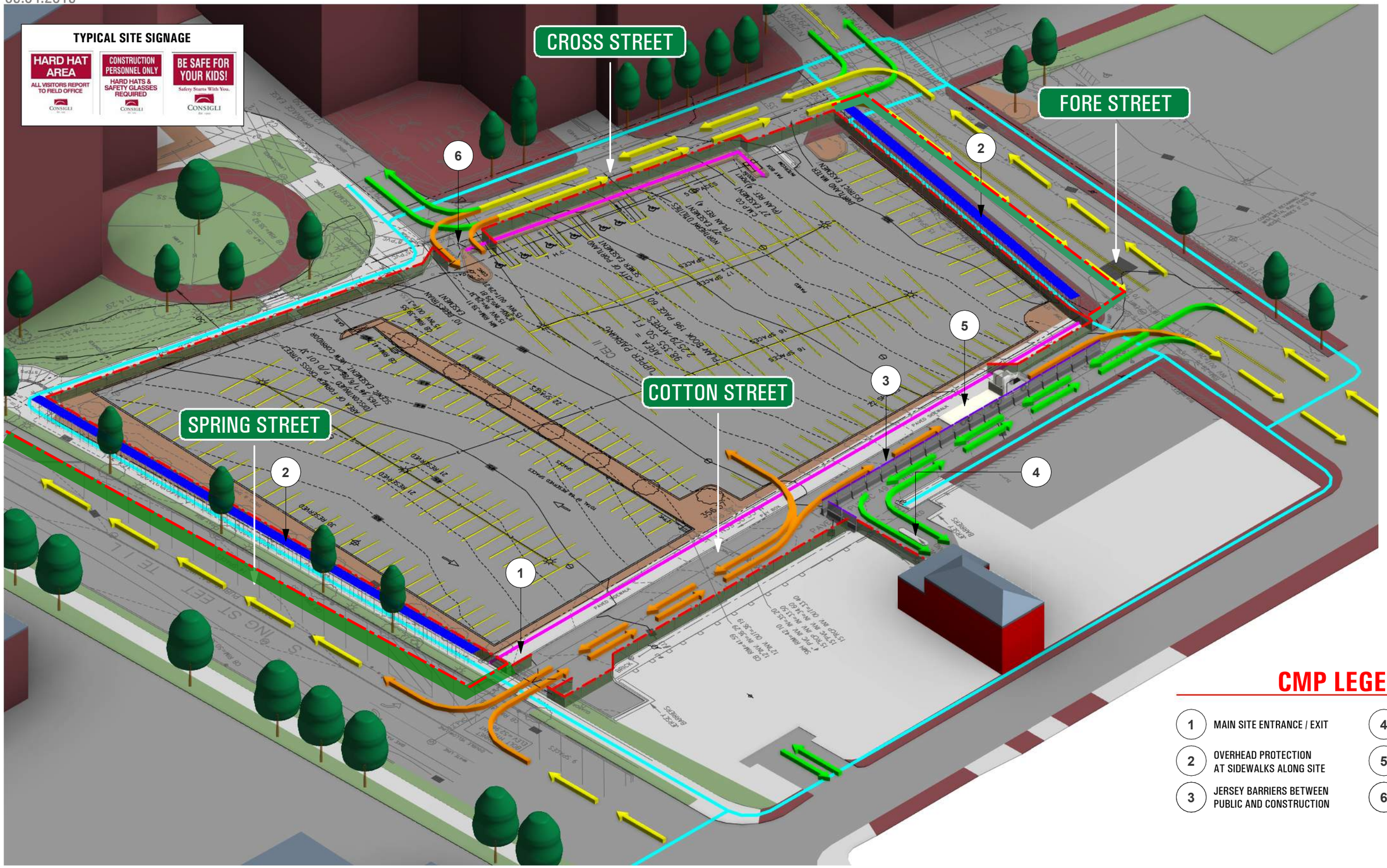
Traffic Management Plans

Portland Square Development

PHASE 1

MOBILIZATION

09.04.2019



GRAPHIC KEY

- CONSTRUCTION TRAFFIC
- PUBLIC TRAFFIC
- SHARED TRAFFIC
- PEDESTRIAN ACCESS
- SIDEWALK CLOSED
- CONSTRUCTION GATE
- JERSEY BARRIER

CMP SUBMISSION 9/25/19

CMP LEGEND

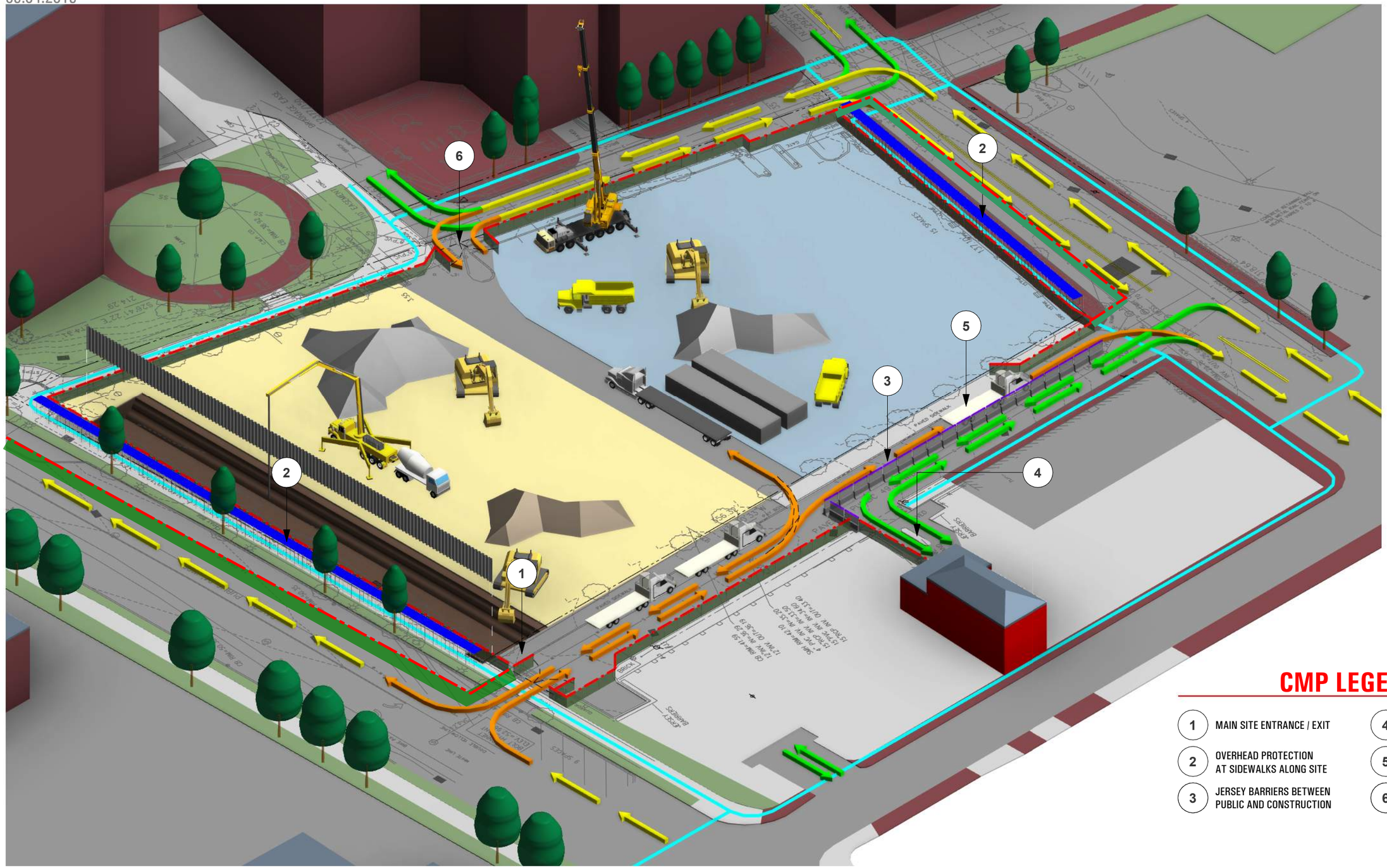
1. MAIN SITE ENTRANCE / EXIT
2. OVERHEAD PROTECTION AT SIDEWALKS ALONG SITE
3. JERSEY BARRIERS BETWEEN PUBLIC AND CONSTRUCTION
4. ACCESS TO PAKING LOT MUST BE MAINTAINED
5. CONSTRUCTION EXITING TRAFFIC
6. TEMP GATED ACCESS ALONG CROSS STREET

CONSIGLI
Est. 1905

Portland Square Development

PHASE 2 | SITE PREP AND EXCAVATION

09.04.2019



GRAPHIC KEY

- CONSTRUCTION TRAFFIC
- PUBLIC TRAFFIC
- SHARED TRAFFIC
- PEDESTRIAN ACCESS
- SIDEWALK CLOSED
- CONSTRUCTION GATE
- JERSEY BARRIER

CMP SUBMISSION 9/25/19

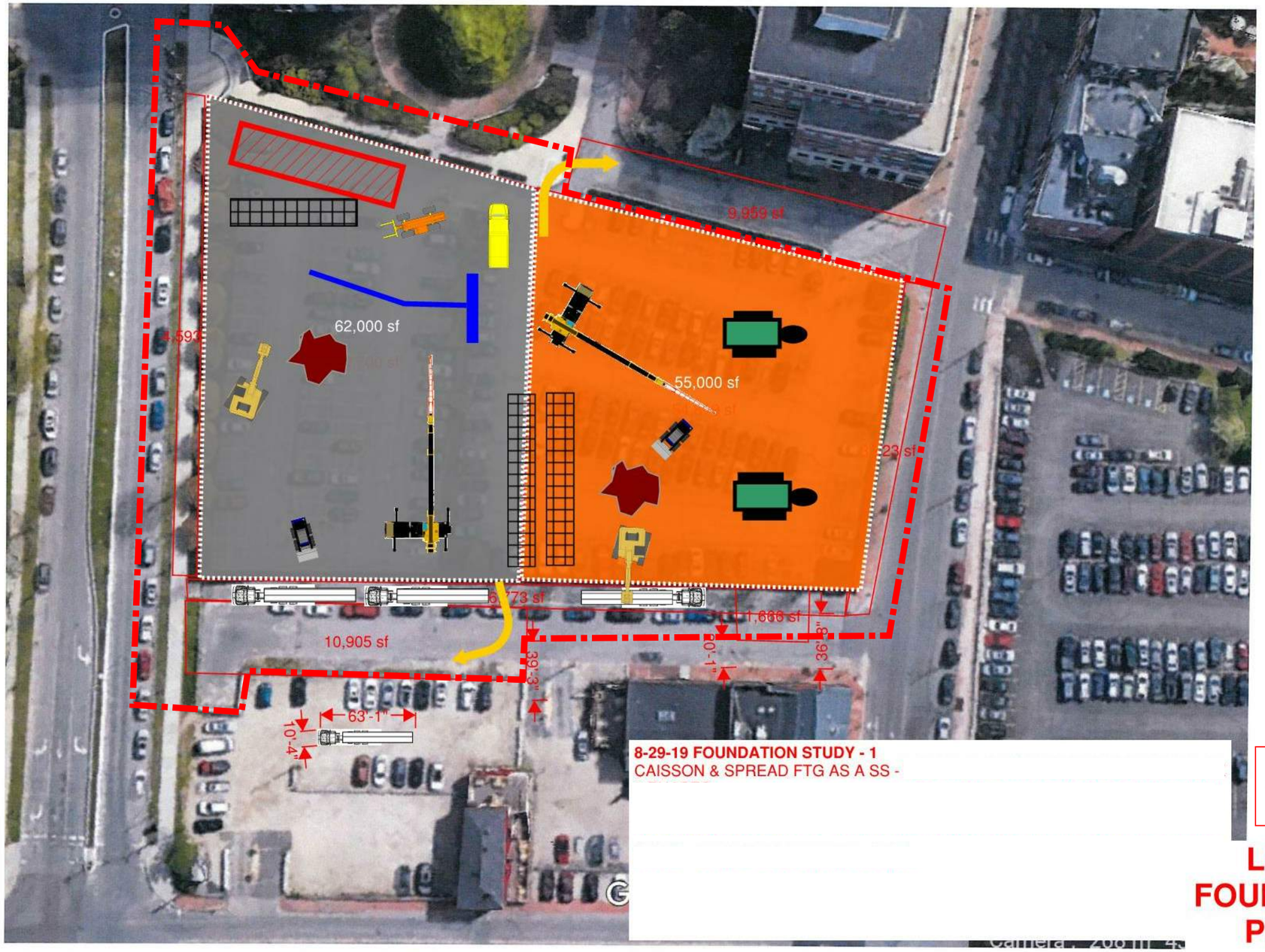
CMP LEGEND

1. MAIN SITE ENTRANCE / EXIT
2. OVERHEAD PROTECTION AT SIDEWALKS ALONG SITE
3. JERSEY BARRIERS BETWEEN PUBLIC AND CONSTRUCTION
4. ACCESS TO PAKING LOT MUST BE MAINTAINED
5. CONSTRUCTION EXITING TRAFFIC
6. TEMP GATED ACCESS ALONG CROSS STREET

Portland Square Development

PHASE 2

Plan Detail



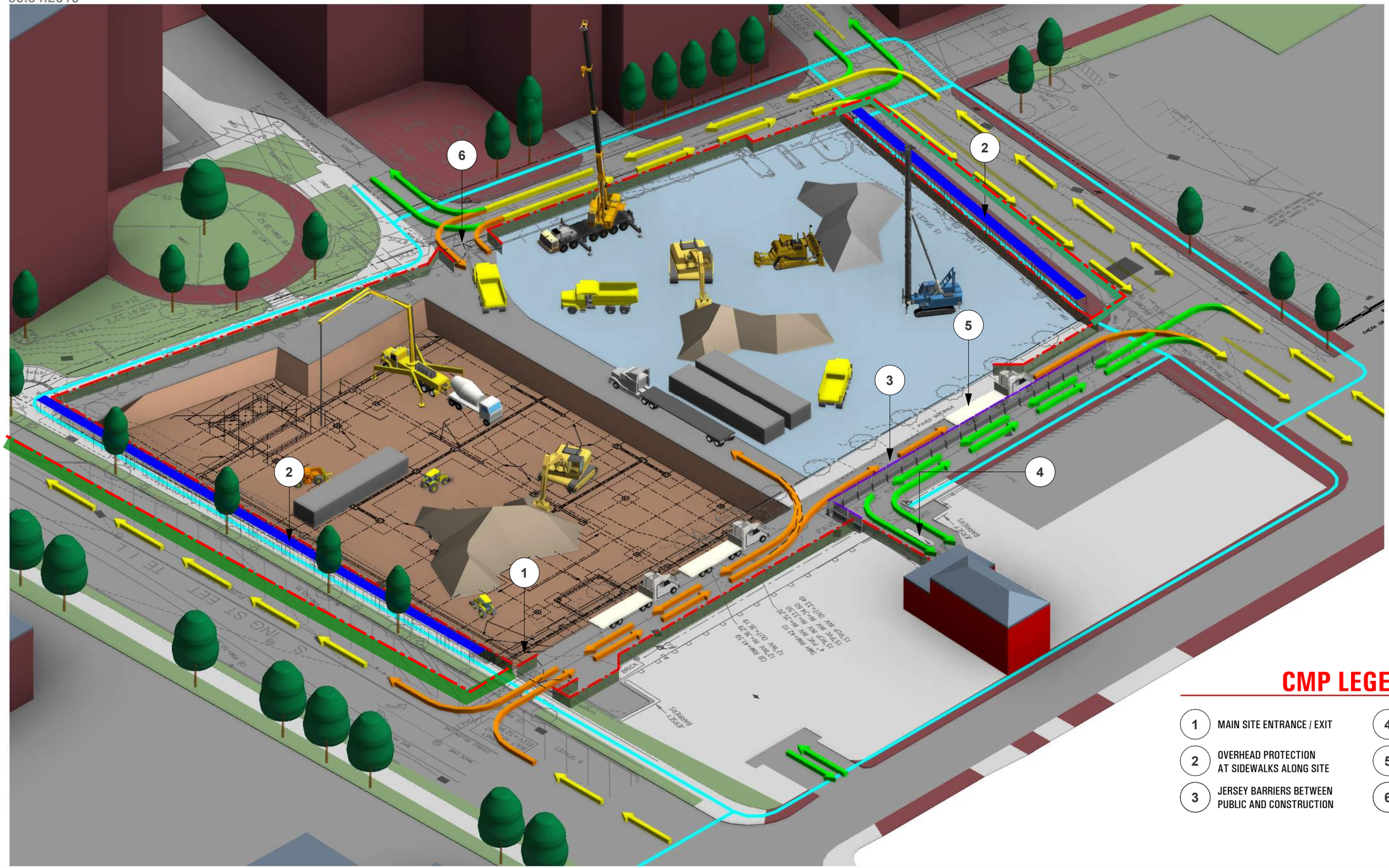
CMP SUBMISSION 9/25/19

LP-03 - FOUNDATION PHASE

Portland Square Development

PHASE 3 | FOUNDATIONS AND PILES

09.04.2019



GRAPHIC KEY

- CONSTRUCTION TRAFFIC
- PUBLIC TRAFFIC
- SHARED TRAFFIC
- PEDESTRIAN ACCESS
- SIDEWALK CLOSED
- CONSTRUCTION GATE
- JERSEY BARRIER

CMP SUBMISSION 9/25/19

CMP LEGEND

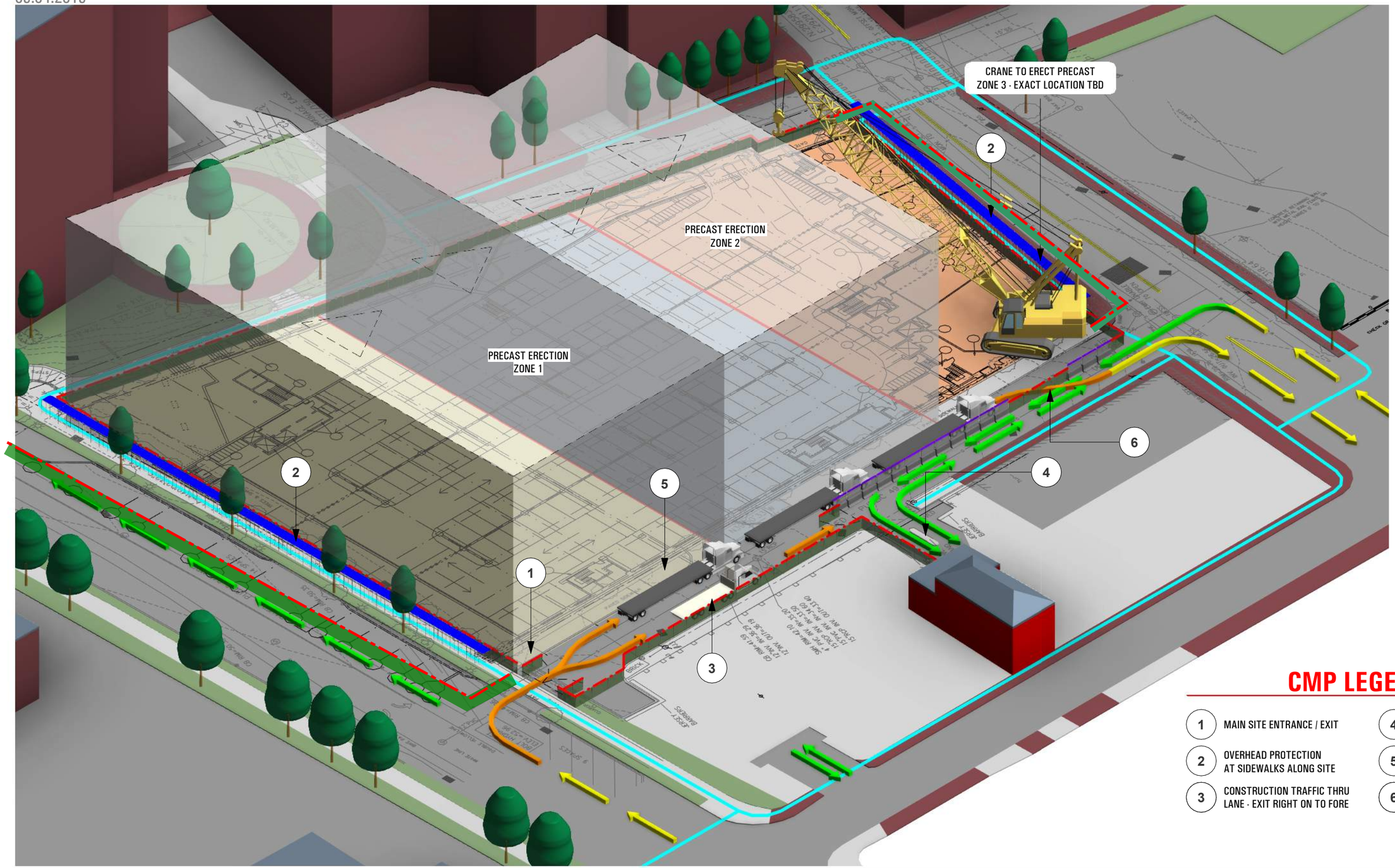
1. MAIN SITE ENTRANCE / EXIT
2. OVERHEAD PROTECTION AT SIDEWALKS ALONG SITE
3. JERSEY BARRIERS BETWEEN PUBLIC AND CONSTRUCTION
4. ACCESS TO PAKING LOT MUST BE MAINTAINED
5. CONSTRUCTION EXITING TRAFFIC
6. TEMP GATED ACCESS ALONG CROSS STREET

Portland Square Development

PHASE 4

PRECAST AND RIGGING

09.04.2019



GRAPHIC KEY

- CONSTRUCTION TRAFFIC
- PUBLIC TRAFFIC
- SHARED TRAFFIC
- PEDESTRIAN ACCESS
- SIDEWALK CLOSED
- CONSTRUCTION GATE
- JERSEY BARRIER

CMP SUBMISSION 9/25/19

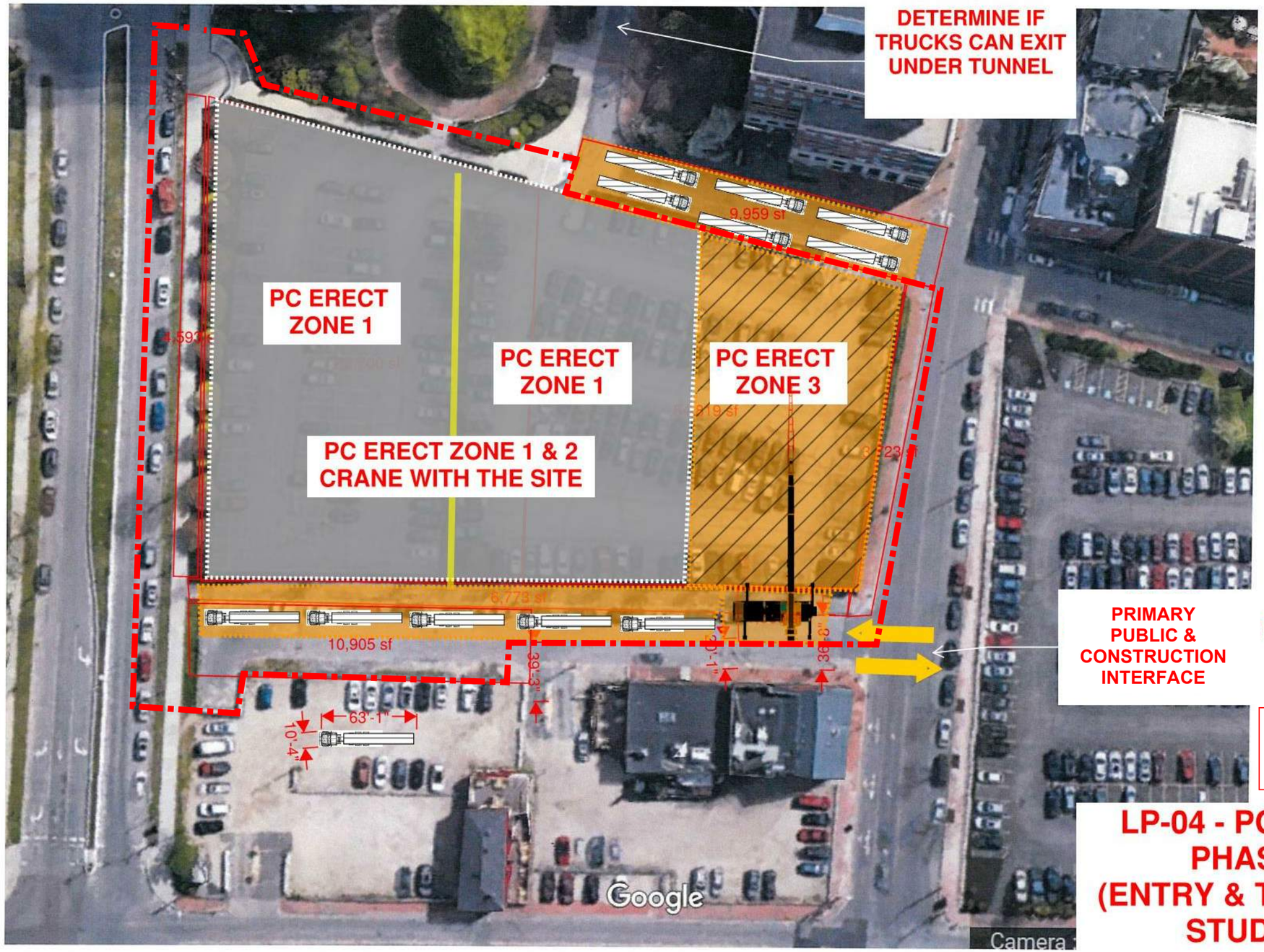
CMP LEGEND

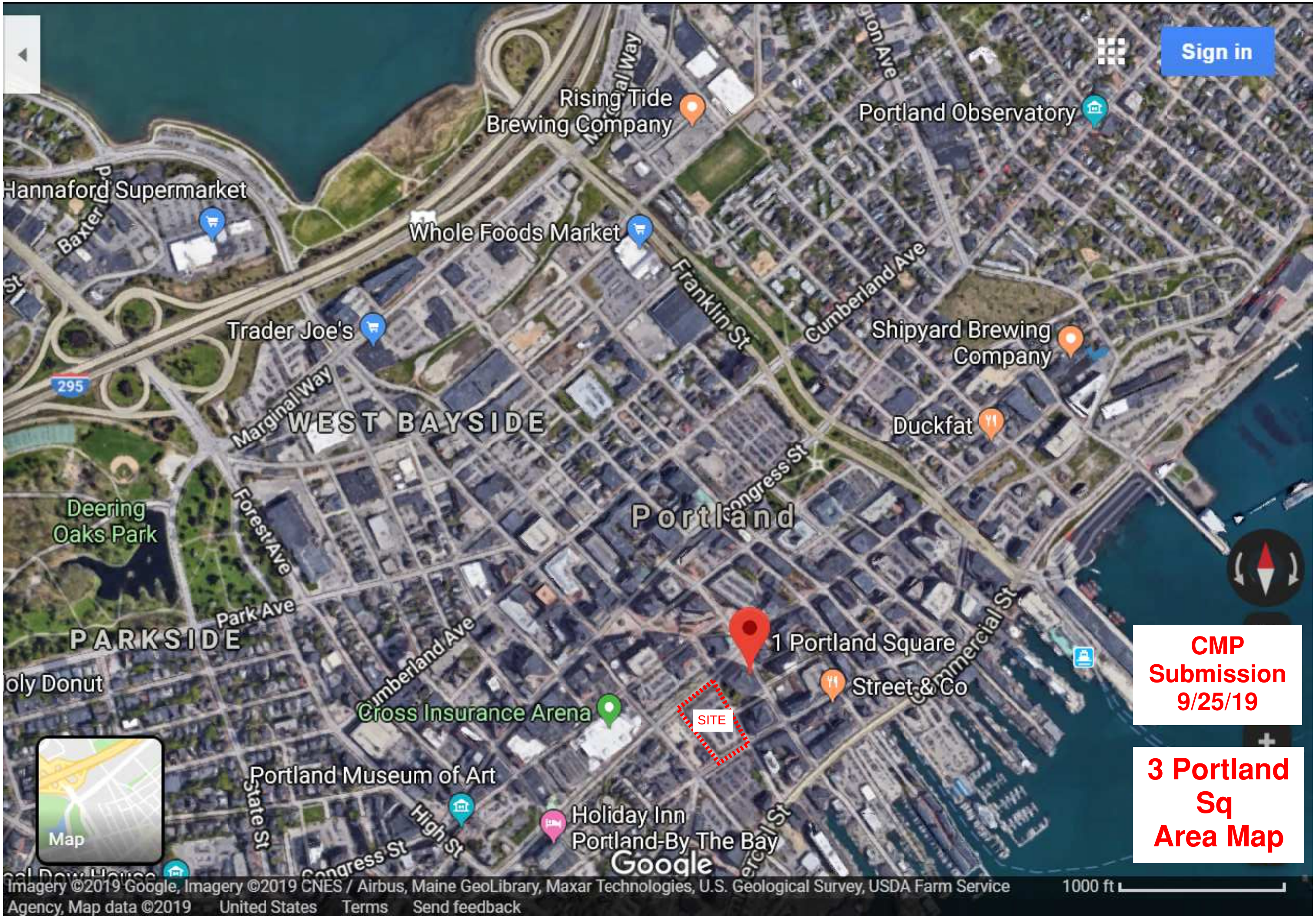
1. MAIN SITE ENTRANCE / EXIT
2. OVERHEAD PROTECTION AT SIDEWALKS ALONG SITE
3. CONSTRUCTION TRAFFIC THRU LANE - EXIT RIGHT ON TO FORE
4. ACCESS TO PAKING LOT MUST BE MAINTAINED
5. TRUCK MATERIAL DELIVERY LANE AND OFF-LOADING
6. GATE WITHIN BARRIERS FOR DELIVERY EXITING TRAFFIC

Portland Square Development

PHASE 4

Plan Detail




Sign in
Rising Tide Brewing Company
Portland Observatory
Hannaford Supermarket
Whole Foods Market
Trader Joe's
Shipyard Brewing Company
Duckfat
WEST BAYSIDE
Deering Oaks Park
PARKSIDE
Portland
1 Portland Square
Street & Co
Cross Insurance Arena
SITE
Portland Museum of Art
Holiday Inn Portland-By The Bay
Map
Google
Imagery ©2019 Google, Imagery ©2019 CNES / Airbus, Maine GeoLibrary, Maxar Technologies, U.S. Geological Survey, USDA Farm Service Agency, Map data ©2019
United States
Terms
Send feedback
1000 ft
CMP Submission 9/25/19
3 Portland Sq Area Map

Three Portland Square

Site Location of Development Amendment

41 Hutchins Drive
Portland, ME 04102
800-426-4262

woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

0231886.00
North River IV, LLC
December 2019

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PUBLIC NOTICE

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Department of Environmental Protection
Bureau of Land & Water Quality
17 State House Station
Augusta, Maine 04333
Telephone: 207-287-3901

FOR DEP USE **FORM A PAGE 1**
ATS # _____
L-_____
Total Fees: _____
Date: Received _____

****

SITE LOCATION OF DEVELOPMENT PERMIT APPLICATION 38 M.R.SA. §§481-490

PLEASE TYPE OR PRINT IN *INK ONLY*

This application is for: (CHECK THE ONE THAT APPLIES)	☐ **20 acre development** ☐ **Planning Permit** ☐ **Metallic Mining**	☐ **Marine Oil Terminal** ☐ **Structure** ☐ **Subdivision**	■ **Major Amendment** ☐ **Minor Amendment**

1. Name of Applicant:	North River IV, LLC; Adam Myers	**6. Name of Agent (if applicable):**	Woodard & Curran, Lauren Swett
2. Applicant's Mailing Address:	224 12th Ave, New York NY 10001	**7. Agent's Mailing Address:**	41 Hutchins Dr., Portland, ME
3. Applicant's Daytime Phone #:	(212) 695-8090	**8. Agent's Daytime Phone # :**	(207) 558-3763
4. Applicant's Fax # (if available):		**9. Agent's Fax # (if available):**	
5. Applicant's *e-mail address* (REQUIRED -license will be sent via: e-mail):	amyers@northriverco.com	**10. Agent's *e-mail address* (REQUIRED - license will be sent via e-mail):**	lswett@woodardcurran.com

PROJECT INFORMATION

11. Name of Development:	Three Portland Square (Master Development Plan Phase 2)						
12. Map and Lot #'s:	**Map #:** 038	**Lot #:** B003	**13. Deed Reference #'s:**		**Book #:** 32163	**Page #:** 33	
14. Location of Project City/Town:	Portland	**15. County:**	Cumberland	**16. UTM Northing**		**17. UTM Easting**	
18. Brief Description of Project including total parcel size:	Amendment to existing SLOD permit relating to development of a +/- 98,355 SF parcel with proposed office tower, multi-level parking garage and office/retail wrap.						

19. Type of Direct Watershed: (Check all that apply)

☐ Lake not most at risk ■ River, stream or brook ☐ Coastal wetland
☐ Lake most at risk ☐ Urban impaired stream ☐ Wellhead or public water
☐ Lake most at risk, severely blooming ☐ Freshwater wetland

20. Name of Waterbody Project Site drains to:	Fore River		
21. Amount of Developed Area:	Total acres: 2.31	Existing Developed area: 2.31 acres	New Developed area: 0 acres (Existing parcel is fully developed)
22. Amount of Impervious Area:	Total acres: 2.31	Existing Impervious areas 1.90 acres	New Impervious area: 0.25 acres

23. Development started prior to obtaining a license?:	☐ **Yes** ■ **No**		
24. .Development or any portion of the site subject to enforcement action?	☐ **Yes** ☐ **No**	**If yes**, name of enforcement staff involved?	
25. Common scheme of development?:	■ **Yes** ☐ **No**	**26. Title, Right or Interest:**	☒ **own** ☐ **lease** ☐ **purchase option** ☐ **written agreement**
27. Natural Resources Protection Act permit required?:	☐ **Yes** ☐ **No**	**If yes:** ☐ **PBR** ☐ **Tier 1** ☐ **Full Permit** ☐ **Tier 2**	
28. Existing DEP Permit number (if applicable):	L-013526-A-N		
29. Names of DEP staff person(s) present at the pre-application meeting:	NA		
30. Does agent have an interest in project? If yes, what is the interest?	☐ **Yes** ■ **No**		

CERTIFICATIONS AND SIGNATURES LOCATED ON PAGE 2

IMPORTANT: IF THE SIGNATURE BELOW IS NOT THE APPLICANT'S SIGNATURE, ATTACH LETTER OF AGENT AUTHORIZATION SIGNED BY THE APPLICANT.

By signing below the applicant (or authorized agent), certifies that he or she has read and understood the following :

CERTIFICATIONS / SIGNATURES

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein.

Further, I hereby authorize the DEP to send me an electronically signed decision on the license I am applying for with this application by emailing the decision to the electronic address located on the front page of this application (see #5 for the applicant and #10 for the agent)".

Signed: _____ **Title** Managing Director **Date:** 12/19/19

Notice of Intent to Comply with Maine Construction General Permit	**With this Site Law application form and my signature, I am filing notice of my intent to carry out work which meets the requirements of the Maine Construction General Permit (MCGP). I have read and will comply with all of the MCGP standards.** **If this form is not being signed by the landowner or lessee of the property, attach documentation showing authorization to sign.** **Signed** _____ **Date:** 12/19/19

NOTE: You must file a MCGP Notice of Termination (Form K) within 20 days of completing permanent stabilization of the project site.

CERTIFICATION

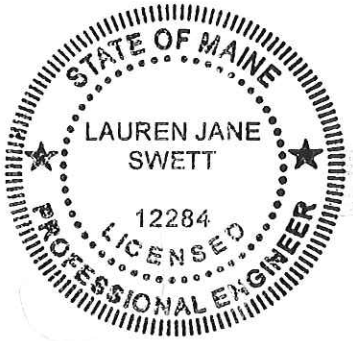
The person responsible for preparing this application and/or attaching pertinent site and design information hereto, by signing below, certifies that the application for development approval is complete and accurate to the best of his/her knowledge.

Signature: Lauren Swett

Name (print): Lauren Swett

Date: 12/19/19

Re/Cert/Lic No.: _____
Engineer 12284
Geologist _____
Soil Scientist _____
Land Surveyor _____
Site Evaluator _____
Active Member of the Maine Bar _____
Professional Landscape Architect _____
Other _____



Not Applicable - City of Portland has Delegated Review

FORM B

PUBLIC NOTICE:
NOTICE OF INTENT TO FILE

Please take notice that

_____

(*Name, Address and Phone # of Applicant*)

_____

is intending to file a Site Location of Development Act permit application with the Maine Department of Environmental Protection pursuant to the provisions of 38 M.R.S.A. §§ 481 thru 490 on or about

_____

(Anticipated Filing Date)

The application is for

_____

(Description of the Project)

_____

at the following location:

_____

(*Project Location*)

A request for a public hearing or a request that the Board of Environmental Protection assume jurisdiction over this application must be received by the Department in writing, no later than 20 days after the application is found by the Department to be complete and is accepted for processing. A public hearing may or may not be held at the discretion of the Commissioner or Board of Environmental Protection. Public comment on the application will be accepted throughout the processing of the application.

For Federally licensed, permitted, or funded activities in the Coastal Zone, review of this application shall also constitute the State's consistency review in accordance with the Maine Coastal Program pursuant to Section 307 of the federal Coastal Zone Management Act, 16 U.S.C. § 1456. (Delete if not applicable.)

The application will be filed for public inspection at the Department of Environmental Protection's office in (*Portland, Augusta or Bangor*)(circle one) during normal working hours. A copy of the application may also be seen at the municipal offices in _____, Maine.

(*Town*)

Written public comments may be sent to the regional office in Portland, Augusta, or Bangor where the application is filed for public inspection:

MDEP, Central Maine Regional Office, 17 State House Station, Augusta, Maine 04333
MDEP, Southern Maine Regional Office, 312 Canco Road, Portland, Maine 04103
MDEP, Eastern Maine Regional Office, 106 Hogan Road, Bangor, Maine 04401

Not Applicable - City of Portland has Delegated Review

FORM C

PUBLIC NOTICE FILING AND CERTIFICATION

The DEP Rules, Chapter 2, require an applicant to provide public notice for all Site Location projects with the exception of minor revisions and condition compliance applications. In the notice, the applicant must describe the proposed activity and where it is located. **"Abutter"** for the purposes of the notice provision means any person who owns property that is BOTH (1) adjoining and (2) within one mile of the delineated project boundary, including owners of property directly across a public or private right of way.

1. **Newspaper:** You must publish the Notice of Intent to File in a newspaper circulated in the area where the activity is located. The notice must appear in the newspaper within 30 days prior to the filing of the application with the Department. You may use the attached Notice of Intent to File form, or one containing identical information, for newspaper publication and certified mailing.

2. **Abutting Property Owners:** You must send a copy of the Notice of Intent to File by certified mail to the owners of the property abutting the activity. Their names and addresses can be obtained from the town tax maps or local officials. They must receive notice within 30 days prior to the filing of the application with the Department.

3. **Municipal Office:** You must send a copy of the Notice of Intent to File and a **duplicate of the entire application** to the Municipal Office.

   ATTACH a list of the names and addresses of the owners of abutting property.

CERTIFICATION

By signing below, the applicant or authorized agent certifies that:

1. A Notice of Intent to File was published in a newspaper circulated in the area where the project site is located within 30 days prior to filing the application;
2. A certified mailing of the Notice of Intent to File was sent to all abutters within 30 days of the filing of the application;
3. A certified mailing of the Notice of Intent to File, and a duplicate copy of the application was sent to the town office of the municipality in which the project is located; and
4. Provided notice of, if required, and held a public informational meeting in accordance with Chapter 2, Rules Concerning the Processing of Applications, Section 14, prior to filing the application. Notice of the meeting was sent by certified mail to abutters and to the town office of the municipality in which the project is located at least ten days prior to the meeting. Notice of the meeting was also published once in a newspaper circulated in the area where the project site is located at least seven days prior to the meeting.

The Public Informational Meeting was held on _____.
Date

Approximately _____ members of the public attended the Public Informational Meeting.

_____

Signature of Applicant or Authorized Agent Date

FORM D

SUBMISSIONS CHECKLIST

If a provision is not applicable, put "NA"

Section 1. Development description

A. Narrative

X 1. Objectives and details

X 2. Existing facilities (with dates of construction)

B. Topographic map

X 1. Location of development boundaries

NA 2. Quadrangle name

C. Construction plan

X 1. Outline of construction sequence (major aspects)

2. Dates

D. Drawings

X 1. Development facilities

X a. Location, function and ground area

X b. Length/cross-sections for roads

X 2. Site work (nature and extent)

X 3. Existing facilities (location, function ground area and floor area)

4. Topography

X a. Pre- and post-development (contours 2 ft or less)

X b. Previous construction, facilities and lot lines

X **Section 2. Title, right or interest** (copy of document)

Section 3. Financial capacity

X A. Estimated costs

B. Financing

X 1. Letter of commitment to fund

2. Self-financing

NA a. Annual report

NA b. Bank statement

3. Other

NA a. Cash equity commitment

NA b. Financial plan

NA c. Letter

X 4. Affordable housing information

Section 4. Technical ability (description)

X A. Prior experience (statement)

X B. Personnel (documents)

Section 5. Noise

X A. Developments producing a minor noise impact (statement)

NA 1. Residential developments

NA 2. Certain non-residential subdivisions

NA 3. Schools and hospitals

NA 4. Other developments

NA a. Type, source and location of noise

NA b. Uses, zoning and plans

NA c. Protected locations

NA d. Minor nature of impact

NA e. Demonstration
NA B. Developments producing a major noise impact (full noise study)
NA 1. Baseline
NA a. Uses, zoning and plans
NA b. Protected locations
NA c. Quiet area
NA 2. Noise generated by the development
NA a. Type, source and location of noise
NA b. Sound levels
NA c. Control measures
NA d. Comparison with regulatory limits
NA e. Comparison with local limits

X **Section 6. Visual quality and scenic character**(narrative, description, visual impact analysis)

X **Section 7. Wildlife and fisheries** (narrative)

X **Section 8. Historic sites** (narrative)

X **Section 9. Unusual natural areas** (narrative)

Section 10. Buffers
NA A. Site plan and narrative

Section 11. Soils
X A. Soil survey map and report
X 1. Soil investigation narrative
X 2. Soil survey map
NA B. Soil survey intensity level by development type
1. Class A (High Intensity) Soil Survey
2. Class B (High Intensity) Soil Survey
3. Class C (Medium High-Intensity) Soil Survey
4. Class D (Medium Intensity) Soil Survey
X C. Geotechnical Investigation
NA D. Hydric soils mapping

Section 12. Stormwater management
A. Narrative
X 1. Development location
NA 2. Surface water on or abutting the site
NA 3. Downstream ponds and lakes
X 4. General topography
X 5. Flooding
X 6. Alterations to natural drainage ways
X 7. Alterations to land cover
X 8. Modeling assumptions
X 9. Basic standard
X 10. Flooding standard
X 11. General standard
X 12. Parcel size
X 13. Developed area
X 14. Disturbed area
X 15. Impervious area
B. Maps
X 1. U.S.G.S. map with site boundaries
X 2. S.C.S. soils map with site boundaries
X C. Drainage Plans (a pre-development plan and a post-development plan)

X 1. Contours
X 2. Plan elements
X 3. Land cover types and boundaries
X 4. Soil group boundaries
X 5. Stormwater quantity subwatershed boundaries
X 6. Stormwater quality subwatershed boundaries
X 7. Watershed analysis points
X 8. Hydrologic flow lines (w/flow types and flow lengths labeled)
X 9. Runoff storage areas
X 10. Roads and drives
X 11. Buildings, parking lots, and other facilities
X 12. Drainage system layout for storm drains, catch basins, and culverts
NA 13. Natural and man-made open drainage channels
NA 14. Wetlands
NA 15. Flooded areas
X 16. Benchmark
X 17. Stormwater detention, retention, and infiltration facilities
X 18. Stormwater treatment facilities
NA 19. Drainage easements
X 20. Identify reaches, ponds, and subwatersheds matching stormwater model
NA 21. Buffers

X D. Runoff analysis (pre-development and post development)
X 1. Curve number computations
X 2. Time of concentration calculations
X 3. Travel time calculations
X 4. Peak discharge calculations
X 5. Reservoir routing calculations

X E. Flooding Standard
NA 1. Variance submissions (if applicable)
NA a. Submissions for discharge to the ocean, great pond, or major river
NA i. Map
NA ii. Drainage plan
NA iii. Drainage system design
NA iv. Outfall design
NA v. Easements
NA b. Insignificant increase
NA i. Downstream impacts
NA
X c. Submissions for discharge to a public stormwater system
NA i. Letter of permission
X ii. Proof of capacity
NA ii. Outfall analysis and design (pictures)
X 2. Sizing of storm drains and culverts
NA 3. Stormwater ponds and basins
NA a. Impoundment sizing calculations
NA b. Inlet calculations
NA c. Outlet calculations
NA d. Emergency spillway calculations
NA e. Subsurface investigation report
NA f. Embankment specifications
NA g. Embankment seepage controls
NA h. Outlet seepage controls
NA i. Detail sheet
NA j. Basin cross sections
NA k. Basin plan sheet
NA 4. Infiltration systems
NA a. Well locations map
NA b. Sand and gravel aquifer map
NA c. Subsurface investigation report with test pit or boring logs

NA d. Permeability analysis
NA e. Infiltration structure design
NA f. Pollutant generation and transport analysis
NA g. Monitoring and operations plan
NA i. Locations of storage points of potential contaminants
NA ii. Locations of observation wells and infiltration monitoring plan
NA iii. Groundwater quality monitoring plan
NA 5. Drainage easement declarations.
X F. Stormwater quality treatment plan peak discharge calculations
X 1. Basic stabilization plan
NA a. Ditches, swales, and other open channel stabilization
NA b. Culvert and storm-drain outfall stabilization
X c. Earthen slope and embankment stabilization
X d. Disturbed area stabilization
X e. Gravel roads and drives stabilization

X 2. General Standard
X a. Calculations for sizing BMP
X b. Impervious area calculation
X c. Developed area calculation
X d. Summary spreadsheet of calculations

NA 3. Phosphorus control plan
NA a. Calculations for the site's allowable phosphorus export
NA b. Calculations for determining the developed site's phosphorus export
NA c. Calculations for determining any phosphorus compensation fees
NA 4. Offset Credits
NA a. Urban impaired stream
NA Offset credit calculation
NA b. Phosphorus credit determination
NA i. Location map
NA ii. Scaled plan
NA iii. Title and right
NA iv. Demolition plan
NA v. Vegetation plan
NA vi. Offset credit calculation
NA vii. Calculation for the new allowable export
X 5. Runoff treatment measures
X a. structural measures
X i. Design drawings and specifications
X ii. Design calculations
X iii. Maintenance plan
NA iv. TSS removal or phosphorus treatment factor determinations
X v. Stabilization plan
NA b. Vegetated buffers
NA i. Soil survey
NA ii. Buffer plan
NA iii. Turnout and level spreader designs
NA iv. Deed restrictions
NA 6. Control plan for thermal impacts to coldwater fisheries
NA 7. Control plan for other pollutants
X 8. Engineering inspection of stormwater management facilities

X G. Maintenance of common facilities or property
X 1. Components of the maintenance plan
X A. Maintenance of facilities by owner or operator
X 1. Site owner or operator (name legally responsible party)
TBD 2. Contact person responsible for maintenance
TBD 3. Transfer mechanism

X 4. List of facilities to be maintained
X 5. List of inspection and maintenance tasks for each facility
TBD 6. Identifications of any deed covenants, easements, or restrictions
X 7. Sample maintenance log
TBD 8. Copies of any third-party maintenance contracts
NA B. Maintenance of facilities by homeowner's association
NA 1. Incorporation documents for the association
NA 2. Membership criteria
NA 3. Association officer responsible for maintenance
NA 4. Establishment of fee assessment for maintenance work
NA 5. Establishment of lien system
NA 6. Reference to department order(s) in association charter
NA 7. Transfer mechanism from developer to association
NA 8. List of facilities to be maintained
NA 9. Identification of any deed covenants, easements, or restrictions
NA 10. Renewal of covenants and leases
NA 11. List of inspection and maintenance tasks for each facility
NA 12. Sample maintenance log
NA 13. Copies of any third-party maintenance contracts
NA C. Maintenance of facilities by municipality or municipal district
NA 1. Identification of the municipal department or utility district
NA 2. Contact person responsible for maintenance
NA 3. Evidence of acceptance of maintenance responsibility
NA 4. Transfer mechanism from developer
NA 5. List of facilities to be maintained
NA 6. List of inspection and maintenance tasks for each facility
NA 7. Identifications of any deed covenants, easements, or restrictions
NA 8. Sample maintenance log
X 2. General inspection and maintenance requirements
NA a. Drainage easements
X b. Ditches, culverts, and catch-basin systems
X c. Roadways and parking surfaces
X d. Stormwater detention and retention facilities
NA 1. Embankment inspection and maintenance
X 2. Outlet inspection and clean-out
NA 3. Spillway maintenance
X 4. Sediment removal and disposal
NA e. Stormwater infiltration facilities
NA 1. Sediment protection plan
NA 2. Infiltration rehabilitation plan
NA 3. Sediment removal and disposal
NA 4. Groundwater monitoring plan
X f. Proprietary treatment devices
NA g. Buffers
NA h. Other practices and measures

Section 13. Urban Impaired Stream Submissions

NA 1. Off-site credits
NA 2. Compensation fees (Urban Impaired Stream/Phosphorus)
NA 3. Development impacts

Section 14. Basic Standards

X A. Narrative
X 1. Soil types
NA 2. Existing erosion problems
NA 3. Critical areas
NA 4. Protected natural resources
X 5. Erosion control measures

X 6. Site stabilization
X B. Implementation schedule
X C. Erosion and sediment control plan
X 1. Pre-development and post-development contours
X 2. Plan scale and elements
X 3. Land cover types and boundaries
NA 4. Existing erosion problems
NA 5. Critical areas
NA 6. Protected natural resources
X 7. Locations (general)
X 8. Locations of controls
X 9. Disturbed areas
X 10. Stabilized construction entrance
X D. Details and specifications (for both temporary and permanent measures)
NA E. Design calculations
X F. Stabilization plan
X 1. Temporary seeding
X 2. Permanent seeding
NA 3. Sodding
X 4. Temporary mulching
X 5. Permanent mulching
X G. Winter construction plan
X 1. Dormant seeding
X 2. Winter mulching
NA H. Third-party inspections
NA 1. Inspector's name, address, and telephone number
NA 2. Inspector's qualifications
NA 3. Inspection schedule
NA 4. Contractor contact
NA 5. Reporting protocol

Section 15. Groundwater

X A. Narrative
NA 1. Location and maps
NA 2. Quantity
NA 3. Sources
NA 4. Measures to prevent degradation
NA B. Groundwater protection plan
NA C. Monitoring plan
NA 1. Monitoring points
NA 2. Monitoring frequency
NA 3. Background conditions
NA 4. Monitoring parameters
NA 5. Personnel qualifications
NA 6. Proof of training
NA 7. Equipment and methods
NA 8. Quality assurance/quality control
NA 9. Reporting requirements
NA 10. Remedial action plan
NA D. Monitoring well installation report
NA 1. Well location map
NA 2. Elevation data
NA 3. Well installation data
NA 4. Well construction details
NA 5. Borehole logs
NA 6. Summary of depth measurements
NA 7. Characteristics of subsurface strata
NA 8. Well installation contract

NA 9. Schematic cross-sections
NA 10. Monitoring point summary table
NA 11. Protective casing
NA 12. On-site well identification

Section 16. Water supply

X A. Water supply method
NA 1. Individual wells (evidence of sufficient/healthful supply)
NA a. Support of findings by well drillers
NA b. Support of findings by geologist
NA 2. Common well(s) (reports)
NA a. Hydrogeology report
NA b. Engineering report
NA c. Well installation report
NA d. Long-term safe yield and zone of influence determination
NA e. Public water supply
NA i. Proposed well or wells
NA ii. Existing well or wells
NA iii. Water quality analysis
NA 3. Well construction in shallow-to-bedrock areas
NA 4. Additional information
X 5. Off-site utility company or public agency
NA 6. Other sources
NA B. Subsurface wastewater disposal systems (locations of systems and wells)
X C. Total usage (statement re: total anticipated water usage)

Section 17. Wastewater disposal

NA A. On-site subsurface wastewater disposal systems (investigation results)
NA 1. Site plan
2. Soil conditions summary table
NA 3. Logs of subsurface explorations
4. Additional test pits, borings or probes
NA a. Soil conditions A
NA b. Soils with Profiles 8 and 9 parent material
NA c. Soil conditions D
NA d. Disposal field length 60 feet or greater
NA 5. 3-bedroom design
NA 6. Larger disposal systems
a. System design details
NA b. Plan view
NA c. Cross sections
NA d. Test pit data
NA e. Mounding analysis
NA B. Nitrate-nitrogen impact assessment
NA 1. When required
NA a. Exempted____
i. Conventional systems meeting certain setbacks
NA ii. Denitrification systems
NA b. Special conditions and other exemptions
NA 2. Assumptions
NA a. Initial concentration
NA b. Background concentration
NA c. Contribution from development
NA d. Mixing and dilution
NA e. Severe-drought scenario
NA f. Wastewater flow to subsurface wastewater disposal fields

NA 3. Assessment report minimum requirements
NA a. Narrative and calculations
NA b. Site plan
NA i. Well locations
NA ii. 10 mg/l and 8 mg/l isocons
NA iii. Groundwater contours and groundwater flow divides
NA c. References
NA 4. Denitrification systems
NA a. Design plans and specifications
NA b. Installation information
NA c. Monitoring plan
NA d. Maintenance
NA e. Backup system
X D. Municipal facility or utility company letter
NA E. Storage or treatment lagoons

X **Section 18. Solid waste** (list: type, quantity, method of collection and location)
NA A. Commercial solid waste facility (final disposal location)
X B. Off-site disposal of construction/demolition debris (final disposal location)
NA C. On-site disposal of woodwaste/land clearing debris
NA 1. Applicability of rules (evidence re: applicability of rules)
NA 2. Burning of wood wastes
NA a. Delineation on site plan
NA b. Plans for handling unburned woodwaste and woodash
NA c. Evidence of capacity to accept waste (approved facility)
NA d. Usage of materials
NA e. Data on mixing ratios and application rates
X D. Special or Hazardous Waste

Section 19. Flooding
X A. Explanation of flooding impact
X B. Site plan showing 100-year flood elevation
NA C. Hydrology analysis
X D. FEMA flood zone map with site boundaries

Section 20. Blasting
TBD A. Site Plan or map
TBD B. Report
1. Assessment
2. Blasting plan

Section 21. Air emissions (narrative and summary)
NA A. Point and non-point sources identified
NA B. Emission components (point sources)

Section 22. Odors
NA A. Identification of nature/source
NA B. Estimate of areas affected
NA C. Methods of control)

NA **Section 23. Water vapor** (narrative)

NA **Section 24. Sunlight** (statement and drawing, if required)

Section 25. Notices
NA A. Evidence that notice sent
NA B. List of abutters for purposes of notice

1. DEVELOPMENT DESCRIPTION

This narrative is submitted in support of an amendment to the Portland Square Site Location of Development (SLOD) Permit for the Three Portland Square project in Portland, Maine.

1.1 PERMIT BACKGROUND & REQUIREMENTS

In 1986, the Maine Department of Environmental Protection (MaineDEP) issued a Site Location of Development (SLOD) Permit Order (No. L-013526-A-N) for Portland Square. Since that time, a number of amendments have been made to that permit. The proposed development will be constructed within the property limits regulated by the existing Portland Square SLOD Permit Order, and an amendment to that permit is required. The following report is provided for this permit amendment application. The City of Portland will be reviewing this application as part of their Delegated Review Authority granted by the Maine DEP.

A Master Development Plan for Portland Square was submitted to the City in April 2019. The Portland Square property encompasses four parcels on approximately 6.5 acres of land between Spring, Cotton, Center, Commercial and Cross Streets within the Old Port District of Portland. This property consists of two existing buildings, referred to as One and Two Portland Square, and the adjacent "Upper" and "Lower" surface parking lots. The Master Development Plan includes full development of the property over five phases. Separate SLOD Amendment Applications will be submitted for each phase of development. A SLOD Amendment Application has been submitted and approved for Portland Square Phase 1 (Center Street Hotel). This application is in support of Phase 2 (Three Portland Square).

1.2 OBJECTIVE AND DETAILS

The proposed buildings and parking structure will be constructed on Parcel II of the Portland Square property adjacent to the existing One and Two Portland Square buildings, and bounded by Spring Street, Cotton Street and Fore Street. The proposed project includes the redevelopment of the existing "Upper" surface parking lot with an 8-story office building with ground-level retail (Office Tower), a 7-level parking structure, and a 4-story office building with ground level retail/restaurant space (Fore Street Wrap). The proposed project also includes redevelopment of the adjacent Portland Square plaza, stairs and private access driveway (referred to as Upper Cross Street), and redesign of Cotton Street to provide connectivity from Fore Street to Spring Street.

In addition to the SLOD Amendment Application, the proposed project requires the following permits:

- City of Portland Level III Site Plan Review – In progress
- FAA Notice of Proposed Construction – Notice will be filed with the FAA at least 45 days prior to the start of construction.

No additional environmental permits from State or Federal regulators are required for this project as it does not exceed size or resource thresholds.

1.3 EXISTING FACILITIES

The Site is currently fully developed as a paved surface parking lot with mulched landscaped esplanades and sidewalk with street trees. There are no significant natural features or wetlands due to the intense level of existing development. Topography slopes from northwest to southeast towards Fore Street, from approximate elevation 51' down to 29'. A boundary survey of Portland Square was completed by Owen Haskell, Inc. Professional Land Surveyors in October 2018 and is attached to this Section.

1.4 TOPOGRAPHIC MAP

A USGS topographic map showing the approximate location of development boundaries is attached to this Section for your reference.

1.5 CONSTRUCTION PLAN

A Construction Management Plan prepared by Consigli Construction is included as an attachment to this section.

1.6 DRAWINGS

Project design plans showing the proposed improvements are included as an attachment to this section.

1.7 LIST OF ATTACHMENTS

The following documents are attached to this Section:

- Survey
- USGS Topographic Map
- Construction Management Plan (Bound Separately)
- Design Drawings (Bound Separately)

Plan References:

1. ALTA/ACSM LAND TITLE SURVEY FOR PORTLAND SQUARE LIMITED PARTNERSHIP, TWO PORTLAND SQUARE, CITY OF PORTLAND, COUNTY OF CUMBERLAND, STATE OF MAINE, BY STEVENS, MORTON, ROSE & THOMPSON DATED DEC. 11, 1989, REVISED THROUGH DEC. 11, 1992.
2. SURVEY FOR ATBRO CORP. DATED JULY 1981 BY H.I. & E.C. JORDAN.
3. LAND TITLE SURVEY FOR NORTHLAND REALTY DATED NOV. 26, 1985 BY H.I. & E.C. JORDAN.
4. "CROSS STREET EASEMENT PLAN" DATED JAN. 3, 1986 BY HUNTER– BALLEW ASSOCIATES ON FILE WITH THE CITY OF PORTLAND DEPT. OF PLANNING AND URBAN DEVELOPMENT.
5. STANDARD BOUNDARY SURVEY FOR PORTLAND SQUARE LIMITED PARTNERSHIP, NORTHLAND REALTY CORP. DATED OCT. 26, 1987 BY STEVENS, MORTON, ROSE & THOMPSON, INC. RECORDED IN C.C.R.D. IN PLAN BOOK 182, PAGE 29.
6. LAND TITLE SURVEY ON FORE STREET, PORTLAND, MAINE MADE FOR TWO PORTLAND SQUARE LIMITED PARTNERSHIP DATED FEB. 21, 1996 BY OWEN HASKELL, INC. RECORDED IN PLAN BOOK 196, PAGE 60.
7. ALTA/ACSM LAND TITLE SURVEY OF ONE PORTLAND SQUARE DATED MAY 16, 1996 BY LEWIS & WASINA, INC. UPDATED TO JUNE 24, 1996 IN PLAN BOOK 196, PAGE 221.
8. PLAN MADE FOR MGI ONE PORTLAND SQUARE, INC. BY H.I. & E.C. JORDAN DATED NOV. 15, 1989 REVISED TO JUNE 26, 1996 IN PLAN BOOK 196, PAGE 86 AND 219.
9. LAND TITLE SURVEY FOR MGI TWO PORTLAND SQUARE, INC., FORE STREET, PORTLAND, MAINE, JUNE 25, 1996 BY OWEN HASKELL, INC. IN PLAN BOOK 196, PAGE 220.
10. PLATS AND PLANS OF A BUSINESS CONDOMINIUM OCTOBER 29, 1987 PLAN BOOK 166, PAGE 44.
11. PLAN OF PROPERTY IN PORTLAND MAINE MADE FOR PORTLAND SQUARE LIMITED PARTNERSHIP DATED NOV. 15, 1989 BY H.I. AND E.C. JORDAN.
12. ALTA/ACSM LAND TITLE SURVEY ON FORE STREET PORTLAND, MAINE MADE FOR MGI, ONE PORTLAND SQUARE DATED APRIL 14, 1999 BY OWEN HASKELL, INC.
13. ALTA/ACSM LAND TITLE SURVEY ON FORE STREET PORTLAND, MAINE MADE FOR TIMOTHY O'NEIL DATED APRIL 14, 1999 REV. 7 3/23/04 BY OWEN HASKELL, INC.
14. ALTA/ACSM LAND TITLE SURVEY, BCIA PROJECT, ONE PORTLAND SQUARE, TWO PORTLAND SQUARE AND PORTLAND SQUARE PARKING, PORTLAND, MAINE, SHEETS 1 AND 2, DATED SEPT. 30, 2005 LAST REVISED FEB. 7, 2006 AND MARCH 3, 2006 BY OWEN HASKELL, INC.
15. ALTA/ACSM LAND TITLE SURVEY, oNE PORTLAND SQUARE, TWO PORTLAND SQUARE AND PORTLAND SQUARE PARKING, PORTLAND, MAINE, MADE FOR NORTH RIVER IV LLC FEBRUARY 12, 2015 BY OWEN HASKELL, INC.

Utility Note:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1–888–DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

Flood Zone Note:

BY GRAPHIC PLOTTING ONLY, THIS PROPERTY IS IN ZONE C OF THE FLOOD INSURANCE RATE MAP, COMMUNITY PANEL NO. 230051 0013 B, WHICH BEARS AN EFFECTIVE DATE OF JULY 17, 1986 AND IS NOT IN A SPECIAL FLOOD HAZARD AREA.

Notes:

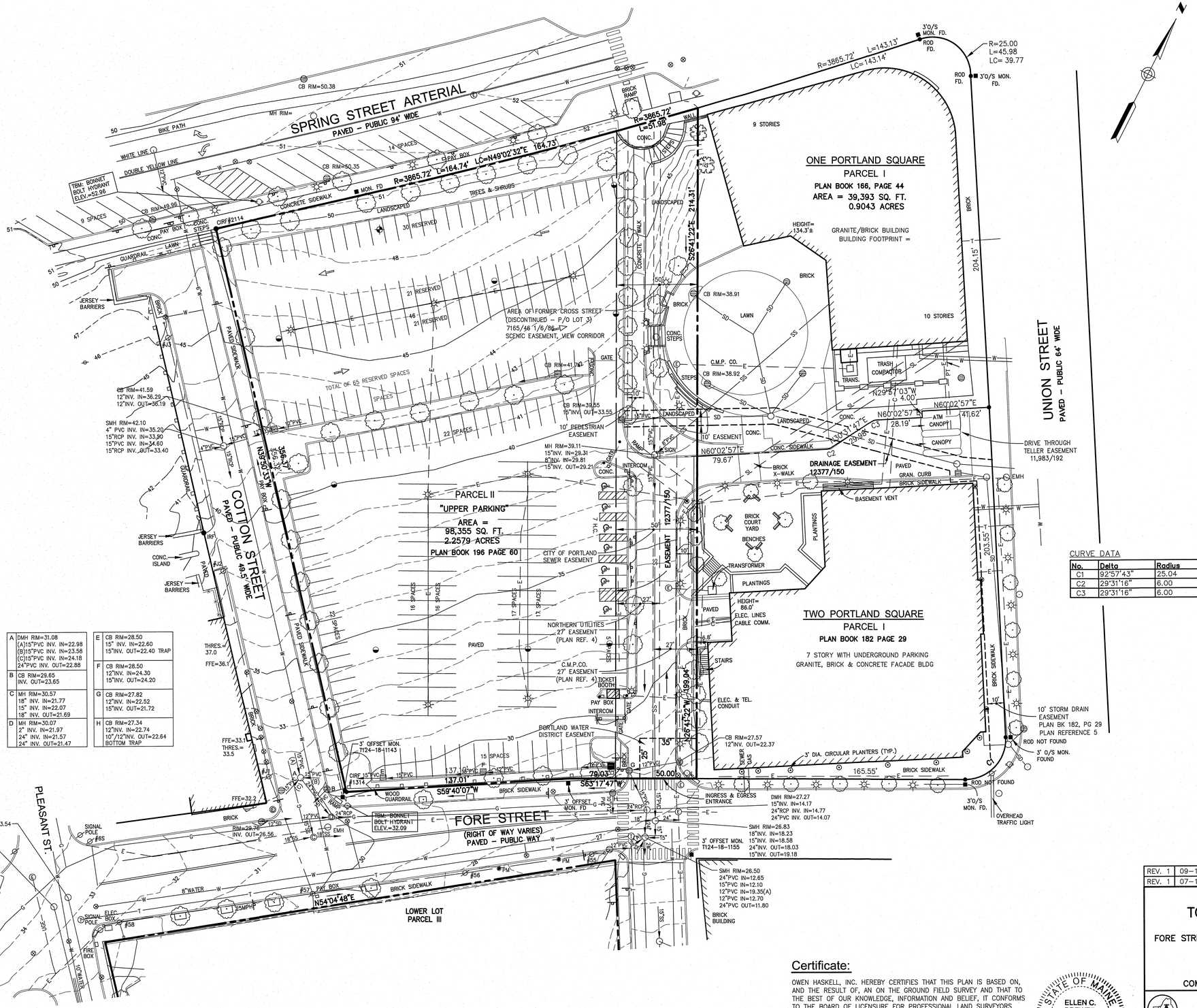
1. OWNER OF RECORD: NORTH RIVER IV LLC, 224 12TH AVENUE, NEW YORK, NY 10001 C.C.R.D. BOOK 32163 PAGE 33

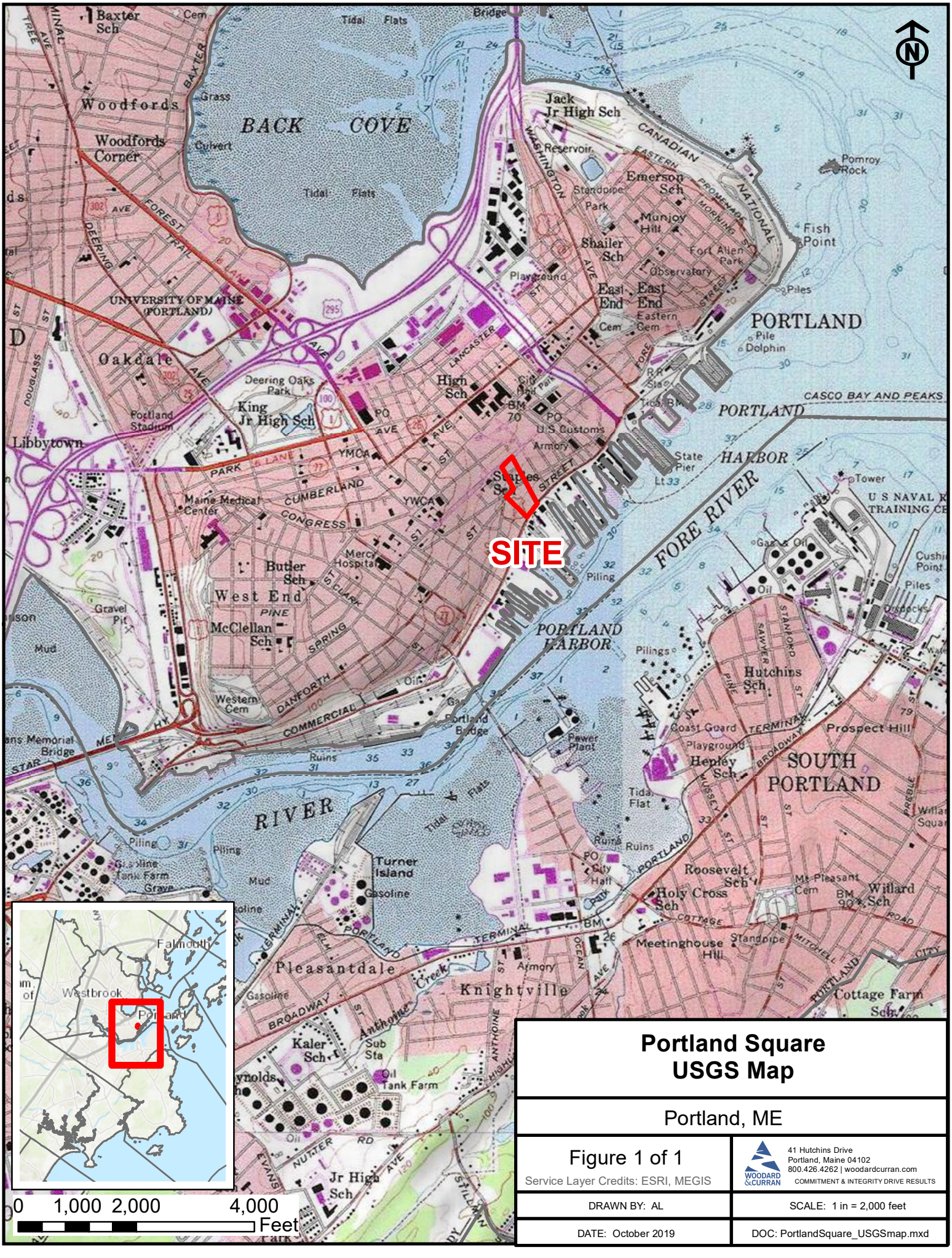
2. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM MAINE WEST NAD83. CITY POINT T124–18–1143 N:299542.1747 E:2928944.1068 AND T124–18–1155 N:299607.6956 E:2929152.2276 HELD.

3. ELEVATIONS ARE BASED ON CITY DATUM.

4. THE LOCUS IS SHOWN AS LOT 3 BLOCK B ON THE CITY OF PORTLAND ASSESSORS MAP 38.

A	DMH RIM=31.08 (A)15"PVC INV. IN=22.98 (B)15"PVC INV. IN=23.58 (C)15"PVC INV. IN=24.18 24"PVC INV. OUT=22.88	E	CB RIM=28.50 15" INV. IN=22.60 15"INV. OUT=22.40 TRAP
B	CB RIM=29.65 INV. OUT=23.65	F	CB RIM=28.50 12"INV. IN=24.30 15"INV. OUT=24.20
C	MH RIM=30.57 18" INV. IN=21.77 15" INV. IN=22.07 18" INV. OUT=21.69	G	CB RIM=27.82 12"INV. IN=22.52 15"INV. OUT=21.72
D	MH RIM=30.07 2" INV. IN=21.97 24" INV. IN=21.57 24" INV. OUT=21.47	H	CB RIM=27.34 12"INV. IN=22.74 10"/12"INV. OUT=22.64 BOTTOM TRAP


SPRING STREET ARTERIAL
PAVED – PUBLIC 94' WIDE
COTTON STREET
PAVED – PUBLIC 49.5' WIDE
FORE STREET
(RIGHT OF WAY VARIES)
PAVED – PUBLIC WAY
PLEASANT ST.
YORK ST.
UNION STREET
PAVED – PUBLIC 64' WIDE
ONE PORTLAND SQUARE
PARCEL I
PLAN BOOK 166, PAGE 44
AREA = 39,393 SQ. FT.
0.9043 ACRES
GRANITE/BRICK BUILDING
BUILDING FOOTPRINT =
9 STORIES
10 STORIES
HEIGHT= 134.3'±
TWO PORTLAND SQUARE
PARCEL I
PLAN BOOK 182 PAGE 29
7 STORY WITH UNDERGROUND PARKING
GRANITE, BRICK & CONCRETE FACADE BLDG
PARCEL II
"UPPER PARKING"
AREA = 98,355 SQ. FT.
2.2579 ACRES
PLAN BOOK 196 PAGE 60
LOWER LOT
PARCEL III
AREA OF FORMER CROSS STREET (DISCONTINUED – P/O LOT 3)
7165/46 1/6/86
SCENIC EASEMENT, VIEW CORRIDOR
DRAINAGE EASEMENT 12377/150
CITY OF PORTLAND SEWER EASEMENT
NORTHERN UTILITIES 27' EASEMENT (PLAN REF. 4)
C.M.P.CO. 27' EASEMENT (PLAN REF. 4)
PORTLAND WATER DISTRICT EASEMENT
DRIVE THROUGH TELLER EASEMENT 11,983/192
10' STORM DRAIN EASEMENT PLAN BK 182, PG 29 PLAN REFERENCE 5
TOTAL OF 65 RESERVED SPACES
S26°41'22"E 214.31'
S59°40'07"W 137.01'
S63°17'47"W 79.03'
N54°04'48"E 356.27'
N60°02'57"E 79.67'
N29°57'03"W 4.00'
N60°02'57"E 41.62'
S26°41'22"W 199.04'
N26°41'22"E 203.55'
165.55'
204.15'
50.00'
CB RIM=50.38
CB RIM=50.35
MH RIM=
CB RIM=49.96
CB RIM=41.59
12"INV. IN=36.29
12"INV. OUT=36.19
SMH RIM=42.10
4" PVC INV. IN=35.20
15"RCP INV. IN=33.90
15"PVC INV. IN=34.60
15"RCP INV. OUT=33.40
CB RIM=41.74
CB RIM=39.55
15"INV. OUT=33.55
MH RIM=39.11
15"INV. IN=29.31
8"INV. IN=29.81
15"INV. OUT=29.21
CB RIM=38.91
C.M.P. CO.
CB RIM=38.92
CB RIM=27.57
12"INV. OUT=22.37
DMH RIM=27.27
15"INV. IN=14.17
24"RCP INV. IN=14.77
24"PVC INV. OUT=14.07
SMH RIM=26.83
18"INV. IN=18.23
15"INV. IN=18.58
24"INV. OUT=18.03
15"INV. OUT=19.18
SMH RIM=26.50
24"PVC IN=12.65
15"PVC IN=12.10
12"PVC IN=19.35(A)
12"PVC IN=12.70
24"PVC OUT=11.80
CB RIM=28.50
15" INV. IN=22.60
15"INV. OUT=22.40 TRAP
CB RIM=29.65
INV. OUT=23.65
MH RIM=30.57
18" INV. IN=21.77
15" INV. IN=22.07
18" INV. OUT=21.69
MH RIM=30.07
2" INV. IN=21.97
24" INV. IN=21.57
24" INV. OUT=21.47
CB RIM=27.82
12"INV. IN=22.52
15"INV. OUT=21.72
CB RIM=27.34
12"INV. IN=22.74
10"/12"INV. OUT=22.64
BOTTOM TRAP
TBM: BONNET BOLT HYDRANT ELEV.=52.96
TBM: BONNET BOLT HYDRANT ELEV.=32.09
R=3865.72'
L=164.74'
LC=N49°02'32"E 164.73'
R=3865.72'
L=143.13'
LC=143.14'
R=3865.72'
L=51.98'
R=25.00
L=45.98
LC= 39.77
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ROD FD.
ROD NOT FOUND
3' O/S MON. FOUND
3'O/S MON. FD.
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Portland Square
USGS Map

Portland, ME

Figure 1 of 1

Service Layer Credits: ESRI, MEGIS

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800.426.4262 | woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

DRAWN BY: AL	SCALE: 1 in = 2,000 feet
DATE: October 2019	DOC: PortlandSquare_USGSmap.mxd

2. TITLE, RIGHT, INTEREST

2.1 NARRATIVE

As noted on the survey, Three Portland Square will be located on a parcel owned by North River IV, LLC. A copy of the Quitclaim with Covenant Deed conferred to North River IV, LLC, which serves as evidence of right, title, and interest, has been attached to this Section.

2.2 LIST OF ATTACHMENTS

- City of Portland Tax Map
- Quitclaim with Covenant Deed, dated March 26, 2015, between former owner RREEF America REIT III-Z4 LLC and North River IV, LLC

Index Number - E9NE

April 1 2012 fy 2013 Tax Map Index; http://www.portlandassessors.com/taxmaps.htm

E9SW E9SE E10SW

O7NE E9NW

F10SW F9SE F9SW

1 inch = 50 feet

CENTER ST
YORK ST
DANFORTH ST
PLEASANT ST
MAPLE ST
SPRING ST
SOUTH ST
FORE ST
COTTON ST
CIVIC CENTER SQ
FREE ST
OAK ST
CONGRESS ST
BROWN ST
CASCO ST
TOLMAN PL
SHEPLEY ST

CUMBERLAND COUNTY CIVIC CENTER

37 PLEASANT ST CONDO

SOUTH STREET CONDO

70 CENTER STREET CONDO

110 FREE STREET CONDO

500 CONGRESS STREET CONDO

540 CONGRESS ST CONDO

CONGRESS STREET CONDO

537 LOFTS CONDO

WINDOW LOFTS CONDO

KIMBALL COURT CONDO

ONE PORTLAND SQUARE CONDO

F9SE F10SW F10SE

E9NE E10NW

E9SE E10SW E10SE

SPRING ST
ONE PORTLAND SQUARE CONDO
39393
032 I036
032 I040
CANAL PLZ
1 - 4
0 - 0
032 I039
21195
40
038 B001
39520
038 B002
2
455
463
469
UNION ST
24 - 48
23 - 49
47 - 97
41764
032 I041
PATTON CT
11 - 1
18 - 2
032 I013
1880
032 I017
032 I018
395
3315
032 F014
365 - 377
379 - 387
366 - 380
382 - 388
376
370
380 - 396
398 - 406
384
388
12
392
032 J001
2812
032 J002
1892
398
FORE ST
032 J005
958
FORE-DANA CONDO
3120
404
408 - 412
401 - 403
414 - 426
405 - 427
428 - 448
429 - 457
032 N011
414
416
418
032 N010
2178
410
032 N009
1120
420
1080
424
423
426
032 N012
2079
12 - 15
12 - 15
20 - 36
19 - 35
032 R001
1740
432
037
032 R004
434
032 R003
1036
436
1426
43
032 R007
4739
45
446
032 R008
1891
51
47
WHARF ST
37 - 53
38 - 54
42
46
44
032 V015
4590
032 V016
2630
34
36
10
032 V001
3469
205
032 V002
3805
207
032 V004
4324
211
215
032 V005
6530
217
219
223
032 V014
8048
50
52
032 V012
032 V008
5392
227
225
1
ONE UNION ST CONDO
5109
231
235
237
DANA ST
1 - 11
2 - 10
032 S001
5808
11
9
032 S003
2727
7
032 S004
161
3600
5
032 S005
3
3576
MOULTON ST
1 - 11
2 - 10
032 U005
3983
7
032 U003
3991
032 U004
2406
1
032 T004
6093
4
10
MARKET ST
1 - 15
2 - 16
029 S001
14978
145
COMMERCIAL ST
136 - 154
141 - 153
155 - 171
156 - 170
172 - 180
173 - 183
182 - 194
185 - 197
144
116426
105.6
176.58
031 H002
184
DOCK
15996
031 H001
031 J030
79792
031 J031
SILVER ST
1 - 15
2 - 16
029 D001
030 C006
100
030 C007
030 C008
030 C005
030 C004
030 C003
030 C002
138
030 C001
030 A001
030 A002
9
030 B002
030 B003
22
030 B006
030 B001
40 PORTLAND PIER CONDO
8269
40
39
030 H008
030 H001
48169
030 H004
144
030 H007
030 H017
030 H019
030 H018
5
030 H013
5100
DOCK
PORTLAND PIER
2 - 64
1 - 63
031 H007
1500
12016
12
7407
2229
1800
1873
1832
2000
1864
1760
1920
87.09
38.27
60.9
38.02
FORE ST
450 - 472
455 - 481
17.44
28337
468
470
038 F008
2128
038 F009
9 - 13
10 - 15
18 - 22
196 - 214
198 - 215
0 - 0
216 - 234
217 - 237
182 - 194
185 - 197
031 J031
79792
031 L038
11786
2278
1
031 K103
031 L035
30
147389
031 L036
041 A018
041 A012
041 A017
041 A016
7390
14948
031 L034
250
031 L037
26336
1
031 L135
031 K003
218
13200
031 K008
34048
031 J032
1712
031 J003
CHANDLER'S WHARF CONDO
81980
71280
031 J002
031 K010
031 L036
71280
CHANDLER'S WHARF
1 - 717
2 - 718
700
701
702
709
703
709
704
712
705
710
716
706
711
717
707
713
719
708
714
715
86862
81980
DOCK
298453
LONG WHARF
1 - 25
2 - 26
WIDGERY'S WHARF
2 - 32
1 - 31
2 - 96
1 - 95
UNION WHARF
36
30
COTTON ST
498 - 516
505 - 517
474 - 496
463 - 503
040 F009
64954
040 F011
305
68736
038 G001
6002
038 F019
12471
CROSS ST
1 - 39
2 - 38
038 G003
038 G007
16950
038 G005
12386
CENTER ST
1 - 39
2 - 40
038 F006
245
038 F004
241
4857
038 F010
261
4930
4463
038 F020
9430
226 - 252
229 - 251
254 - 268
253 - 265
041 A015
260
12983
041 A014
041 A011
254
041 A0121
12 A
22352
041
COMMERCIAL ST
1 - 39
2 - 40
256 - 282
257 - 291
038 G002
HARBOR LANDING CONDO
8568
233 - 253
234 - 254
0 - 0
0 - 12

April 1 2012 fy 2013

Tax Map Index; http://www.portlandassessors.com/taxmaps.htm

Index Number - E10NW

1 inch = 50 feet

MAINE REAL ESTATE TAX-Paid

QUITCLAIM WITH COVENANT DEED

DLN:1001540002732

RREEF AMERICA REIT III-Z4 LLC, a Delaware limited liability company with a place of business in 222 South Riverside Plaza, Chicago, Illinois 60606-5808 for consideration paid, grants to North River IV LLC, a Delaware limited liability company with a place of business at 224 12th Avenue, New York, NY 10001, with **QUITCLAIM COVENANT**, the land, together with all improvements thereon and all rights and easements appurtenant thereto, located at or near Union street and Fore street consisting of unites 1-6 One Portland Square, a Business Condominium, the building known as Two Portland Square and certain related parcels, Portland, Cumberland County, Maine, more particularly described on **Exhibit A** attached hereto.

IN WITNESS WHEREOF, RREEF America REIT III-Z4 LLC, has caused this deed to be executed by James E. Toney, Assistant Vice President its duly authorized Assistant Vice President, this 26th day of March, 2015.

RREEF AMERICA REIT III-Z4 LLC,
a Delaware limited liability company,

By: RREEF AMERICA REIT III-Z LLC,
a Delaware limited liability company, its manager,

By: James E. Toney
Its duly authorized Assistant Vice President

Witness:
Vanessa C. Z

STATE OF ILLINOIS
COUNTY OF COOK

March 26, 2015

Personally appeared before me the above-named James E. Toney, Assistant Vice President of RREEF America REIT III-Z LLC, a Delaware limited liability company, manager of RREEF America REIT III-Z4 LLC, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of said company.

Notary Public/Attorney at Law
Print name: Beverly A Dillon

OFFICIAL SEAL
BEVERLY A. DILLON
NOTARY PUBLIC - STATE OF ILLINOIS
MY COMMISSION EXPIRES MARCH 3, 2018

EXHIBIT A

Legal Description

Tract 1:

Parcel One - One Portland Square.

Units No. 1, 2, 3, 4, 5, and 6 of One Portland Square, a business condominium, situated at the corner of Union and Spring Streets in the City of Portland, County of Cumberland and State of Maine, as more particularly described in the Declaration of One Portland Square, a business condominium, dated as of October 27, 1987 and recorded in the Cumberland County Registry of Deeds on October 29, 1987 in Book 8039, Page 37, and in the plats and plans incorporated into the declaration and recorded in the Cumberland County Registry of Deeds in Plan Book No. 166, Page 44 sheets 1 through 13, by virtue of the recording of which declaration, plats and plans, the declarant created the condominium pursuant to the Maine Condominium Act, Title 33 of the Maine Revised Statutes of 1964, as amended, Chapter 31, Sections 1601-101 et seq., as amended.

Parcel Two - Upper Parking

A parcel of land shown as "Lot 3" on a land title survey prepared for Northland Realty Corporation by Lewis & Wasina, Inc. dated April 5, 1995, Project No. 9508 located on the southerly side of Spring Street Arterial, the easterly side of Cotton Street and the northerly side of Fore Street, City of Portland, County of Cumberland, State of Maine, and being more particularly described as follows:

Beginning at a found rebar at the intersection of the northerly right of way line of Fore Street and the easterly right of way line of Cotton Street;

Thence, N24° 18' 44" W along the easterly right of way line of Cotton street a distance of 356.32 feet to a set 5/8 inch rebar with aluminum cap stamped "Lewis & Wasina PLS 2114" at the southerly right of way line of Spring Street Arterial;

Thence, N65° 47' 27" E along the southerly right of way line of Spring Street Arterial a distance of 89.72 feet to a found rebar;

Thence, continuing to follow the southerly right of way line of Spring Street Arterial along a curve to the left having a delta of 3° 11' 35", a radius 3887.30 feet, an arc length of 216.65 feet and a chord bearing and length of N64° 11' 39" E, 216.62 feet to a found drill hole in a concrete sidewalk;

Thence, S11° 09' 10" E following the former easterly right of way line of cross street, now discontinued, along lot 1 and lands conveyed by deed to Two Portland Square limited partnership as shown on said plan a total distance of 413.33 feet to a found rebar on the northerly right of way line of Fore Street;

Thence, S78° 49' 49" W along the northerly right of way line of Fore Street a distance of 79.03 feet to a found rebar;

Thence, S75° 13' 06" W along the northerly right of way line of fore street a distance of 137.10 feet to the point of beginning.

All the above mentioned found rebar are 5/8 inch with aluminum cap stamped "SMRT RLS 1314".

Reference should be made to the plan for further details of the boundary and easements.

The basis of bearing for this description is magnetic North, 1972, as shown on said plan.

Parcel Three - Lower Parking

A certain lot or parcel of land being the majority of the block bounded northerly by Fore Street, easterly by Cross Street, southerly by Commercial Street and westerly by Center Street in the City of Portland, County of Cumberland, and State of Maine and further bounded and described as follows:

Beginning at a drill hole at the intersection of the northwesterly line of Commercial Street and the easterly line of Center Street, said point also being the most southwesterly corner of certain land conveyed to the Atbro Corporation by Deed dated October 3, 1979, and recorded in the Cumberland County Registry of Deeds in Book 4506, Page 48;

Thence North 43° 29' 22.8" East along Commercial Street, a distance of 69.18 feet to a reinforcing rod;

Thence North 46° 50' 30" East along said Commercial Street, a distance of 54.32 feet to a reinforcing rod;

Thence North 52° 30' 11.2" east along said Commercial Street, a distance of 35.64 feet to a drill hole;

Thence North 24° 17' 37.6" West along land formerly of Ari Newman and Lee Beamis, and now Harbor Landing Condominium, see Declaration of Condominium recorded in Book 6505, Page 312, Cumberland County Registry of Deeds, a distance of 93.23 feet to a reinforcing rod;

Thence North 65° 44' 46" East along land now or formerly of said Ari Newman and Lee Beamis, a distance of 109.60 feet to a P.K. spike in the westerly line of Cross Street;

Thence North 13° 21' 13.9" West along said Cross Street, a distance of 287.70 feet to a reinforcing rod, said point being located at the intersection of the westerly line of Cross Street and the southerly line of Fore Street;

Thence South 69° 41' 09.0" West along said Fore Street, a distance of 318.64 feet to a reinforcing rod, said point being located at the intersection of the southerly line of Fore Street and the easterly line of Center Street;

Thence South 24° 16' 16.2" East along said Center Street, a distance of 451.12 feet to the point of beginning.

Excepting from the above described premises those premises taken by the State of Maine by its Department of Transportation set forth in its notice of layout and taking dated August 21, 1991 and recorded in the Cumberland County Registry of Deeds in Book 9688, Page 341.

Tract 2: Two Portland Square.

A certain lot or parcel of land with any buildings thereon situated at the intersection of Fore Street and Union Street in the City of Portland, County of Cumberland, and State of Maine, being Lot 2 on plan for Two Portland Square Subdivision by Stevens Morton Rose & Thompson dated October 22, 1987, revised to September 18, 1989 and recorded in Plan Book 182, Page 29.

Subject to and together with that certain parking easement established in Declaration of Easement by Portland Square limited partnership dated December 18, 1989 and recorded in Book 9028, Page 117, as affected by Subject Property Notice dated December 18, 1989 and recorded in Book 9028, Page 136, and by Permitted Parking Areas Plan dated December 18, 1989 and recorded in Book 9028, Page 141.

Rights, easements, covenants, conditions and restrictions set forth in Declaration of Easement by Portland Square Limited Partnership dated October 30, 1987, recorded at Book 8045, Page 303, as affected by Additional Declaration of Easement dated December 18, 1989, recorded at Book 9028, Page 92, Release of Easement dated December 18, 1989, recorded at Book 9028, Page 97, Subject Property Notice dated December 18, 1989, recorded at Book 9028, Page 102, and Permitted Parking Areas Plan dated December 18, 1989, recorded at Book 9028, Page 112.

3. FINANCIAL CAPACITY

3.1 PROJECT CONSTRUCTION COST

The construction budget for the proposed development is approximately $70,000,000.

3.2 FINANCING

Attached to this Section is a letter from the Senior Vice President of People's United Bank demonstrating that the developer has financial capacity to support the proposed project.

3.3 SLOD AFFORDABLE HOUSING/CITY OF PORTLAND INCLUSIONARY ZONING

The proposed redevelopment includes parking, office, and retail, and this section does not apply.

3.4 LIST OF ATTACHMENTS

- Financial Capacity Letter

People's United Bank

March 8, 2019

Ms. Barbara Barhydt
City of Portland, Planning Division
389 Congress Street, 4th floor
Portland, ME 04101

Re: North River IV, LLC and North River Company, LLC

To Whom It May Concern:

North River Company ("NRC"), the Manager of North River IV LLC, which is the owner of record of the properties known as Portland Square, Portland, ME, has had a banking relationship with People's United Bank, N.A. since 2010. In that time, People's United Bank has provided NRC and its affiliates with real estate financings in excess of $170,000,000, including loans for acquisition, new development and complex renovation projects. We consider the principals of NRC to be of the highest character and, based on our knowledge of NRC's management expertise, financial condition and access to significant liquid assets, People's United Bank would be comfortable entertaining requests for financing any type of real estate project and of any size.

NRC and its affiliates have access to cash reserves and credit facilities well in excess of $20,000,000 with People's United Bank.

People's United Bank is a subsidiary of People's United Financial, Inc., a diversified financial services company with over $45 Billion in assets. Founded in 1842, People's United Bank is a community-based, regional bank in the Northeast offering commercial and retail banking, as well as wealth management services through a network of nearly 400 retail locations in Connecticut, New York, Massachusetts, Vermont, New Hampshire and Maine.

If I may be of any further assistance regarding this highly valued relationship, please contact me at (207) 828-3023 or by email at timothy.mcmachen@peoples.com.

Sincerely,

Timothy J. McMachen
Senior Vice President
Commercial Real Estate

4. TECHNICAL ABILITY

4.1 NARRATIVE

On behalf of North River IV, LLC, Woodard & Curran is preparing this application for the Three Portland Square Project. Woodard & Curran is a national environmental consulting and engineering firm with expertise in site-civil engineering, stormwater management, and property development. Since the company was formed 40 years ago, Woodard & Curran has completed numerous site designs and permit applications for municipal, industrial, manufacturing, and commercial clients throughout the Northeast, and specifically within its home State of Maine. Woodard & Curran has been involved in numerous development projects in the Greater Portland Area and has developed working relationships with various consultants who are called upon, as necessary, to provide specialized services.

North River IV, LLC is also supported by a design team including Pat Carroll Landscape Architects, Winton Scott Architects and Becker Structural Engineers. Copies of the company profiles of the various design team partners are attached, providing further verification of technical capacity for this project.

4.2 LIST OF ATTACHMENTS

- Technical Capacity Documentation

CARROLL ASSOCIATES

Firm Description

Carroll Associates is a small consulting firm engaged in the practice of landscape architecture, land planning, and site design. The firm was created in 1993, and is involved in a wide range of design and planning projects throughout Maine and New England.

The firm provides professional services to a broad-based clientele that includes municipal and institutional organizations, architects, engineers, real estate developers, and private individuals. While maintaining a diverse workload, the firm is entrenched in public, urban, and residential based planning and design work. Carroll Associates has significant experience in public, urban waterfront settings, institutional projects ranging from elementary schools to university work; municipal projects and recreational projects including work at Acadia National Park. The overriding objective in each is to provide a sensitive and well thought out solution which respects the natural environment and creates a functional and inviting setting for the building and its user.

Carroll Associates has been involved with many complex state and municipal projects which are specifically relevant to this project. Relevant Site Planning and Urban Design projects in Portland include the following:

- Ocean Gateway Ferry Terminal
- Marriot Residence Inn
- Riverwalk Condominiums (unbuilt)
- Maine State Pier Redevelopment Design Competition (selected design, unbuilt)
- Merrill's Wharf Redevelopment
- Thompsons Point Redevelopment
- International Marine Terminal Expansion
- Portland Gateway Hotel

In all of these projects the ability to integrate a new facility or program with historical buildings, complex physical and environmental sites, and established neighborhoods was critical to the overall success of the project.

We are well experienced with working within an interdisciplinary design team and the need to provide strong design solutions with limited budgets. Key to the firm's success is the commitment to providing attention and focusing on the specific needs of the client, remaining flexible and bringing projects to closure on time and within budget.

Professional services offered through Carroll Associates may include any or all of the following:

- Site Selection and Analysis
- Program Development and Budgeting
- Site Feasibility/ Utilization Studies
- Recreation Planning and Design
- Site Master Planning
- Construction Documents, Bidding, and Administration
- Consultant Team Coordination and Management
- Local, State, and Federal Permitting and Approvals



Brick Hill, South Portland, ME

Brickhill consisted of redevelopment of former Maine Youth Center into mixed use 'Smart Growth' project. The program for the 56 acre site includes 300 affordable housing apartments and condominiums, 250,000 SF of professional office space, recreation amenities including an 8 acre park, boat launch, community gardens, and hiking trails while preserving the historic brick structures on the site. The project is 100% completed in 2017. Carroll Associates provided Master Planning and Site Design Services for the project since 2001.



Forefront at Thompsons Point

The Forefront at Thompson's Point is a mixed-use development located on an existing vacant industrial site on the Fore River in Portland Maine. The original program consisted of a new Sports Event Cente, Concert Hall with an adjacent outdoor amphitheater seating 4500, a 235 room hotel, cultural center, restaurants, and approximately 180,000 sf of professional office space. Carroll Associates has been retained by the Developer to provide Master Planning and Landscape Architectural Services on the project.



Oceangate and Maine State Pier Redevelopment

Redevelopment of underutilized portion of Portland waterfront to provide new berthing for cruise ships and international ferry terminal. Oceangate Project includes extensive parking for ferry arrivals and departures, passengers, and tour busses; integration of adjacent narrow gauge railway, extension of existing streets to provide critical connections, and outdoor plazas and parks providing strong pedestrian connectivity to adjacent open space systems. Maine State Pier project includes redevelopment of aging waterfront pier and landside property to provide strong mixed use including office, retail, hotel, and a 2 acre park and with direct access to the waterfront.



Harborcorp, Portsmouth, NH

Redevelopment of vacant property in West End of Portsmouth, NH to provide mixed use development. Project envisions up to 115 Hotel rooms, 24 Condominium Units, Conference Facilities, Retail, dedicated parkland, and Structured Parking. The project ties into the existing Sheraton Hotel across the street. Approvals are in place and construction is expected to begin in 2019

CARROLL ASSOCIATES

PATRICK J. CARROLL
Principal Landscape Architect



Professional Registration:
Maine, New Jersey, New Hampshire, CLARB

Education:
Utah State University
Bachelor of Landscape Architecture,1978

Prior Experience
Carroll Associates, Portland ME 1993-
Moore Weinrich Architects, ME 1989- 2003
Environmental Planning and Design, ME 1988
Design Workshop, CO 1982- 1988
Land Design, UT 1989- 1988

As founder of Carroll Associates, Pat brings 40 years of landscape Architectural experience on a wide variety of projects throughout Maine, New England, and the Western United States. His successful project experience on largescale master planning and urban design provides a strong basis for solving complex design issues and managing important design and permitting challenges. His sensitivity and understanding of environmental constraints and culture provides for successful projects that are fitting and appropriate to each setting.

Erin Kay
Project Manager



Professional Registration:
Maine

Education:
Rhode Island School of Design
Master of Landscape Architecture, 2010

University of New Hampshire
BA Studio Art, 2004

Prior Experience
Carroll Associates, Portland ME 2013-
Crossby/Schlessinger, MA 2010- 2013

Erin joined Carroll Associates in 2010, and brings significant experience in urban design and planning from her experience in Boston prior to joining the firm. She has actively participated in many of the larger urban projects Carroll Associates has undertaken in the last five years, including Thompsons Point, Harborcorp and other complex and challenging projects. Her ability to quickly synthesize a site and develop creative solutions make her a valuable member of the design team.

WSA

WINTON SCOTT
ARCHITECTS

5 Milk Street, Portland, ME 04101
207.774.4811|www.wintonscott.com

Established in 1975, Winton Scott Architects is a small, design-oriented architectural practice located in Portland, Maine. Our work encompasses a diverse array of project types and scales ranging from multi-block urban developments, to historic renovations, commercial and institutional buildings, and multifamily and single family residences.

Our firm has been recognized numerous times for design excellence by the Maine and New England Chapters of the American Institute of Architects, as well as the United States Green Building Council; and our work has been profiled in national trade journals, local publications, and several books focussed on design and architecture.

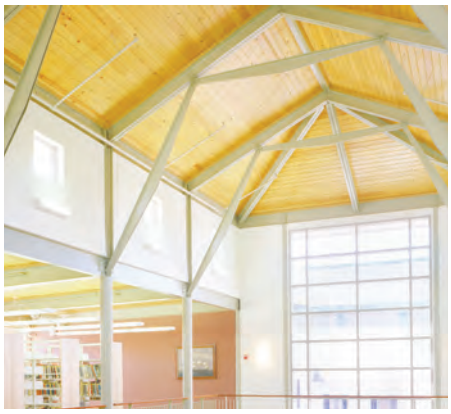
Winton Scott Architects is comprised of a staff of six, including four senior architects ranging in experience from 15 to 45 years. The office is organized horizontally with all staff members capable of managing projects from program and design through production of construction documents and construction contract administration. This depth of experience and continuity in staffing have allowed WSA to take on large, complex projects while consistently delivering the highest level of professional services to our clients. The culture of the office is that of an open, creative collaboration of seasoned architects striving for the highest level of design excellence and client satisfaction.

We believe that architecture should be sustainable, adaptable, timeless, and derivative of its context and function. All buildings, even the most modest in scale and budget, can be at once artful, functional, and inspiring if they are rigorously conceived and executed with craft and precision. Each of our designs responds to the specific needs of our clients and the individual character of a particular site and its surrounding context.

Project Images From Top:

Ocean Gateway Cruise Ship Terminal
Skidompha Library
Youth Alternatives Family Center
Merrill Auditorium









Winton Scott Architects

Recent Urban Design / Planning Projects



Project: Maine State Pier Redevelopment

Program: Offices, Hotel, Retail, Restaurants, Marine Operations, Park

Areas: Site area = 7.2 Acres
Buildings = 325,000 S.F.

WSA Role: Design Team Leader, Masterplanning, Architect for Office Building.



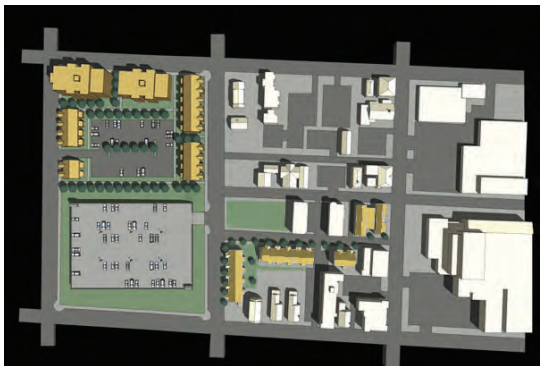
Project: Brick Hill- (Maine Youth Center Redevelopment)

Value: $65M

Program: Offices, apartments, condominiums

Areas: Site area = 59 Acres
Buildings = 336,000 S.F.

WSA Role: Masterplanning, Architects for 3 apartment projects, 2 office buildings

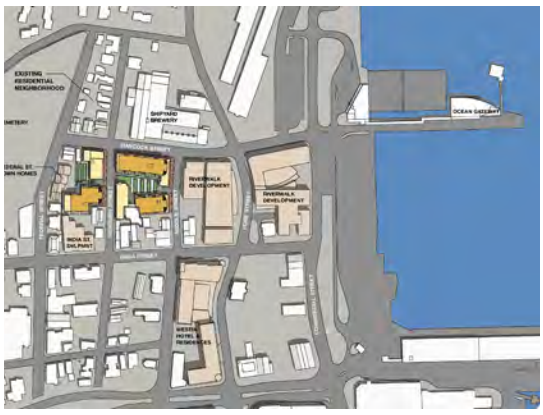


Project: Pearl Place & Unity Village Infill Housing

Program: Market rate & Subsidized apartments (188 Units)

Areas: Site area = 2.5 Acres
Buildings = 220,000 S.F.

WSA Role: Masterplanning, Architecture



Projects: Westin Hotel & Residences
The Village at Oceangate
Eastern Waterfront Garage
Oceangateway Cruiseship Terminal

Program: Hotel, Condominiums, Office, Retail Parking Garage, Terminal

Areas: Site area = 14.75 Acres
Buildings = 890,000 S.F.

WSA Role: Masterplanning, Architecture

WSA
WINTON SCOTT
ARCHITECTS



Winton Scott, NCARB
President

Professional Registrations	Maine, Massachusetts, and NCARB Certification
Other Experience	Louis I. Kahn, Architect, Philadelphia, PA Senior Project Architect Phillips Exeter Library Eero Saarinen and Assoc., New Haven Designer and Job Captain Ford Foundation Headquarters
Education	University of Texas, Bachelor of Architecture with Highest Honors, 1960

Before founding founding Winton Scott Architects in 1975, Winton Scott had built an impressive list of project experiences with some of the most highly respected architectural firms in the country. During this same period, he also accepted several teaching appointments with some notable schools of architecture, honing his own design interests.

Although Winton is a skilled designer, comfortable with any site, any building type and any scale, one of his special interests is urban design. His keen sensibilities in this arena are dramatically apparent in several recent projects completed by WSA



Stephen W. Weatherhead, RA
Principal

Professional Registrations	Licensed Architect, State of Maine
Education	Syracuse University, Bachelor of Architecture Professional Degree, 1988 Syracuse University in Florence, Italy Architecture Study Abroad Program, 1986

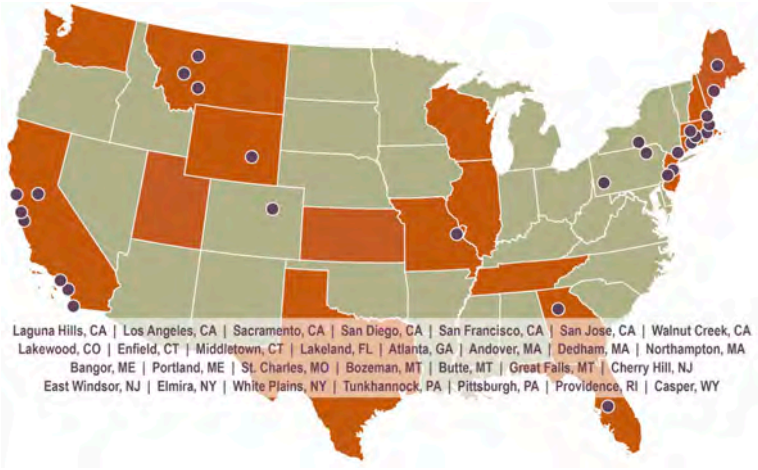
Steve joined Winton Scott Architects in 1994 to take on the role of Project Architect for the renovations to Merrill Auditorium. Since that time, he has gained extensive design and management experience on a wide range of renovation and new construction projects undertaken by the firm. His work encompasses projects ranging from custom homes to large scale commercial and institutional projects as well as a large portion of the firm's municipal work which includes a multitude of projects completed for the City of Portland.

With over 28 years of experience in all phases of architectural practice from conceptual design through construction, Steve knows how to effectively manage the design team and lead an open process that has consistently produced successful building projects based on the specific needs of his clients. He has managed projects for WSA totaling over $100M in construction value that have utilized a full range of project delivery methods both in the private and public sectors.

PROFILE OF THE FIRM

Woodard & Curran is an integrated engineering, science, and operations company. Privately held and steadily growing, we serve public and private clients locally and nationwide.

Talented people are at the heart of our firm. Our company was founded in 1979 on a simple business concept: provide an enjoyable place to work with opportunity, integrity, and commitment, and we will attract talented people. It happened. At the heart of our company are people who are experts in their fields and passionate about what they do, showing a level of commitment and integrity that drive results for our clients. You experience this power every day in our actions, our solutions, and our promises kept.



Woodard & Curran serves clients locally and nationwide from offices throughout the U.S. Headquartered in Portland, Maine, the firm operates offices in the locations noted above, as well as treatment facilities in the states that appear in orange.

Commitment evident in personal approach

Our commitment is reflected in the personal attention, collaborative resources, and dedication to results that we devote to each project. We assign the right people with the right expertise to the job, and provide clients with easy accessibility to senior experts.

Our work is characterized by responsiveness, resourcefulness, and willingness to do what it takes to get the job done properly. Examples range from helping communities garner state and federal funding for wastewater treatment system improvement to managing a multi-vendor manufacturing project through a major snowstorm and getting production lines up and running. We are experts at navigating the complexities of environmental regulations and have been involved in transforming many brownfields sites into marketable properties. In defining moments like these, it is commitment that brings our clients results.

Operating with integrity

Our integrity impacts our decision-making at all junctures of our work — from the openness of our communication to the fairness of our prices to placing your interests above our pocketbook. We hire people who share our values of honesty, respect, and fairness and who want to do the right thing. They, in turn, treat everyone — our people, our clients, regulators, and stakeholders — respectfully and honestly.

Full-service firm with multidisciplined staff

Our integrity and commitment are matched only by the depth of our expertise. Our staff are specialists in their fields, offering in-depth understanding of cutting-edge technology, astute problem-solving, multidisciplinary engineering, and expert regulatory guidance. The firm has received numerous honors and awards, and we have ranked among *Engineering News-Record's* top 100 environmental firms every year since 2000.

Services to the private sector

Woodard & Curran provides a range of site/civil and environmental engineering, science, and operations support to companies in the real estate sector, as well as to hospitals, colleges and universities, and law firms, helping our clients realize their project vision.



BARRY SHEFF, PE
PRINCIPAL-IN-CHARGE

Professional Profile

Barry is a Senior Principal and Senior Project Manager with over 25 years' experience working with the public sector on infrastructure planning and implementation, and with the private sector on urban revitalization projects. He is responsible for design and project management, with expertise engaging and facilitating stakeholder processes. His project work has involved utility infrastructure with focus on stormwater and wastewater utility planning studies, evaluations, and engineering; green infrastructure; master development planning and site design; and environmental/land-use permitting at the local, state, and federal levels. Barry focuses his work on sustainable environmental design and is committed to collaborating with owners and stakeholders to develop practical solutions to complex problems. He has been involved in numerous projects with high-performance buildings and LEED certification. Barry has a track record of understanding client expectations, consistent budget controls and excellent communication skills that enable him to drive the success of small and large projects of varying complexities.

Related Experience

Maine Medical Center, Portland, ME – Parking Garage. Principal-in-Charge for the permitting and design of the new 2,000+ car parking garage in St. John Valley neighborhood of Portland. The project is the result of a partnership between a private land-owner and Maine Medical Center (MMC) as part of the hospital's major campus expansion. Woodard & Curran's work involves site options analysis, land-use and environmental permitting, site/civil engineering and utility infrastructure design for the multi-level parking structure to serve MMC employees. Focus areas of the project involve the coordination with employee shuttle services, and the need for accommodating employee commuting patterns and routes while reducing demand on the existing urban street network surrounding the hospital campus.

Patrons Oxford Insurance – Patrons Oxford Insurance Headquarters. Principal-in-Charge for the permitting and design of the new Patrons Oxford Insurance Headquarters in Portland, Maine. The project was the first development in the Portland Technology Park in Portland (designed by Woodard & Curran). The project involved close coordination with the design team and owner, and included the low impact design considerations for parking and site features, as well as integration into the Technology Park's stormwater management plan.

East Brown Cow Management Inc., South Portland, ME – Sable Oaks Office. Principal-in-Charge responsible for civil site design and land-use permitting of a 45,000-SF office building with associated parking lot, access drives, plazas, and landscaping. The project included design of stormwater treatment systems, erosion control, site amenities, and utilities. Permitting efforts involved the City of South Portland, Maine Department of Environmental Protection (DEP), Army Corps of Engineers, and Federal Aviation Administration given proximity to the Portland International Jetport.

Education

- Bachelors, Civil / Environmental Engineering, University of Vermont

Registrations

- Registered Professional Engineer - ME, #9708
- NCEES License - National, 60366
- Maine DOT Local Project Administration Tier 1 Certification

Professional Associations

- American Society of Civil Engineers
- American Public Works Association
- New England Water Environment Association (NEWEA)
- Order of the Engineer

East Brown Cow Management Inc., Portland, ME – Hyatt Place Hotel. Principal-in-Charge for this redevelopment project to convert an existing parking lot on a 20,000 SF urban parcel of land into an 80,000 SF hotel. We collaborated with the architect and owner's representative to provide local permitting and site / civil engineering design associated with the project. The project was complicated by private power distribution infrastructure that crossed the site and needed to be maintained, as well as the City's desire to have off-site roadway improvements incorporated into the project.

PDT Architects, Portland, ME – Adams School Workforce Housing. Project Manager for this urban redevelopment project, supporting AVESTA Housing and its design team. Located in the Munjoy Hill neighborhood of Portland, the project is a result of a public RFP for redevelopment proposals of this brownfield site, the home of a former elementary school. The project involved the demolition of the existing Adams School building and site amenities, and remediation of environmental contamination; and development of a 16-unit affordable ownership-housing complex, with public open space and playground area. Our work involved local and state environmental permitting, and site engineering and design associated with the placement of this project in a densely developed residential neighborhood. The engineering effort required an intensive balance of earthwork activities to control remediation costs and ensure adequate environmental protections for the residents and users of the open spaces.

The Watermark and Ocean Gateway Garage – Mixed Use Development. Project Manager for the environmental due diligence phases (Phase 1 environmental site assessment and soil/groundwater investigations), site design, and permitting for this private mixed use development on the Portland waterfront (adjacent to the Ocean Gateway facility) with boutique hotel, luxury condominiums, retail, commercial space, office building, 750-car parking garage, and additional surface parking lots. Site/civil work includes layout, grading, drainage, erosion and sedimentation control, and utility design. Permitting includes City Site Plan, Subdivision, Historic Preservation, Maine DEP Site Law, and Maine Historic Preservation permitting. The parking garage was constructed while the remaining portions of the project were unbuilt.

MaineDOT, Portland, ME – Ocean Gateway Multimodal Facility. Program and Project Manager of the permitting and design for implementing first phase of the Master Plan of the redevelopment of a 19.5-acre ship repair facility to a multi-use marine transportation facility on Portland's waterfront. The phase one facility encompassed the former Bath Iron Works site and the associated City-owned land-based infrastructure. Under Barry's responsible charge, Woodard & Curran prepared, submitted, and obtained land-use and environmental permits for the project, including local land-use and Board of Harbor Commissioners approvals; Maine Department of Public Safety Construction Permit; Maine Traffic Movement Permit; U.S. Army Corps of Engineers Department of the Army Permit; and Maine DEP Site Location of Development Permit and Natural Resources Protection Act. We also designed the site infrastructure (vehicle queuing, pick-up and drop-off, short- and long-term parking) to be flexible in its use. The project includes the design of City streets, a major regional trail connection, and the narrow gauge passenger railway. The design creates a new city block and the impetus for economic development. The design of utility infrastructure and blending the facility into an existing congested urban environment proved challenging, but in the end, met the City's future needs. Barry was responsible for working with a steering committee to develop and refine concepts working within available construction funding constraints, and for preparing Phase 1 improvement recommendations as a summary of the preliminary design efforts. As the Program Manager, Barry was responsible for managing the contract with the State of Maine and the 10-firm design team.

University of Southern Maine, Portland, ME – Community Education Center and Parking Garage. Project Manager/Engineer responsible for site and utility design of a 1200-car parking garage, 500-seat lecture hall, and 15,000-SF office classroom building. Coordinated the site survey; completed preliminary site evaluations; prepared grading and utility plans for surface parking areas, open space, and roadways; developed construction documents; completed stormwater design; coordinated with the City of Portland for roadway realignments and discontinuances; coordinated design plans with the project architect and landscape architect; and prepared technical specifications for construction documents. Coordinated with the regulatory agency; prepared local Demolition Permit applications; prepared Application for Maine DEP Site Law and City's Major Site Plan Applications under tight time frames. The project is LEED Gold certified.

City of Portland, ME – Bayside Adapts, Phase I. Principal-in-Charge of the team providing planning and engineering services to facilitate the City's first climate change adaptation planning effort, for the City's Bayside neighborhood. The focus of the project was to conduct a Sewer and Stormwater Data Gap Analysis, and public engagement process to help the community identify a socially responsible, technically sound and financially feasible adaptive strategy to protect the Bayside Neighborhood from the effect of rising tides, extreme rain events and storm surge. Our work involved coordination and contracting with a subconsultant, RPS ASA to evaluate and recommend sea level rise and storm surge scenarios appropriate for City of Portland's planning horizon.

BECKER
STRUCTURAL ENGINEERS

About Us

Becker Structural Engineers, Inc., was founded in 1995 and is a full service structural consulting firm with a staff of twenty-seven. We provide practical, cost-effective and innovative solutions on a wide range of challenging projects in three practice areas; buildings, parking structures and bridges.

We believe in competency and character as our defining values. We are pro-active and interactive in our approach. Our dedicated staff and our investment in technology allows us to deliver high quality service on multiple large and small projects simultaneously. We embrace an engineering approach to projects which combines classical engineering theory and practical experience, paired with the versatility and efficiency of Autodesk Revit to create structural models which interact and coordinate with architectural and mechanical models to define the comprehensive building system. This approach advances the design and coordination of our projects.

Our building design practice includes residential, commercial, education and public institutional buildings. We have substantial experience with contemporary building design which is complemented by an extensive background and expertise renovating and restoring historic structures. Our design capabilities are complemented by our construction phase services, which include construction reviews for general conformance and implementation and administration of the IBC Special Inspections Program. We believe a strong job site presence contributes to enhanced quality and improved construction efficiency. Working with the owner, architects, contractor and testing agencies our office provides a full range of construction monitoring capabilities.

Becker Structural Engineers have been the selected structural engineering consultant for municipalities, owners and developers throughout New England. Recent and relevant work includes on-going services under a **General Consulting Services for the City of Portland** and a **General A/E Services** agreement with the **Portland Housing Authority.** Significant buildings in Portland include the multi-story medical offices for **InterMed**, the **Hyatt Hotel** located on Fore St. and the rehabilitation of the **historic Twitchell-Champlain** building on Merill's Wharf which now serves as the law offices for Pierce Atwood**.** We strive to integrate ourselves in understanding the overall approach that each owner is seeking to obtain, with guidance on analysis and cost recommendations to fit within the sustainability of the program design.


City of Portland
International Jetport
Parking Garage


Hyatt Hotel


InterMed Medical Offices


Historic Twitchell-Champlain Offices

BECKER
STRUCTURAL ENGINEERS



Casco Bay Ferry Terminal



Canal Zero Redevelopment



Maine Medical Center
Employee Parking Garage



Portland Public Library

50 Sewall Street M.O.B. (LEED Certified), Portland, ME
58 Fore Street Building 2/3 & Marina Building, Portland, ME
84 Marginal Way M.O.B and Parking Structure, Portland, ME
173 Main Street Redevelopment, Waterville, ME
409 Cumberland Ave Housing, Portland, ME
Bayside Anchor Housing, Portland, ME
Bayside Village Student Housing, Portland, ME
Berlin City Honda Showroom, South Portland, ME
Berlin City TSL Showroom, South Portland, ME
Canal Zero, Portland, ME
Casco Bay Ferry Terminal, Portland, ME
CEI Office Building (LEED Certified), Brunswick, ME
Consigli Office Building, Milford, MA
Dead River Corporate Office, South Portland, ME
DHS Office Building, Portland & Lewiston, ME
Elm Terrace Apartments, Portland, ME
Emerson Shailer Housing, Portland, ME
Exactitude Office/Manufacturing Building, Cumberland, ME
Ferry Terminal Redevelopment IMT Office Building, Portland, ME
Genest Warehouse Addition, Biddeford, ME
Gorham Savings Bank Operations Center, Gorham, ME
Handyboat Restaurant/Dockside Grill, Falmouth Foreside, ME
Hill Farm Equestrian Center, New Gloucester, ME
Huston Commons, Portland, ME
Hyatt - Old Port Hotel, Portland, ME
IDEXX Laboratories Data Center Relocation, Westbrook, ME
Irish Heritage Center Structural Review, Portland, ME
Jackson Laboratories Building Renovation, Bar Harbor, ME
LL Bean Vertical Expansion Feasibility Study, Freeport, ME
Maine DEP - Deering & Greenlaw Buildings, Augusta, ME
Maine Medical Center Family Practice Office Building, Portland, ME
Maine Medical Center Employee Parking Garage, Portland, ME
Maine Municipal Association Office Addition, Augusta, ME
Maine Standards Building, Cumberland, ME
Maine Veterans Homes Office Building, Augusta, ME
Marriot Residence Inn, Portland, ME
Merrill Auditorium, Portland City Hall, Portland, ME
Norway Savings Bank, Gray, ME
Park Danforth New Residence Wing, Portland, ME
Patrons Insurance Building, Portland, ME
Pearl Place I & II, Portland, ME
Pinetree Shopping Center Retail Development, Portland, ME
Portland Public Library, Portland, ME
Portland Public Market Redevelopment, Portland, ME
RMS Office Building, South Portland, ME
Saco Biddeford Savings Bank (LEED Silver), Saco, ME
Shops at Falmouth Village, Falmouth, ME
Strand Theatre, Rockland, ME
Topsham Retail Center, Topsham, ME
Twitchell - Champlin Building, Portland, ME
Vortechnics Office Building, Scarborough, ME
Westin Hotel, Portland, ME

BECKER
STRUCTURAL ENGINEERS



Paul B. Becker, P.E., SECB
President

As the founder of Becker Structural Engineers, Paul has over thirty-eight years of structural engineering experience in New England and the Mid-Atlantic States. His technical experience covers all aspects of the structural engineering profession including complex building systems using steel framing, cast in place, precast and post-tensioned concrete, deep foundation support systems, earth retaining structures, masonry and timber framing. He has served as lead design engineer and project manager, responsible for establishing and monitoring schedules, budgets and quality control on projects with construction costs of up to $75 million. As Principal in Charge of a project, he collaborates with the client and project team to establish the project scope, schedule and contracts and monitors the progress and quality of work.

PROFESSIONAL ENGINEER REGISTRATION

- Maine (#6554)
- Massachusetts (#39009)
- New Hampshire (#6258)
- New York (#86255
- Vermont (#7773)
- Georgia (#033280)
- Connecticut (#20725)
- Rhode Island (#9067)
- Ohio (#74529)
- Certified in the Practice of Structural Engineering (#2285-0708)



Todd M. Neal, P.E.
Vice President

A principal of BSE, Todd is a registered Professional Engineer in the State of Maine and has extensive experience in the design and fabrication of precast/prestressed concrete garages, building components, bridge components, architectural precast concrete. Specialty topics include repair and maintenance of parking structures. He offers expertise in construction management, structural testing and administration of special inspection programs in accordance with the IBC Codes. Todd is currently an active member on the PCI Parking Garage Design Committee and Joint Sealant Sub-Committee and contributed to the publication of the PCI “Maintenance Manual for Precast Parking Structures” and the PCI Committee Report “Joints in Precast Parking Structures”.

PROFESSIONAL ENGINEER REGISTRATION

- Maine (#9406)
- Connecticut (#27306)
- Massachusetts (#51354)
- West Virginia (#20277)
- New Brunswick, Canada (#L5173)
- Nova Scotia, Canada (#11330)
- Certified in the Practice of Structural Engineering (#2639-0708)



Ethan A. Rhile, P.E.
Senior Associate

Ethan joined BSE in September of 2001 after practicing structural engineering in the Mid-Atlantic States. He has extensive experience in the design of multiple story buildings and industrial facilities, with several projects eclipsing 250,000 square feet. He has served as a Project Manager, responsible for the technical design, quality control, budgeting, and construction administration for building projects up to ten stories in height, with construction budgets up to $100 million. He has an in-depth knowledge of computer software packages including STAAD-III, SAPP 2000, RISA 3D, RAM Elements, RAM Structural System, SP Mats, AutoCAD and Revit.

PROFESSIONAL ENGINEER REGISTRATION

- Maine (#10266)
- Commonwealth of Pennsylvania (#057589)

5. NOISE

Mechanical systems located on the rooftops of the proposed buildings will be screened to mitigate noise impacts. Noise associated with the proposed development is not anticipated to negatively impact surrounding development in its urban setting.

6. VISUAL

Fore Street and Spring Street in the Portland Square area are urban, developed streets with only one or two significant parcels remaining to be developed. The proposed buildings will replace a visually unappealing surface parking lot and have been designed to work in concert with existing and proposed surrounding developments.

7. WILDLIFE & FISHERIES

The Site is fully developed and there are no known areas of significant natural features, including areas of significant wildlife habitats or wetlands. The attached Official Species List identifies the northern long-eared bat, which has been listed as a Federally Threatened Species, in association with the project area; however, there are no critical habitat areas located within the project area. Based on US Fish & Wildlife information, the northern long-eared bat typically lives in caves during the winter months, and in trees larger than three inches in diameter during the summer, with migration between these two habitats in the spring in the fall. Tree-clearing for this project will be minimal and limited to only removal and replacement of street trees and landscaping trees and vegetation; it is not anticipated that this project will have a negative impact on the northern long-eared bat species.

As described in Section 14, erosion and sedimentation control measures will be utilized during construction to ensure that the work will not result in release of sediment to natural resources. These measures will be in accordance to the MaineDEP Erosion Control Best Management Practices.

A letter was sent to the Maine Department of Inland Fisheries and Wildlife (MDIFW) on December 19, 2019, requesting information regarding any known threatened or endangered species or critical habitat relative to the project area. A copy of the response will be forwarded upon receipt.

7.1 LIST OF ATTACHMENTS

- Official Species List
- Maine Department of Inland Fisheries and Wildlife Letter, dated December 19, 2019

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
Phone: (207) 469-7300 Fax: (207) 902-1588
http://www.fws.gov/mainefieldoffice/index.html

In Reply Refer To: October 02, 2019
Consultation Code: 05E1ME00-2020-SLI-0004
Event Code: 05E1ME00-2020-E-00038
Project Name: Portland Square Phase II

Subject: List of threatened and endangered species that may occur in your proposed project location, and/or may be affected by your proposed project

To Whom It May Concern:

The enclosed species list identifies the threatened, endangered, candidate, and proposed species and designated or proposed critical habitat that may occur within the boundary of your proposed project or may be affected by your proposed project. This species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 et seq.).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC Web site at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 et seq.), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2)(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the Endangered Species Consultation Handbook at: http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF

This species list also identifies candidate species under review for listing and those species that the Service considers species of concern. Candidate species have no protection under the Act but are included for consideration because they could be listed prior to completion of your project. Species of concern are those taxa whose conservation status is of concern to the Service (i.e., species previously known as Category 2 candidates), but for which further information is needed.

If a proposed project may affect only candidate species or species of concern, you are not required to prepare a Biological Assessment or biological evaluation or to consult with the Service. However, the Service recommends minimizing effects to these species to prevent future conflicts. Therefore, if early evaluation indicates that a project will affect a candidate species or species of concern, you may wish to request technical assistance from this office to identify appropriate minimization measures.

Please be aware that bald and golden eagles are not protected under the Endangered Species Act but are protected under the Bald and Golden Eagle Protection Act (16 U.S.C. 668 et seq.). Projects affecting these species may require development of an eagle conservation plan: http://www.fws.gov/windenergy/eagle_guidance.html Information on the location of bald eagle nests in Maine can be found on the Maine Field Office Web site: http://www.fws.gov/mainefieldoffice/Project%20review4.html

Additionally, wind energy projects should follow the wind energy guidelines: http://www.fws.gov/windenergy/ for minimizing impacts to migratory birds and bats. Projects may require development of an avian and bat protection plan.

Migratory birds are also a Service trust resource. Under the Migratory Bird Treaty Act, construction activities in grassland, wetland, stream, woodland, and other habitats that would result in the take of migratory birds, eggs, young, or active nests should be avoided. Guidance for minimizing impacts to migratory birds for projects including communications towers (e.g.,

cellular, digital television, radio, and emergency broadcast) can be found at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/towers.htm and at: http://www.towerkill.com; and at: http://www.fws.gov/migratorybirds/CurrentBirdIssues/Hazards/towers/comtow.html

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Tracking Number in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

Attachment(s):

- Official Species List

Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

Maine Ecological Services Field Office
P. O. Box A
East Orland, ME 04431
(207) 469-7300

Project Summary

Consultation Code: 05E1ME00-2020-SLI-0004

Event Code: 05E1ME00-2020-E-00038

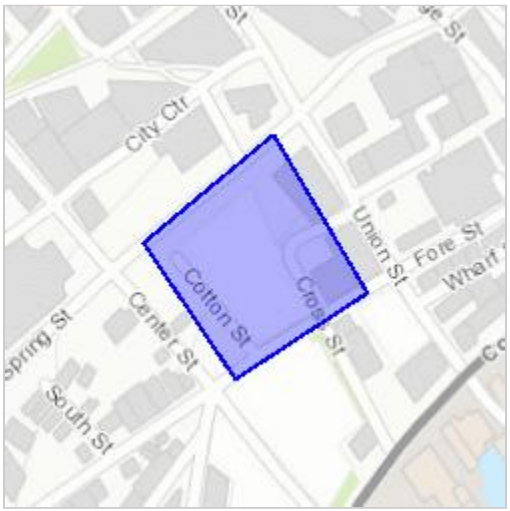
Project Name: Portland Square Phase II

Project Type: DEVELOPMENT

Project Description: Redevelopment of existing surface parking lot with a parking garage and mixed-use space.

Project Location:

Approximate location of the project can be viewed in Google Maps: https://www.google.com/maps/place/43.65581794579938N70.25671779687991W



Counties: Cumberland, ME

Endangered Species Act Species

There is a total of 1 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries[1], as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

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1. NOAA Fisheries, also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

Mammals

NAME	STATUS
Northern Long-eared Bat *Myotis septentrionalis* No critical habitat has been designated for this species. Species profile: https://ecos.fws.gov/ecp/species/9045	Threatened

Critical habitats

THERE ARE NO CRITICAL HABITATS WITHIN YOUR PROJECT AREA UNDER THIS OFFICE'S JURISDICTION.

COMMITMENT & INTEGRITY
DRIVE RESULTS

41 Hutchins Drive
Portland, ME 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

December 19, 2019

Maine Department of Inland Fisheries and Wildlife
41 State House Station
Augusta, ME 04333

RE: Three Portland Square – Environmental Review Request

To Whom It May Concern:

North River IV, LLC is proposing to redevelop an approximately 2.3-acre property bounded by Spring Street, Cotton Street and Fore Street in Portland, Maine. The site is currently fully developed as a surface parking lot with perimeter landscaping features. The proposed project will include construction of an 8-story office building with ground-level retail, a 7-level parking structure, and a 4-story office building with ground level retail/restaurant, as well as the redevelopment of the adjacent Portland Square plaza, stairs, private access driveway and Cotton Street.

The proposed work will require a Maine Department of Environmental Protection Site Location of Development Permit Amendment, which requires coordination with the Maine Department of Inland Fisheries and Wildlife (MDIFW). On behalf of North River IV, LLC, we are requesting a review of the project area for any known threatened or endangered species or critical habitat. A Site Location Map and Site Plan have been attached for your reference.

We appreciate your review of this project. If you have any questions regarding this information or the proposed project, please do not hesitate to contact me at 207-558-3763 or lswett@woodardcurran.com. Thank you for your assistance.

Sincerely,

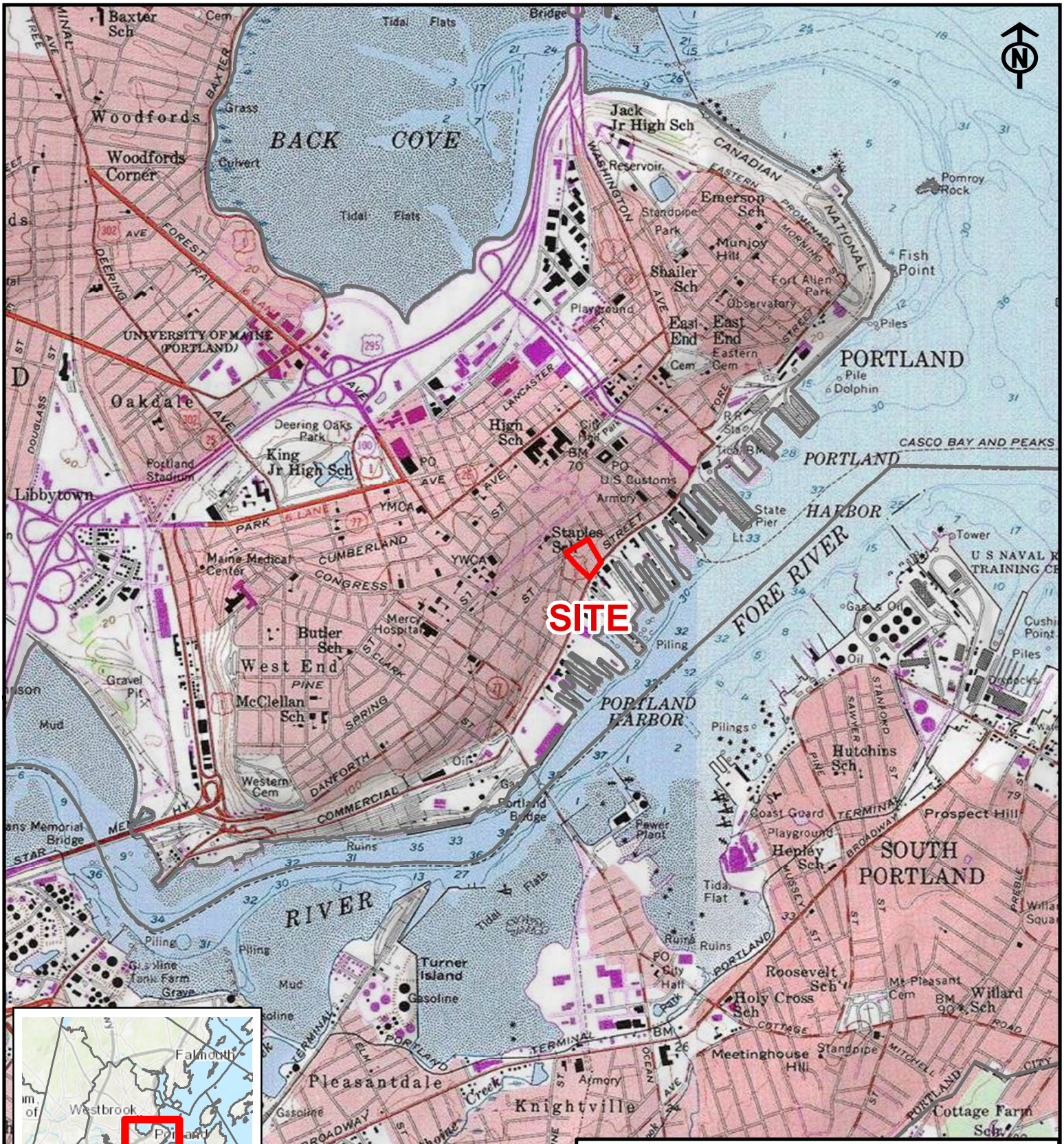
WOODARD & CURRAN

Lauren Swett

Lauren Swett, P.E.
Technical Manager

Enclosure(s) Site Location Map
Site Plan

PN: 0231886.00



Portland Square
USGS Map

Portland, ME

Figure 1 of 1

Service Layer Credits: ESRI, MEGIS

41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

DRAWN BY: AL	SCALE: 1 in = 2,000 feet
DATE: October 2019	DOC: PortlandSquare_USGSmap.mxd

8. HISTORIC SITES

The proposed Three Portland Square project is not located within any City of Portland Historic Preservation Districts. The project is located adjacent to a historic landmark, the Tracy-Causer Building, which is located across Cotton Street from the site. Work has been done to avoid impacts to existing grades around this building. Appropriate consultation with the City of Portland Historic Preservation staff will be completed as required. A request was made to the Maine Historic Preservation Commission (MHPC) for information regarding any known historic properties relative to the project area on December 19, 2019. A copy of the response will be forwarded upon receipt.

8.1 LIST OF ATTACHMENTS

- Maine Historic Preservation Commission Letter, dated December 19, 2019

COMMITMENT & INTEGRITY
DRIVE RESULTS

41 Hutchins Drive
Portland, ME 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

December 19, 2019

Kirk F. Mohney, Director
Maine Historic Preservation Commission
55 Capitol Street, 65 State House Station
Augusta, Maine 04333-0065

Re: Three Portland Square – Project Review Request

Dear Mr. Mohney:

North River IV, LLC is proposing to redevelop an approximately 2.3-acre property bounded by Spring Street, Cotton Street and Fore Street in Portland, Maine. The site is currently fully developed as a surface parking lot with perimeter landscaping features. The proposed project will include construction of an 8-story office building with ground-level retail, a 7-level parking structure, and a 4-story office building with ground level retail/restaurant, as well as the redevelopment of the adjacent Portland Square plaza, stairs, private access driveway and Cotton Street.

The proposed work will require a Maine Department of Environmental Protection Site Location of Development Permit Amendment, which requires coordination with the Maine Historic Preservation Commission. On behalf of North River IV, LLC, we are requesting a review of the project area for any known historic properties. The proposed project is not located within or adjacent to a City of Portland Historic Preservation District. A USGS topographic map has been attached for your reference.

We appreciate your review of this project. If you have any questions regarding this information or the proposed project, please do hesitate to contact me at 207-558-3763 or lswett@woodardcurran.com. Thank you for your assistance.

Sincerely,

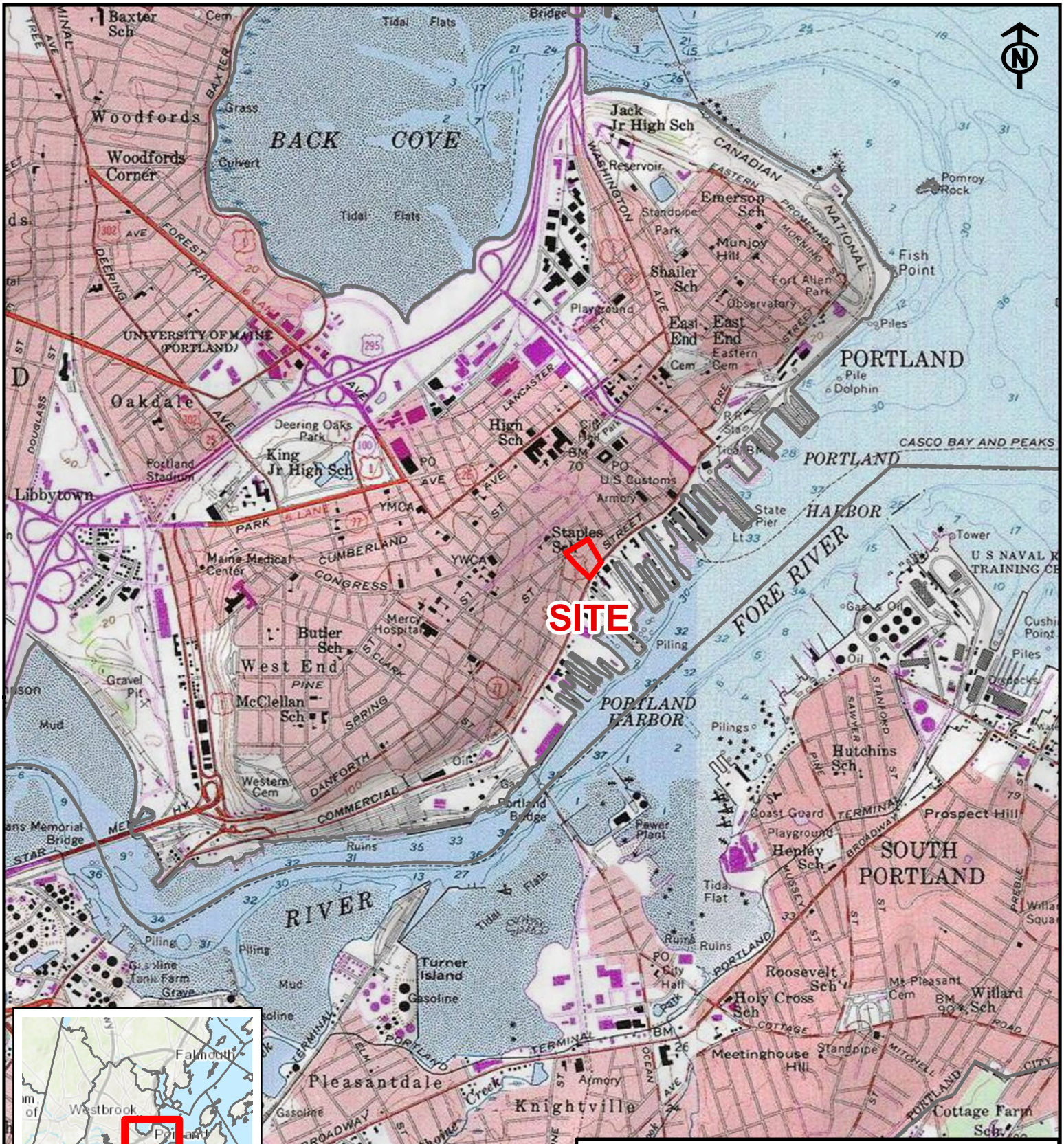
WOODARD & CURRAN

Lauren Swett

Lauren Swett, P.E.
Technical Manager

Enclosure(s) USGS Map

PN: 0231886.00



Portland Square
USGS Map

Portland, ME

Figure 1 of 1

Service Layer Credits: ESRI, MEGIS

41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

DRAWN BY: AL	SCALE: 1 in = 2,000 feet
DATE: October 2019	DOC: PortlandSquare_USGSmap.mxd

9. UNUSUAL NATURAL AREAS

The Site is fully developed and there are no known unusual natural areas. A request was made to the Maine Natural Areas Program on December 19, 2019 for information regarding botanical features relative to the project area. A copy of the response will be forwarded upon receipt.

9.1 LIST OF ATTACHMENTS

- Maine Natural Areas Program Letter, dated December 19, 2019

COMMITMENT & INTEGRITY
DRIVE RESULTS

41 Hutchins Drive
Portland, ME 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

December 19, 2019

Maine Natural Areas Program
177 State House Station
Augusta, ME 04333-0093

Via email: maine.nap@maine.gov

RE: Three Portland Square – Site Review Request

To Whom It May Concern:

North River IV, LLC is proposing to redevelop an approximately 2.3-acre property bounded by Spring Street, Cotton Street and Fore Street in Portland, Maine. The site is currently fully developed as a surface parking lot with perimeter landscaping features. The proposed project will include construction of an 8-story office building with ground-level retail, a 7-level parking structure, and a 4-story office building with ground level retail/restaurant, as well as the redevelopment of the adjacent Portland Square plaza, stairs, private access driveway and Cotton Street.

The proposed work will require a Maine Department of Environmental Protection Site Location of Development Permit Amendment, which requires coordination with the Maine Natural Areas Program. On behalf of North River IV, LLC, we are requesting information on rare and exemplary botanical features in the project area. A site location map has been attached for your reference.

We appreciate your review of this project. If you have any questions regarding this information or the proposed project, please do not hesitate to contact me at 207-558-3763 or lswett@woodardcurran.com. Thank you for your assistance.

Sincerely,

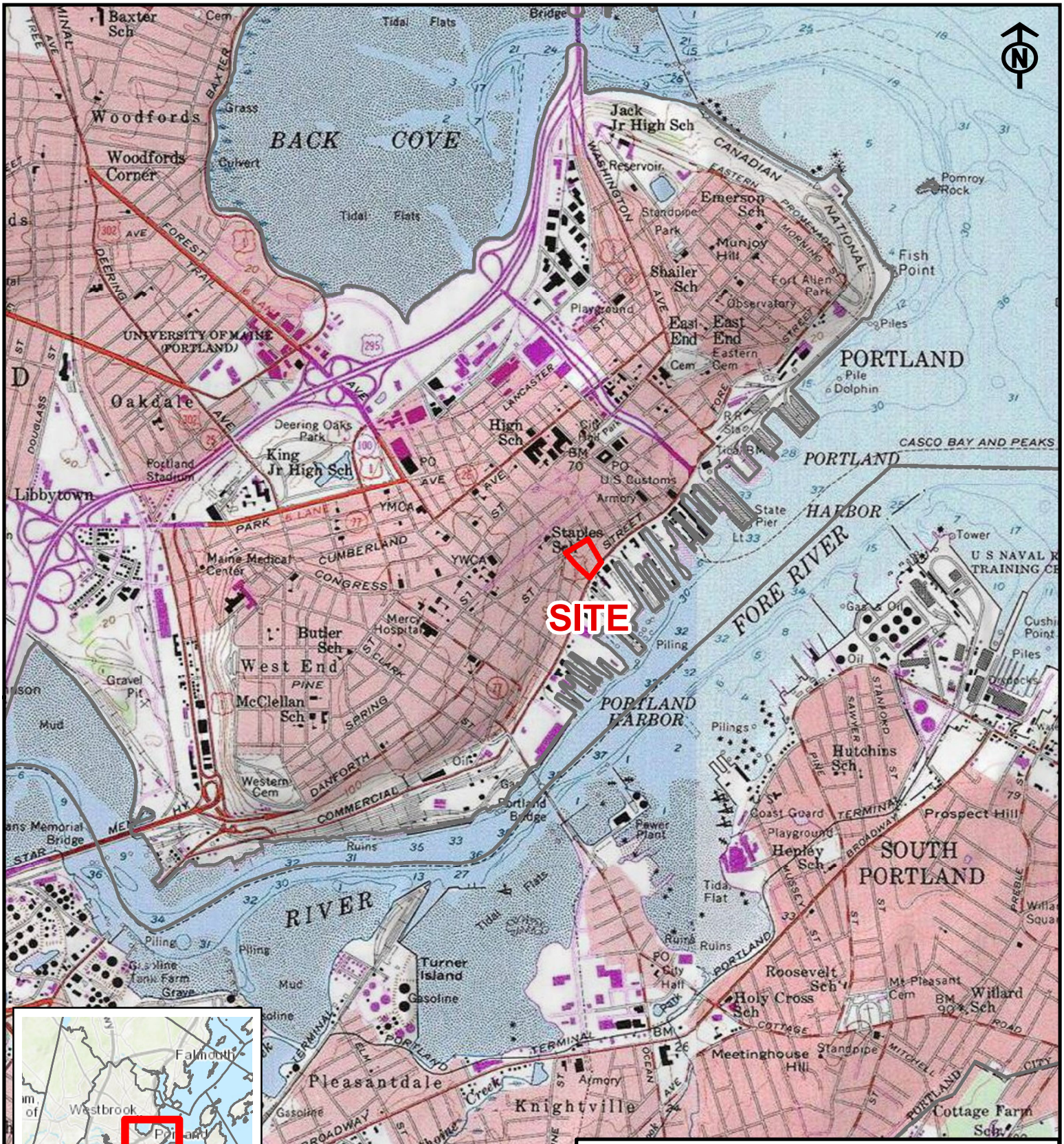
WOODARD & CURRAN

Lauren Swett

Lauren Swett, P.E.
Technical Manager

Enclosure(s) Site Location Map

PN: 0231886.00



Portland Square
USGS Map

Portland, ME

Figure 1 of 1

Service Layer Credits: ESRI, MEGIS

41 Hutchins Drive
Portland, Maine 04102
800.426.4262 | woodardcurran.com
COMMITMENT & INTEGRITY DRIVE RESULTS

DRAWN BY: AL	SCALE: 1 in = 2,000 feet
DATE: October 2019	DOC: PortlandSquare_USGSmap.mxd

10. BUFFERS

This project is occurring entirely on previously developed land. The proposed buildings cover almost the entire site, as required per City of Portland Zoning setback requirements. Therefore, this section is not applicable.

11. SOILS

11.1 NARRATIVE

According to the Cumberland County Soil Survey, the Site contains of Hinckley Loamy Sand (HIB). This soil designation consists of gravely and sandy soil deposits.

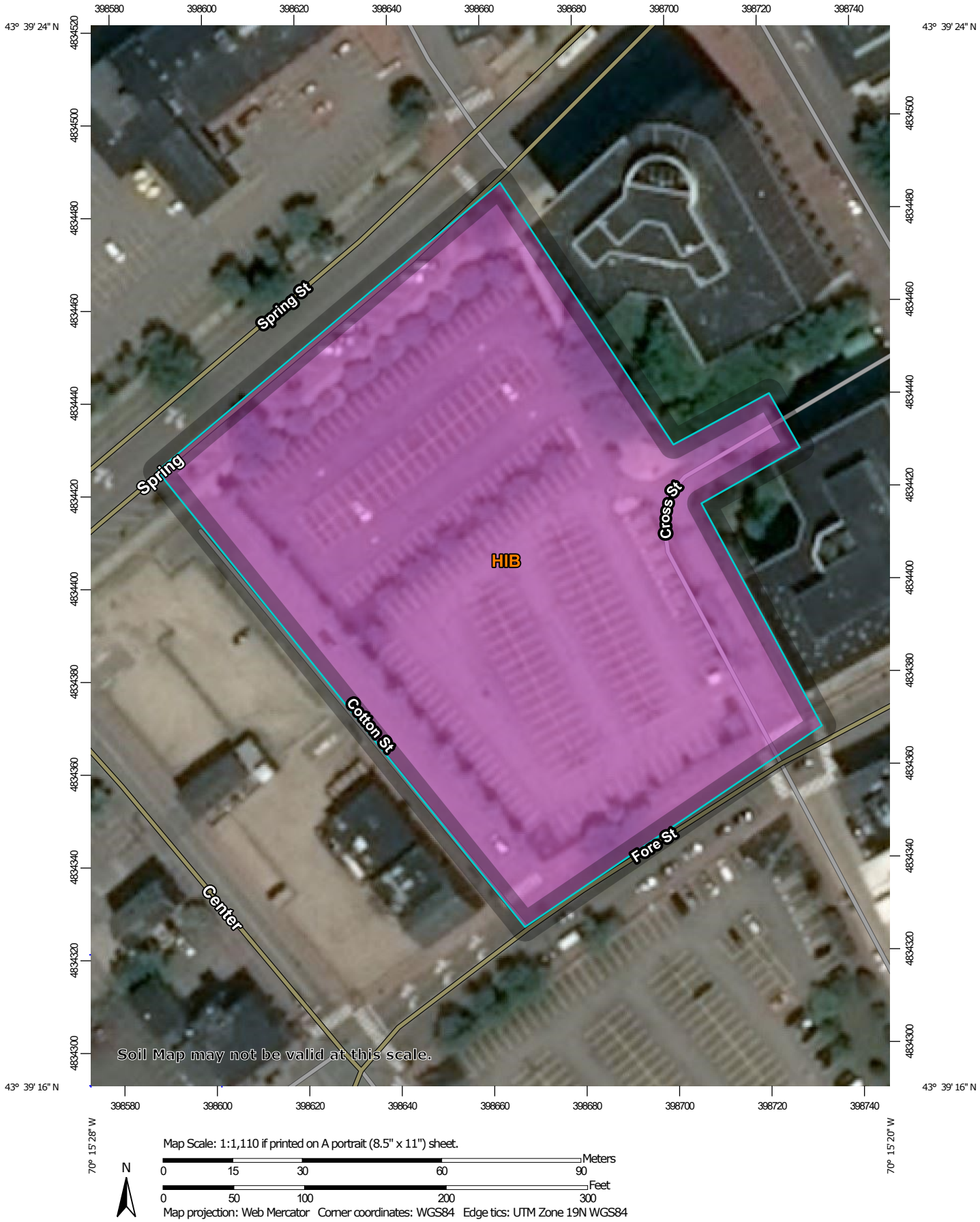
Haley & Aldrich, Inc. performed a subsurface exploration and preliminary geotechnical engineering evaluation in December 2016, and issued the attached report entitled *Preliminary Geotechnical Evaluation – Portland Square Development.* Subsurface explorations identified the presence of 'man-placed fill soils' on site, overlying naturally-deposited marine soil, glacial till and bedrock. The subsurface explorations consisted of eighteen test borings over the Portland Square project area; nine of these test borings are within the project area of the proposed Three Portland Square development. The soils profile encountered during the test borings generally consisted of bituminous concrete overlying about 2- to 9-feet of man-placed fill, which was generally underlaid with 6- to 20-feet of marine deposit consisting of variable density clays, silts and sands, 0- to 7 feet of glacial till and weathered bedrock.

Additionally, groundwater levels were documented in each observation well and test boring. Groundwater was encountered from elevation 15.5 to 40.8.

11.2 LIST OF ATTACHMENTS

- United States Department of Agriculture Natural Resources Conservation Service Web Soil Survey
- Preliminary Geotechnical Evaluation – Portland Square Development, dated December 23, 2016, prepared by Haley & Aldrich, Inc. (Bound Separately)

Hydrologic Soil Group—Cumberland County and Part of Oxford County, Maine
(Portland Square Garage)



Map Scale: 1:1,110 if printed on A portrait (8.5" x 11") sheet.

N

Meters: 0 15 30 60 90

Feet: 0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils

Soil Rating Polygons
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Lines
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Soil Rating Points
- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 16, Sep 16, 2019

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Hydrologic Soil Group

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
HIB	Hinckley loamy sand, 3 to 8 percent slopes	A	3.0	100.0%
Totals for Area of Interest			**3.0**	**100.0%**

Description

Hydrologic soil groups are based on estimates of runoff potential. Soils are assigned to one of four groups according to the rate of water infiltration when the soils are not protected by vegetation, are thoroughly wet, and receive precipitation from long-duration storms.

The soils in the United States are assigned to four groups (A, B, C, and D) and three dual classes (A/D, B/D, and C/D). The groups are defined as follows:

Group A. Soils having a high infiltration rate (low runoff potential) when thoroughly wet. These consist mainly of deep, well drained to excessively drained sands or gravelly sands. These soils have a high rate of water transmission.

Group B. Soils having a moderate infiltration rate when thoroughly wet. These consist chiefly of moderately deep or deep, moderately well drained or well drained soils that have moderately fine texture to moderately coarse texture. These soils have a moderate rate of water transmission.

Group C. Soils having a slow infiltration rate when thoroughly wet. These consist chiefly of soils having a layer that impedes the downward movement of water or soils of moderately fine texture or fine texture. These soils have a slow rate of water transmission.

Group D. Soils having a very slow infiltration rate (high runoff potential) when thoroughly wet. These consist chiefly of clays that have a high shrink-swell potential, soils that have a high water table, soils that have a claypan or clay layer at or near the surface, and soils that are shallow over nearly impervious material. These soils have a very slow rate of water transmission.

If a soil is assigned to a dual hydrologic group (A/D, B/D, or C/D), the first letter is for drained areas and the second is for undrained areas. Only the soils that in their natural condition are in group D are assigned to dual classes.

Rating Options

Aggregation Method: Dominant Condition

Component Percent Cutoff: None Specified

Tie-break Rule: Higher

12. STORMWATER

The attached Stormwater Management Plan describes the proposed stormwater management measures for the project, as shown on the design drawings attached to Section 1 of this Report. A USGS map and a soils map are attached to Section 1 and Section 11 of this Report, respectively. The Erosion and Sedimentation Control Plan for the proposed project is summarized in further detail in Section 14 of this Report.

12.1 LIST OF ATTACHMENTS

- Stormwater Management Plan (Bound Separately)

13. URBAN IMPAIRED STREAM

The proposed project is not located within the watershed of an Urban Impaired Stream; the Urban Impaired Stream standard does not apply.

14. BASIC STANDARDS

The overall goal of the Soil Erosion and Sedimentation Plan is to reduce the potential for erosion and sedimentation at the site and prevent any transportation of sedimentation down-gradient of the site. A variety of erosion control techniques will be implemented to achieve this goal. During construction, these include:

- Installation and maintenance of construction entrances at the travelled interface between stabilized and non-stabilized portions of the project site;
- Diversion barriers to keep up-gradient runoff from flowing through the active construction areas;
- Positive grades throughout the construction site to direct flow to sediment control barriers;
- Installation and maintenance of sediment barriers adjacent to and down-gradient of the construction site;
- Catch basin inlet protection devices;
- Preservation and maintenance of vegetated areas to the maximum extent possible;
- Temporary stabilization of disturbed vegetated areas to be exposed for more than seven days;
- Application of permanent seeding and mulching (or other permanent surface treatment as indicated on the drawings) applied as soon as areas achieve final grades;
- Controls for fugitive dust, debris, and other materials; and
- Inspection of all in-place measures after every significant rainfall until the site is permanently stabilized.

All measures will be implemented in accordance with the "Maine Erosion and Sedimentation Handbook for Construction: Best Management Practices". All temporary measures will be installed prior to any earthmoving operation and removed after the areas are permanently stabilized. All control measures will be maintained in an effective operating condition until the Site is permanently stabilized. Permanent erosion control measures will include vegetation and pavement. The Contractor will be responsible for implementing and maintaining all erosion and sediment control measures and conducting inspections in accordance with the attached *Stormwater Erosion & Sediment Control Inspection Report Form* (or equivalent).

Inspections shall be performed at least once a week, as well as before and after storm events. A person with knowledge of stormwater management and erosion and sediment control, including the standards and conditions in the permit, shall conduct the inspections and perform maintenance of the facilities. If maintenance or modifications are necessary, implementation will be completed within seven days and prior to any rainfall event. After construction, the responsible party for the owner will conduct inspections of the Site per the inspection and maintenance requirements outlined in Section 12 of this Report.

14.1 LIST OF ATTACHMENTS

- Stormwater Erosion & Sediment Control Inspection Report Form

STORMWATER EROSION & SEDIMENT CONTROL
INSPECTION REPORT FORM

Inspectors: Date: ___ / ___ / _____

_____ of _____ (Project Owner)
_____ of _____ (Contractor)
_____ of _____
_____ of _____

Storm Event? ☐ Yes ☐ No Rainfall Amount _____ Storm Duration _____ hours

Visual Observations of Activity and Site Conditions:

Disturbed Soil Areas:

Storage of Soils:

Sediment & Erosion Control Measures:

Construction Site Entrance:

Surface Stabilization:

Corrective Action Taken:

Attachments (if any):

Signature:

Name Title Date

15. GROUNDWATER

As noted previously, a subsurface investigation has been completed, and groundwater levels were documented in each observation well and test boring. Groundwater was encountered from elevation 15.5' to 40.8'. Some construction practices such as deep foundations and dewatering activities will be required for this project. The final foundation and dewatering plan will be developed prior to construction.

16. WATER SUPPLY

The proposed development will be provided with both fire protection water service and domestic water service by the Portland Water District from mains located on Spring Street, Cotton Street and Fore Street. Proposed water service locations are shown on the Utility Plan included in the design drawings attached to Section 1 of this Report.

The project team met with representatives from Portland Water District on September 19, 2019 to review anticipated water demand and service connections for the proposed development. During this meeting, Portland Water District indicated the existing water mains on Fore Street and Cotton Street are insufficient to service the proposed development; therefore, replacement of segments of the Fore Street and Cotton Street water mains will be required. The project team will continue to coordinate the design with representatives from Portland Water District as the design progresses. A copy of the Ability to Serve Determination letter from Portland Water District will be provided upon receipt.

17. WASTEWATER DISPOSAL

Several sanitary sewer services to the buildings are proposed to connect to sewer infrastructure within Cotton Street (Office Tower), Fore Street (Fore Street Wrap) and Upper Cross Street (Parking Structure) to accommodate the various uses of the buildings. The proposed locations of the sanitary sewer services are shown on the Utility Plan included in the design drawings attached to Section 1 of this Report. Internal grease traps will be utilized if restaurant uses are proposed in the retail spaces. Drainage within covered parking areas will be collected by floor drains and directed to an oil water separator prior to discharge into the sewer main within Upper Cross Street.

A Wastewater Capacity Application will be submitted to the Portland Department of Public Works as part of the Level III Site Plan application process to request confirmation of ability to serve the proposed development. The ability to serve confirmation will be provided to the Planning Department directly by the Department of Public Works.

18. SOLID WASTE

Adequate provisions for recycling and solid waste disposal have been made. General solid waste, construction, demolition, and land-clearing debris will be managed in full accordance with all applicable laws and will not cause a deleterious effect on the environment.

18.1 COMMERCIAL SOLID WASTE

All solid waste materials and recyclables from the proposed redevelopment project will be transported and disposed of, or recycled, in accordance with applicable laws and regulations. The proposed design includes service and loading area located between the office tower and parking structure. Access to this service and loading area will be provided via Upper Cross Street. Service will be scheduled to minimize impacts to business hours to the greatest extents practicable. A solid waste management plan with schedules for solid waste removal will be developed for the proposed building.

18.2 CONSTRUCTION & LAND CLEARING DEBRIS

As with any construction project, the proposed construction will generate construction waste and demolition debris (CDD). The contractor will be responsible for hauling the CDD or contracting with a waste management service to haul the CDD from the project site. The contractor will be fully responsible for handling, managing, and disposing of all waste generated by construction in accordance with Maine Solid Waste Management Regulations – 06-096 CMR 400-409. The contractor will be bound by contract to dispose of all materials in full accordance with all applicable local state and federal regulations. Actual waste volumes will be measured at the time of construction.

18.3 SPECIAL & HAZARDOUS WASTE

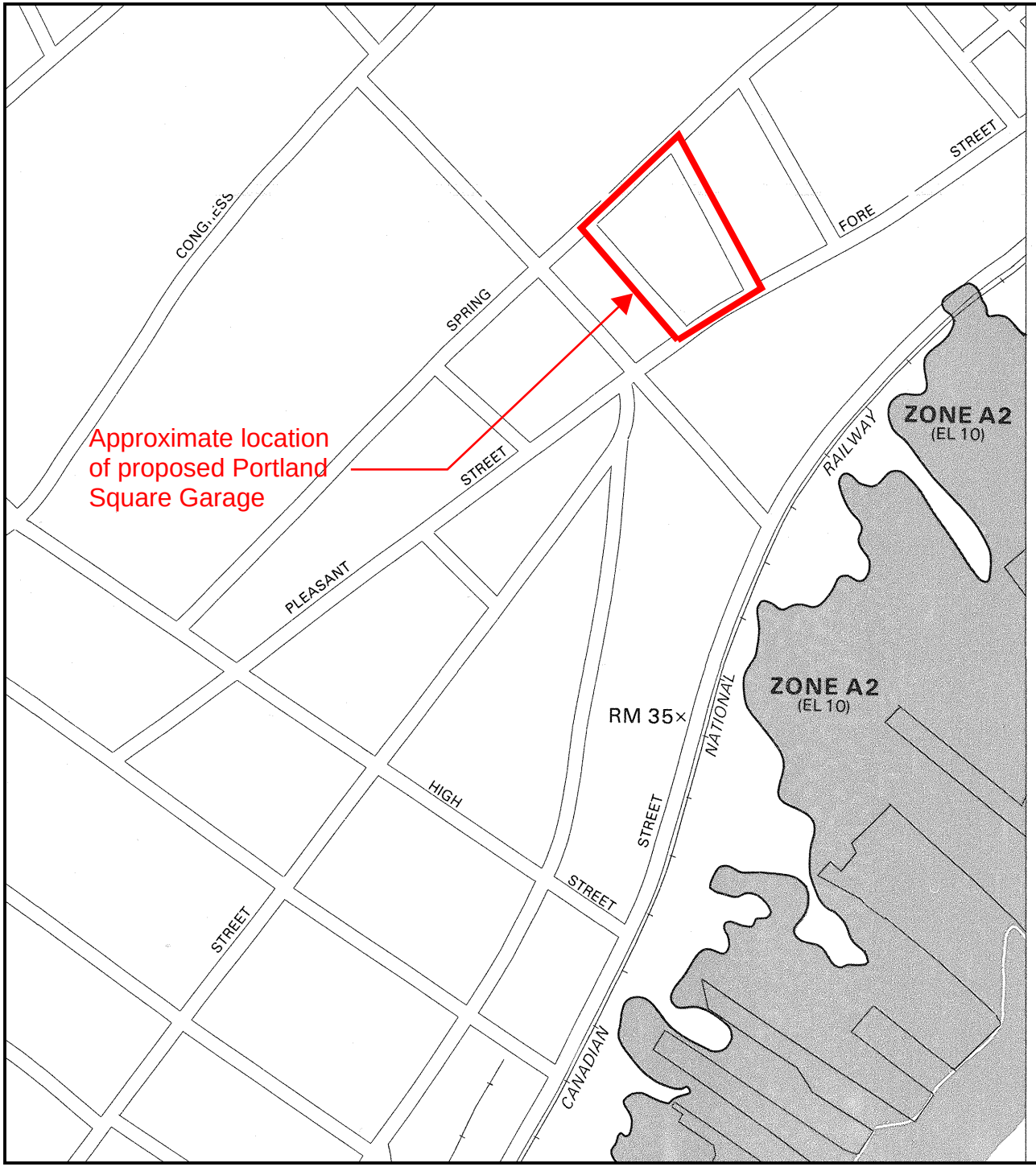
The proposed development is not anticipated to produce any hazardous waste. A previous site investigation on the Portland Square property identified the presence of typical urban fill, as is seen on redevelopment sites throughout the City. We anticipate that soils from the site may be classified as special waste and shall be handled and disposed of accordingly.

19. FLOODING

The proposed development is not located within a flood hazard zone, as shown on the FEMA Flood Insurance Rate Map attached to this Section. The proposed development will not cause or increase flooding or cause an unreasonable flood hazard to any adjacent structures. The 100-year flood plain is located off-site and is not within the viewport of the design drawings; therefore, the 100-year flood plain is not shown on the design drawings attached to Section 1 of this Report.

19.1 LIST OF ATTACHMENTS

- FEMA Flood Insurance Rate Map



APPROXIMATE SCALE

400 0 400 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

CITY OF
PORTLAND, MAINE
CUMBERLAND COUNTY

PANEL 13 OF 17
(SEE MAP INDEX FOR PANELS NOT PRINTED)

COMMUNITY-PANEL NUMBER
230051 0013 B

EFFECTIVE DATE:
JULY 17, 1986

Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov

20. BLASTING

Some construction means and methods that may be used on this project will cause vibrations that could be transmitted through the ground to nearby buildings. Project specifications will be prepared that require the contractor to conduct pre-construction surveys prior to the start of potential vibration causing activities, the following will occur. The pre-construction survey(s) will be used to review and document existing building conditions. Site demolition and removals, installation/removal of temporary earth support systems, excavation, vibratory compaction and foundation construction will be completed on this project. If deemed necessary, ground vibrations will be monitored at nearby buildings and used to confirm that measured vibrations are below the maximum permissible that are required by the specifications.

The proposed buildings have been sited and designed to avoid impacts to bedrock. If bedrock is encountered during construction and blasting is required, the specifications will require that the contractor prepare and submit a blasting plan for review for compliance with all project-specific, local, state and federal requirements and regulations. A pre-construction meeting will be planned with abutting property owners to generally discuss construction means and methods that could cause vibrations.

21. AIR EMISSIONS

The project is not a commercial, industrial or institutional development that will require an air emissions license, so this section is not applicable.

22. ODORS

The proposed development will not involve any processes that emit significant odors; this section is not applicable.

23. WATER VAPOR

The proposed development will not use water for any processes that would emit water vapor; this section is not applicable.

24. SUNLIGHT

The proposed development will not block any access to sunlight for any structures utilizing solar energy; this section is not applicable.

25. PUBLIC NOTICE EVIDENCE

The City of Portland has Delegated Review Authority for the proposed project; it is our understanding that the Applicant is not required to complete their own Public Notice, and that the City will issue a Public Notice as part of their internal permit process.

WOODARD &CURRAN

woodardcurran.com

COMMITMENT & INTEGRITY DRIVE RESULTS

Att. U

HALEY ALDRICH

www.haleyaldrich.com

PRELIMINARY GEOTECHNICAL EVALUATION
PORTLAND SQUARE DEVELOPMENT
PORTLAND, MAINE

by Haley & Aldrich, Inc.
Portland, Maine

for Winton Scott Architects
Portland, Maine

File No. 32328-111
December 2016



HALEY & ALDRICH, INC.
75 Washington Avenue
Suite 1A
Portland, ME 04101
207.482.4600

23 December 2016
File No. 32328-111

Winton Scott Architects
5 Milk Street
Portland, Maine 04101

Attention: Steve Weatherhead, RA
Senior Associate

Subject: Preliminary Geotechnical Evaluation
Portland Square Development
Portland, Maine

Ladies and Gentlemen:

This report presents the results of previous and recent subsurface exploration programs and preliminary geotechnical engineering evaluations including a discussion of how the subsurface conditions may impact the proposed development. This work was undertaken at your request and in accordance with our proposal, dated 20 September 2016, and your subsequent authorization.

Elevations

Elevations referenced herein are in feet and reference Portland City Datum (PCD). PCD relates to the National Geodetic Vertical Datum of 1929 (NGVD 29) as follows:

Elevation in ft (PCD) = Elevation in ft (NGVD 29) + 0.02 ft

Site Location, Existing Site Conditions and Historic Site Development

The Portland Square Development project is located on roughly two city blocks in downtown Portland that are generally bound by Commercial Street to the east, Center Street to the south, Spring Street to the west and Cross Street to the north as shown on Figure 1, Project Locus.

The Portland Square Parking Lot (Upper Lot) is generally bound by Spring Street to the west, Cotton Street to the south, Fore Street to the east and the One/Two Portland Square properties to the north. The site is currently being used as a commercial, at-grade (surface) parking facility. Existing site grades generally slope down from Center Street (west) to Fore Street (east) from approximately El. 52 to El. 28.

The Fore Street Parking Lot (Lower Lot) is generally bound by Fore Street to the west, Center Street to the south, Commercial Street to the east and Cross Street to the north. The existing Richardson Wharf Building is located in the northeast corner of the site adjacent to Commercial Street and is not part of the development project. Like the Upper Lot, the Lower Lot is currently being used as a commercial, surface parking facility. Existing site grades generally slope down from Fore Street (west) to Commercial Street (east) from approximately El. 28 to El. 10.

Based on our review of Historical Sanborn maps of the site (Upper and Lower Lots), it appears that each Lot contained multiple structures (buildings) between approximately 1886 and 1980. In general, the structures consisted of residential buildings or those that housed industrial, commercial or manufacturing facilities (e.g., blacksmith, machine, metal and wood shops) as well as ice houses and lumber yards. Each Lot became essentially vacant of above-grade structures between 1980 and 1986. Historical Sanborn Maps of the Lots are provided for informational purposes in Appendix D.

Based on our discussions with the project team and our review of preliminary master plans for the Upper and Lower Lots (see Appendix E) provided by Winton Scott Architects (WSA) dated August 2016 (Upper Lot) and June 2016 (Lower Lot), it is our understanding that the proposed site improvements generally include construction of an urban infill, mixed-use development consisting of a combination of commercial office, retail and residential space with multiple levels of parking (both at and below grade). It is also our understanding that the development will likely be constructed in multiple phases. Please note that the specific plan layout and finish floor slab levels of the proposed structures have not yet been finalized.

Our current understanding of the proposed development on the Upper Lot includes the following general elements:

- Office Building 1: 6-story tower on top of 5 levels of structured parking, 109,980 square feet (sf)
- Office Building 2: 6-story tower on top of 5 levels of structured parking, 100,400 sf

Below grade parking is currently planned beneath the footprint of Office Buildings 1 and 2. The elevation of the lowest parking level is currently planned at El. 29, approximately 23 ft below existing site grades along Center Street. Access to/from the below grade parking area is planned off Cotton Street. Ground floor retail/restaurant space is planned along Fore Street.

Our current understanding of the proposed development on the Lower Lot includes the following general elements:

- Building 3: 3-story tower above 4-levels of structured parking with some retail and residential space, 61,433 sf
- Buildings 4 and 5: 4-story residential towers above 1-level retail and 2- levels of structured parking
- Building 6: 6-story hotel

Below grade parking is currently planned beneath the footprint of the Buildings 3, 4, 5 and a portion of Building 6. The elevation of the lowest parking level (Ground Level) is currently planned at El. 6.42, approximately 22 to 26 ft below existing site grades adjacent to Fore Street. Access to/from Level 1 of the below grade parking area is planned off Cross Street as site grades at Cross Street on the north side of this portion of the site roughly match the proposed Level 1slab elevation (i.e., El. 16.92). The Ground Level parking area will be accessed by the ramp from Level 1 inside of the garage.

In addition to the proposed buildings summarized above, additional site improvements will likely include stormwater management, site roadways and supporting utility infrastructure needed to service the planned development. The details of these site improvements, including proposed site grading have not yet been developed.

Subsurface Exploration Programs

Multiple subsurface exploration programs have been undertaken at and adjacent to the site. Test borings were drilled by Haley & Aldrich in the vicinity of the site for design and construction of One and Two Portland Square, Canal Plaza and the Porteous Warehouse Development (bound by Commercial Street, York Street and Foundry Lane, located south of the Fore Street parking lot, across Center Street). In addition, test borings were drilled under the supervision/direction of Haley & Aldrich in 1985 and 1987 for preliminary geotechnical and phase I/II environmental site assessments completed on both the Upper Lot and Lower Lot sites. Additionally, and most recently, due diligence and preliminary phase geotechnical subsurface exploration programs for the subject project were completed by Haley & Aldrich in 2015 and 2016, respectively.

The approximate locations of relevant test borings are shown on Figures 2 and 3, Site and Subsurface Exploration Location Plans and test boring logs are provided in Appendix A.

2015 DUE DILIGENCE PHASE EXPLORATION PROGRAM

Haley & Aldrich completed a subsurface exploration program consisting of four test borings, designated HA15-1(OW) through HA15-4(OW), within the limits of the Upper and Lower Lots. “As-drilled” test boring locations were determined in the field by Haley & Aldrich by taping distances from existing site features upon the completion of drilling.

The test borings were drilled by New England Boring Contractors (NEBC) of Hermon, Maine during the period 10 to 12 August 2015. The test borings were advanced through overburden soils and terminated in/on bedrock at depths ranging from approximately 18 to 30 ft BGS using a Mobile Drill B-53 truck-mounted drill rig and 3-in. outside diameter (OD; NW size) steel casing.

Soil samples were generally collected continuously through man-placed fill soils and at standard, 5-ft intervals in naturally-deposited soils, by driving a 1-3/8-in. inside diameter (ID) split-spoon sampler with a 140-lb hammer dropped from a height of 30 in., as indicated on the test boring logs. The number of hammer blows required to advance the sampler through each 6-in. interval was recorded and is

provided on the logs. The uncorrected SPT N-value (N-uncorrected) is defined as the total number of blows required to advance the sampler through the middle 12 in. of the 24-in. sampling interval (24-in. long split-spoon sampler).

A photoionization detector (PID) was used in the field to screen for the presence of volatile organic compounds (VOCs) in the recovered man-placed fill soil samples. Elevated PID readings were recorded on individual test boring logs provided in Appendix A of this report.

Approximately 4.5 ft of bedrock was sampled in test boring HA15-1(OW) using a 2.0-in. (NQ-size) ID diamond-tipped core barrel.

Observation wells were installed in each of the completed boreholes to provide information on the static groundwater level at the sites. The observation wells consisted of 1-in. ID, machine-slotted PVC well screen and solid PVC riser pipe cut just below existing ground surface. Each observation well was outfitted with a flush-mounted steel roadway box. Observation well installation and groundwater monitoring reports are provided in Appendix B.

A Haley & Aldrich engineer was present on site to monitor the explorations and document the soil, rock, and groundwater conditions encountered in the explorations and prepare test boring logs. All soil and rock samples were collected and preserved in glass jars and wooden boxes. All soil and bedrock samples are available for review upon request. The available soil and bedrock samples are currently being stored at the Haley & Aldrich laboratory facility in Portland, Maine.

2016 PRELIMINARY PHASE EXPLORATION PROGRAM

Haley & Aldrich completed a preliminary subsurface exploration program consisting of 18 test borings, designated HA16-1 through HA16-18 within the limits of the Upper (HA16-1 through HA16-9) and Lower Lots (HA16-10 through HA16-18). “As-drilled” test boring locations were determined in the field by Haley & Aldrich by taping distances from existing site features upon the completion of drilling.

The test borings were drilled by New England Boring Contractors (NEBC) of Londonderry, New Hampshire under contract with Woodard & Curran (WC; project environmental consultant) during the period 3 to 17 October 2016. In general, the test borings were advanced through overburden soils and terminated in/on bedrock at depths ranging from approximately 15 to 43 ft below ground surface (BGS) using a Acker Drill AD-II truck-mounted drill rig and 4-in. outside diameter (OD; HW size) steel casing.

Soil samples were generally collected continuously through man-placed fill soils and at standard, 5-ft intervals in naturally-deposited soils, by driving a 1-3/8-in. inside diameter (ID) split-spoon sampler with a 140-lb hammer dropped from a height of 30 in., as indicated on the test boring logs. The number of hammer blows required to advance the sampler through each 6-in. interval was recorded and is provided on the logs. The uncorrected SPT N-value (N-uncorrected) is defined as the total number of blows required to advance the sampler through the middle 12 in. of the 24-in. sampling interval (24-in. long split-spoon sampler).

A photoionization detector (PID) was used by WC personnel in the field to screen for the presence of volatile organic compounds (VOCs) in the man-placed fill soil samples recovered from select test borings.

Approximately 5 to 7 ft of bedrock was sampled (cored) in each test boring except HA16-5, HA16-9, HA16-11, HA16-12 and HA16-16. Bedrock samples were collected using a 1.875-in. (NX-size) ID diamond-tipped core barrel.

A Haley & Aldrich geologist was present on site to monitor the explorations and document the soil, rock, and groundwater conditions encountered in the explorations and prepare test boring logs. All soil and rock samples were collected and preserved in glass jars and wooden boxes. All soil and bedrock samples are available for review upon request. The available soil and bedrock samples are currently being stored at the Haley & Aldrich laboratory facility in Portland, Maine.

Subsurface Conditions

The subsurface conditions encountered at the site consist of man-placed fill soils overlying multiple naturally-deposited geologic units. Additional details are provided on the test boring logs included in Appendix A. In addition, a summary of the soil units and thicknesses encountered within each test boring that was completed under the direction of Haley & Aldrich during the 2015 (due diligence phase) and 2016 (preliminary phase) subsurface exploration programs is provided on Table I. Please refer to subsurface profiles shown on Figures 4-6 for a graphical representation of the soil conditions across the sites (Upper and Lower Lots). A general description of soil, bedrock and groundwater conditions encountered in the due diligence and preliminary phase test borings are provided separately, below.

Please note that soil descriptions provided on the test boring logs do not represent actual field conditions other than at the specific test boring locations. Actual conditions encountered between test boring locations may vary from those described herein and shown in Table I and Figures 4-6.

Geologic Unit	Approximate Encountered Thickness (ft)	Generalized Description
Man-Placed Fill	2 to 24 (2 to 9 within Upper Lot and 12 to 24 within Lower Lot)	Loose to very dense poorly-graded SAND with variable amounts of silt (SP, SP-SM), silty SAND with variable amounts of gravel (SM), poorly-graded gravel with variable amounts of sand (GP), well graded SAND with variable amounts of silt and gravel (SW, SW-SM), well graded GRAVEL with sand (GW) and medium stiff to hard SILT (ML) with variable amounts of sand and gravel. Portions of the layer contained shell, organic, wood, concrete, brick, ceramic, glass, coal, slag, ash, rubber, and leather fragments. 1 to 5-ft thick layers of wood or concrete were encountered in test borings HA16-11, HA16-12 and HA16-16 through HA16-18. A strong petroleum-like odor was noted within the layer between approximately 3 and 12 ft BGS in test boring HA16-13. *(encountered in each test boring)*
Marine Deposit	0 to 20	very soft to hard SILT (ML) and CLAY (CL) with variable amounts of or interbedded with poorly-graded SAND (SP) or silty SAND with gravel (SM) and very loose to very dense silty SAND with variable amounts of gravel or lean clay (SM) and well graded GRAVEL with variable amounts of silt and sand (GW, GW-GM) (*encountered in each test boring except HA16-16 and HA16-18*)
Glacial Till	0 to 8	very dense well graded SAND with gravel (SW) (*encountered in test borings HA15-1(OW) through HA15-4(OW), HA16-1, HA16-8 and HA16-13*)
Bedrock	moderately hard to hard, fresh to highly weathered PHYLLITE and QUARTZITE. Up to 7 ft of weathered bedrock was encountered overlying more competent material at some test boring locations. Top of bedrock surface encountered in each test boring is shown on Figures 2 and 3 and graphically on Figures 4 and 5. *(sampled/cored in each test boring except HA15-1(OW) through HA15-4(OW), HA16-5, HA16-9, HA16-11, HA16-12 and HA16-16)*	

GROUNDWATER CONDITIONS

Observation wells were installed in each of the due diligence phase boreholes (i.e., HA15-1 through HA15-4). The observation wells were installed to provide information on the static groundwater level at the site and to determine whether the groundwater levels are affected by tidal fluctuations in nearby Fore River.

Beginning on 17 June 2016 downhole pressure transducers were installed in observation wells HA15-2(OW) and HA15-4(OW) and were programmed to record the groundwater level once every 15 minutes. The transducers were removed and data were downloaded on 6 December 2016. Observation well installation reports are provided in Appendix C and a graphical representation of the measured groundwater levels during the period 17 June to 6 December 2016 are provided for reference in Figure 8.

In addition, water levels were measured in the 1985, 1987 and 2016 boreholes upon the completion of drilling. It should be noted that the drilling means and methods used (HSAs; no water added during advancement of the boreholes) to drill the test borings likely did not significantly influence the static water levels. However, steel casing and drilling fluid (water) was used to drill the 2016 test borings. Therefore, it is our opinion that the measurements in the 1985 and 1987 test borings provide reasonable estimates of groundwater levels across the sites for this preliminary phase of the project.

The measured water levels in each observation well and test boring are summarized below. Static groundwater levels at each observation well and test boring location is also shown on Figures 2 and 3.

Site	Approximate Range in Ground Surface Elevation (ft, PCD)	Deepest Proposed Ground Floor Elevation (Approximate Bottom of Excavation)	Approximate Range in Water Level Elevation (ft, PCD)
Upper Lot	El. 52 (upper) to El. 28 (lower)	El. 29 (El. 26)	El. 40 (upper) to El. 16 (lower)
Lower Lot	El. 32 (upper) to El. 10 (lower)	El. 8.4 to El. 6.4 (upper) to El. 11 to El. 15 (lower) (El. 3.4 upper to El. 12 lower)	El. 16 to El. 18 (upper) to El. 4 to 5 (lower)

Based on the measured water levels summarized above and our understanding of the proposed FFEs for structures on the Upper and Lower Lots, we offer the following:

- Upper Lot:
  - Water levels could be 1 to 11 ft (approximate) above the FFE within the upper half of the site.
  - Water levels could be 5 to 13 ft (approximate) below the FFE within the lower half of the site.

- Lower Lot:
  - Water levels could be up to 12 ft (approximate) above the FFE within the upper half of the site.
  - Water levels could be in excess of 3 ft below the FFE within the lower half of the site.

Based on the water level readings measured in observation well HA15-4(OW) (adjacent to Commercial Street) it appears that the static water levels measured are not influenced by tidal fluctuations in the nearby Fore River.

In general, water levels may fluctuate with season, precipitation, local soil/bedrock conditions, excavation means and methods, temperature and tidal conditions. Therefore, water levels may vary from those summarized above, provided on the testing boring logs included in Appendix A and shown on Figures 2, 3 and 7.

Geotechnical Laboratory Testing

A geotechnical laboratory testing program was undertaken on representative soil samples collected during the 2016 subsurface exploration program to aid in soil classification and evaluation of reuse potential. The laboratory testing program consisted of 16 grain size analyses. All laboratory testing was performed in accordance with applicable American Society for Testing Materials (ASTM) testing procedures by GeoTesting Express of Acton, Massachusetts.

A summary of laboratory testing is summarized below and actual laboratory test results are provided in Appendix B.

Soil Unit	No. of Tests	Generalized Descriptions
Fill	6	clayey SAND with gravel, silty SAND with gravel, GRAVEL with silt and sand
Marine Deposit	10	CLAY with varying amounts of sand and gravel, sandy SILT, clayey SAND with gravel, silty SAND with varying amounts of gravel

Impacts of Subsurface Conditions on Proposed Development

Based on the subsurface conditions encountered in the 1985/1987 and 2015 and 2016 test borings completed by Haley & Aldrich and our current understanding of the project, we have the following general geotechnical "observations" regarding future development of the Upper (Portland Square) and Lower (Fore Street) Lots.

Please refer to Figures 4 and 5, Subsurface Profiles, for a graphical representation of the soil conditions across the site. Proposed building ground floor slab levels are shown on the profiles along with proposed finish floor elevations and anticipated bottom of excavation needed to construct the building foundation systems.

- Due to the historic presence of structures on each site, as shown on the historic Sanborn maps included in Appendix D, and layers of concrete and wood and miscellaneous debris encountered within the man-placed fill soils during our due diligence and preliminary phase subsurface investigations, it is likely that demolition debris and/or abandoned building foundations or other obstructions will be encountered during construction (excavation and foundation installation/construction). These potential obstructions may include, but are not limited to granite blocks, wood piles, concrete slabs, railroad rails, footings, pile caps, foundation walls and grade beams.

- Based on the elevation of the top of bedrock as compared to the planned finish floor elevation of the lowest floor slabs, we anticipate that up to approximately 13 ft of rock removal will be required in the upper portion of the Upper Lot to construct the building foundations and lowest level floor slab. We do not anticipate rock removal to be needed to construct the building foundations and lowest level floor slab in the lower portion of the Upper Lot or in the Lower Lot.

- Due to the proximity of the water table to the planned finish floor elevation of the lowest floor slab in the upper portion of both the Upper and Lower Lots, we anticipate that either a foundation drainage system or a membrane waterproofing system will be need to protect the below grade portions of the buildings from water infiltration and would be designed to resist hydrostatic pressures. The foundation drainage system would likely consist of a network of perimeter and underslab drains that ideally would connect by gravity to an existing or proposed storm drain system at the site. The membrane waterproofing system would likely be needed on the below grade portions of foundation walls and below slabs/mats. The feasibility of both options should be evaluated during the design phase of the project. The use of vapor barriers beneath the lowest level floor slab in residential and retail spaces will likely be needed.

- Due to the relatively shallow depth of the top of bedrock as compared to the planned finish floor elevation of the lowest floor slab, we estimate that structures occupying the upper one-half (approximate) of the Upper Lot could be supported by shallow, spread footing or mat foundations bearing on bedrock.

- Due to the presence and compressible nature of the man-placed fill and marine silt/clay soils present within some portions of the site, we estimate that structures occupying the lower one-half (approximate) of the Upper Lot and the entirety of the Lower Lot would likely need to be supported by deep foundations (i.e., driven piles or drilled shafts) or on shallow, spread footing foundations bearing in improved ground. Possible ground improvement technologies appropriate for the site and subsurface conditions are aggregate piers (APs), grouted aggregate piers (GAPs) and geo-concrete columns (GCCs). Additional evaluations are required to further explore the technical feasibility and cost of these systems. Depending on the magnitude of actual column loads, it may be possible to support some of the buildings on the lower portion of the Upper Lot on shallow footing or mat foundations. Detailed evaluations will be needed as well as interaction with the Structural Engineer to evaluate this.

- Considering that existing site grades will not be raised (except for Building 6), and in some cases lowered, we anticipate that the lowest level floor slab for most, if not all of the buildings could be designed and constructed as a soil-supported, slabs-on-grade.

- Based on the subsurface conditions present at the sites and the seismic requirements of the latest edition of the International Building Code (IBC), it is likely that buildings would have to be designed in accordance with a "Site Class D" classification. A more rigorous evaluation will be conducted during the design phase once the locations and FFE's of the buildings are finalized.

- Temporary support of excavation systems will be required to construct the below grade portions of the buildings on the upper portion of both the Upper and Lower Lots. Based on planned FFE's of the buildings and existing site grades we anticipate that a drilled-in soldier pile and lagging system with internal and/or external bracing will be the most cost effective system. Additional evaluations will be required during the design phase to determine the technical feasibility of different systems and their design requirements.

Please note that additional explorations and analyses should be conducted during future phases of the project to verify the accuracy of these observations as they relate to future site development plans.

Recommendations for Future Work

There are several items that require additional evaluation and consideration during the preliminary and final design, and contract document preparation phases of the project. These items are summarized below.

- Additional subsurface explorations within the Upper and Lower Lots may be required in order to:
  - Better define the top of bedrock surface for more accurate determination of quantities that will require removal during construction.

  - Determine the limits of where shallow foundations can be used to support the proposed structures and also to determine where building foundation bearing conditions and type will change.
  - Collect rock samples for laboratory testing and determination of engineering properties needed to design temporary lateral earth support systems and drilled shaft building foundations bearing in/on bedrock (especially if design column loads require the foundations to resist axial uplift and lateral forces)

- Evaluation of the use of ground improvement techniques and shallow, spread footing foundations in lieu of a deep foundation system across a portion of the proposed building footprints.

- Evaluations to determine final foundation support requirements for the buildings.

- Development of geotechnical specifications such as earthwork, rock removal/blasting (if used), temporary lateral earth support, dewatering, driven/drilled pile installation and testing (if used) and ground improvement (if used) will be required.

- Additional groundwater data is needed determine the most cost effective, technically feasible system to protect the below grade spaces.

- Evaluations to determine the most cost effective temporary support of excavation system for both the Upper and Lower Lots.

Limitations of Recommendations

This memorandum is prepared for the exclusive use of WSA relative to the Portland Square Development in Portland, Maine. There are no intended beneficiaries other than WSA. Haley & Aldrich shall owe no duty whatsoever to any other person or entity on account of the Agreement or the memorandum. Use of this memorandum by any person or entity other than of WSA for any purpose whatsoever is expressly forbidden unless such other person or entity obtains written authorization from WSA and from Haley & Aldrich. Use of this memorandum by such other person or entity without the written authorization WSA and Haley & Aldrich shall be at such other person's or entities sole risk, and shall be without legal exposure or liability to Haley & Aldrich.

Use of this memorandum by any person or entity, including by WSA, for a purpose other than relative to the Portland Square Development in Portland, Maine is expressly prohibited unless such person or entity obtains written authorization from Haley & Aldrich indicating that the memorandum is adequate for such other use. Use of this memorandum by any other person or entity for such other purpose without written authorization by Haley & Aldrich shall be at such person's or entities sole risk, and shall be without legal exposure or liability to Haley & Aldrich.

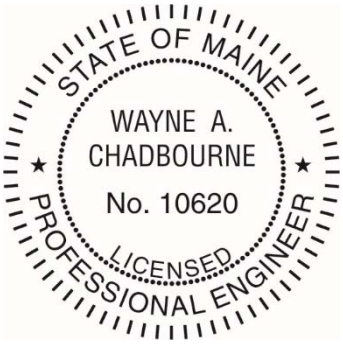
The information provided herein is based, in part, upon the data obtained from the referenced subsurface explorations. The nature and extent of variations between explorations may not become evident until construction. If variations then appear, it may be necessary to reevaluate the recommendations of this memorandum.

Closure

We greatly appreciate the opportunity to provide preliminary level geotechnical engineering consulting services on this project and trust this meets your present needs. We look forward to our continued association with you through preliminary and final design, construction document preparation, and construction. Please do not hesitate to contact us if you require additional information or have questions regarding any of the information provided herein.

Sincerely yours,
HALEY & ALDRICH, INC.

Bryan C. Steinert, P.E.
Project Manager



Wayne A. Chadbourne, P.E.
Senior Associate

Enclosures:

- Figure 1 – Project Locus
- Figure 2 – Site and Subsurface Exploration Location Plan Upper Lot
- Figure 3 – Site and Subsurface Exploration Location Plan Lower Lot
- Figure 4 – Subsurface Profiles A-A and B-B
- Figure 5 – Subsurface Profile C-C
- Figure 6 – Subsurface Profile Legend and Notes
- Figure 7 – Groundwater Level Monitoring Data
- Appendix A – Test Boring Logs
- Appendix B – Laboratory Test Results
- Appendix C – Observation Well Installation and Groundwater Monitoring Reports
- Appendix D – Historical Sanborn Maps
- Appendix E – Preliminary Conceptual Master Plans, Upper and Lower Lots

References

1. Report entitled, “Due Diligence Geotechnical Evaluation, Portland Square Development, Portland, Maine,” prepared by Haley & Aldrich, Inc. for Winton Scott Architects, dated 25 September 2016.

2. Report entitled, “Subsurface and Foundation Investigation, Proposed Two Portland Square, Portland, Maine,” prepared by Haley & Aldrich, Inc. for Portland Square Limited Partnership, dated July 1989.

3. Report entitled, “Supplemental Oil and Hazardous Material Site Evaluation, Fore Street Parking Lot, Portland, Maine,” prepared by Haley & Aldrich, Inc. for Portland Square Limited Partnership, dated December 1989.

4. Report entitled, “Supplemental Oil and Hazardous Material Site Evaluation, Portland Square Parking Lot, Portland, Maine,” prepared by Haley & Aldrich, Inc. for Portland Square Limited Partnership, dated December 1989.

5. Report entitled, “Proposed Site Development, Porteous Warehouse Project, The Finch Group, Inc., Portland, Maine,” prepared by Haley & Aldrich, Inc. for HTA/Oest Associates, Inc., dated 6 May 1986.

6. Report entitled, “Report of Preliminary Soil and Foundation Investigation, Proposed Canal National Bank Development, Portland, Maine,” prepared by Haley & Aldrich, Inc. for Stahl Associates, dated 25 May 1971.

TABLE I
Exploration Subsurface Data
Portland Square Development
Portland, Maine

Haley & Aldrich, Inc. File No.: 32328-111

	Test Boring No.[1]	Ground Surface Elevation[2,3]	Approximate Strata Thickness[4,5,6] (ft)					Approximate Elevation of Top of Bedrock[2,3,57]	Approximate Elevation of Bottom of Exploration[2,3]
			Topsoil/ Bituminous Concrete/Fill	Marine Deposit		Glacial Till	Weathered Bedrock		
				Silt/Clay	Sand/Gravel				
UPPER LOT	HA15-1(OW)	49.5	7.2	5.8	NE	1.1	NE	35.4	31.0
	HA16-1	49.0	4.7	9.3	NE	5.5	3.3	29.5	19.0
	HA16-2	46.0	8.5	6.0	NE	NE	4.2	31.5	20.0
	HA16-3	44.5	2.3	5.7	2.3	NE	3.2	34.2	26.2
	HA16-4	42.0	4.5	4.5	4.5	NE	3.5	28.5	19.0
	HA16-5	40.0	5.0	NE	9.9	NE	0.1	25.1	25.0
	HA16-6	39.0	6.5	NE	8.3	NE	0.2	24.2	17.5
	HA16-7	31.5	2.1	1.2	14.5	NE	6.5	13.7	2.5
	HA16-8	32.5	5.0	NE	11.7	7.3	1.0	8.5	1.5
	HA16-9	32.5	3.8	9.7	10.5	NE	2.7	8.5	5.8
LOWER LOT	HA15-2(OW)	29.0	9.2	13.2	1.6	4.6	NE	0.4	-0.9
	HA15-3(OW)	26.5	14.5	NE	12.5	1.9	0.3	-2.7	-3.8
	HA15-4(OW)	11.5	18.0	NE	NE	8.4	0.4	-15.3	-16.8
	HA16-10	25.5	21.0	NE	13.0	NE	4.5	-8.5	-17.7
	HA16-11	19.5	24.0	NE	11.5	NE	--	--	-16.0
	HA16-12	20.0	19.0	NE	9.0	NE	> 2.0	-8.0	-10.0
	HA16-13	22.5	12.3	4.9	NE	1.1	1.7	4.2	-2.5
	HA16-14	14.0	19.5	4.0	3.1	NE	8.4	-12.6	-25.7
	HA16-15	15.5	20.7	2.8	NE	NE	6.5	-8.0	-19.5
	HA16-16	17.0	17.7	NE	NE	NE	> 2.3	-0.7	-3.0
	HA16-17	11.0	18.0	NE	7.7	NE	3.3	-14.7	-23.0
	HA16-18	12.0	20.3	NE	NE	NE	4.7	-8.3	-18.0

Notes:

[1] Test boring locations are shown on Figures 2 and 3, Site and Subsurface Exploration Location Plans.

[2] Ground surface elevations were determined by Haley & Aldrich, Inc. by interpolating between existing topographic contour information.

[3] Elevations are measured in feet and reference Portland City Datum.

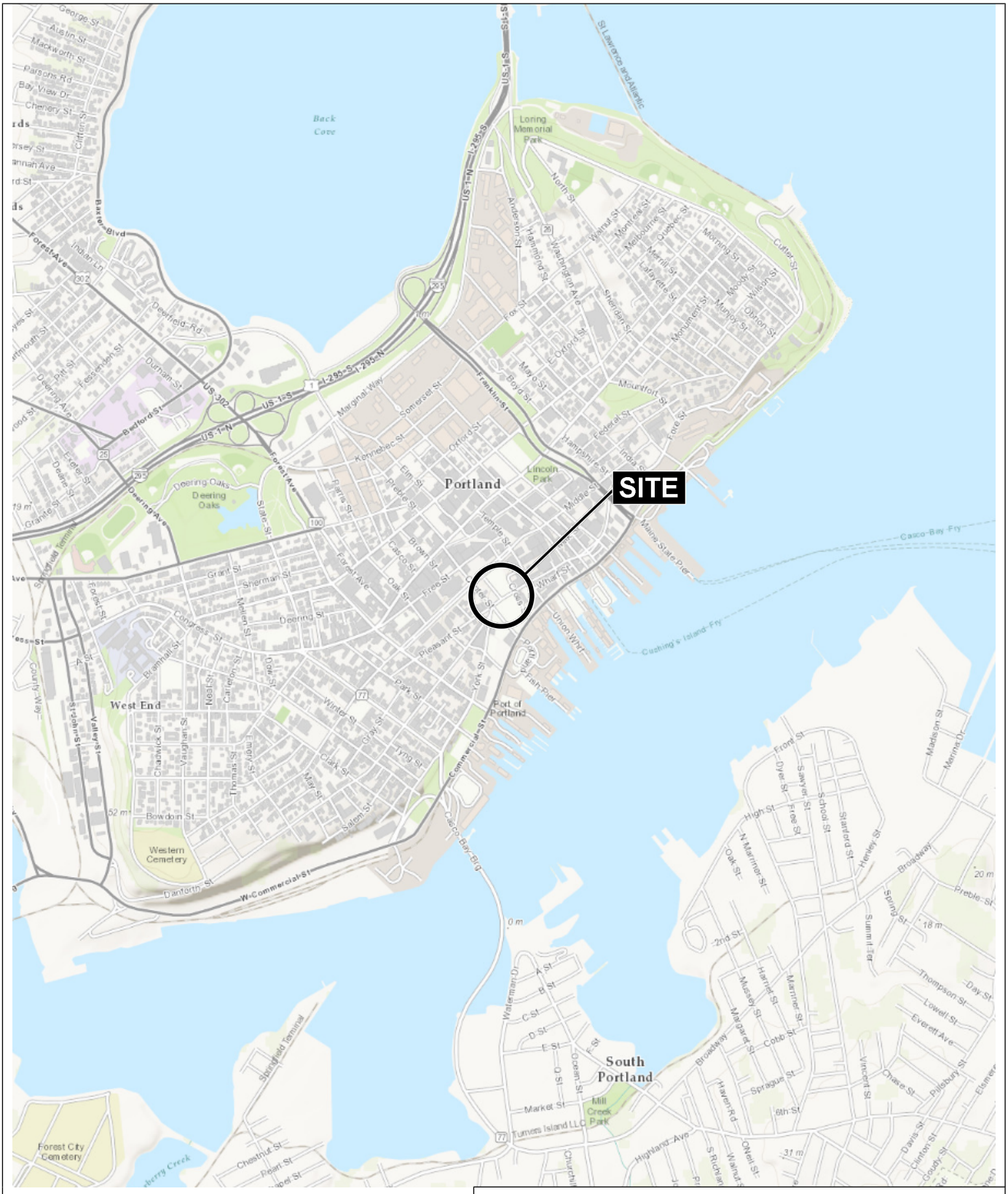
[4] "NE" indicates stratum was not encountered in test boring.

[5] "--" indicates test boring was not drilled deep enough to determine presence of stratum.

[6] "> 2.0" indicates test boring was not drilled deep enough to determine full thickness of stratum, which is greater than the value shown.

[7] Top of bedrock in test borings HA15-1(OW) through HA15-4(OW), HA16-5, HA16-9 and HA16-16 determined based on drill action and observation of wash water contents, coring/sampling not conducted.

	Individual	Date
Prepared By:	KAR	12/12/2016
Checked By:	BCS	12/21/2016
Reviewed By:	WAC	12/23/2016



MAP SOURCE: ESRI

SITE COORDINATES: 43°39'19"N, 70°15'23"W



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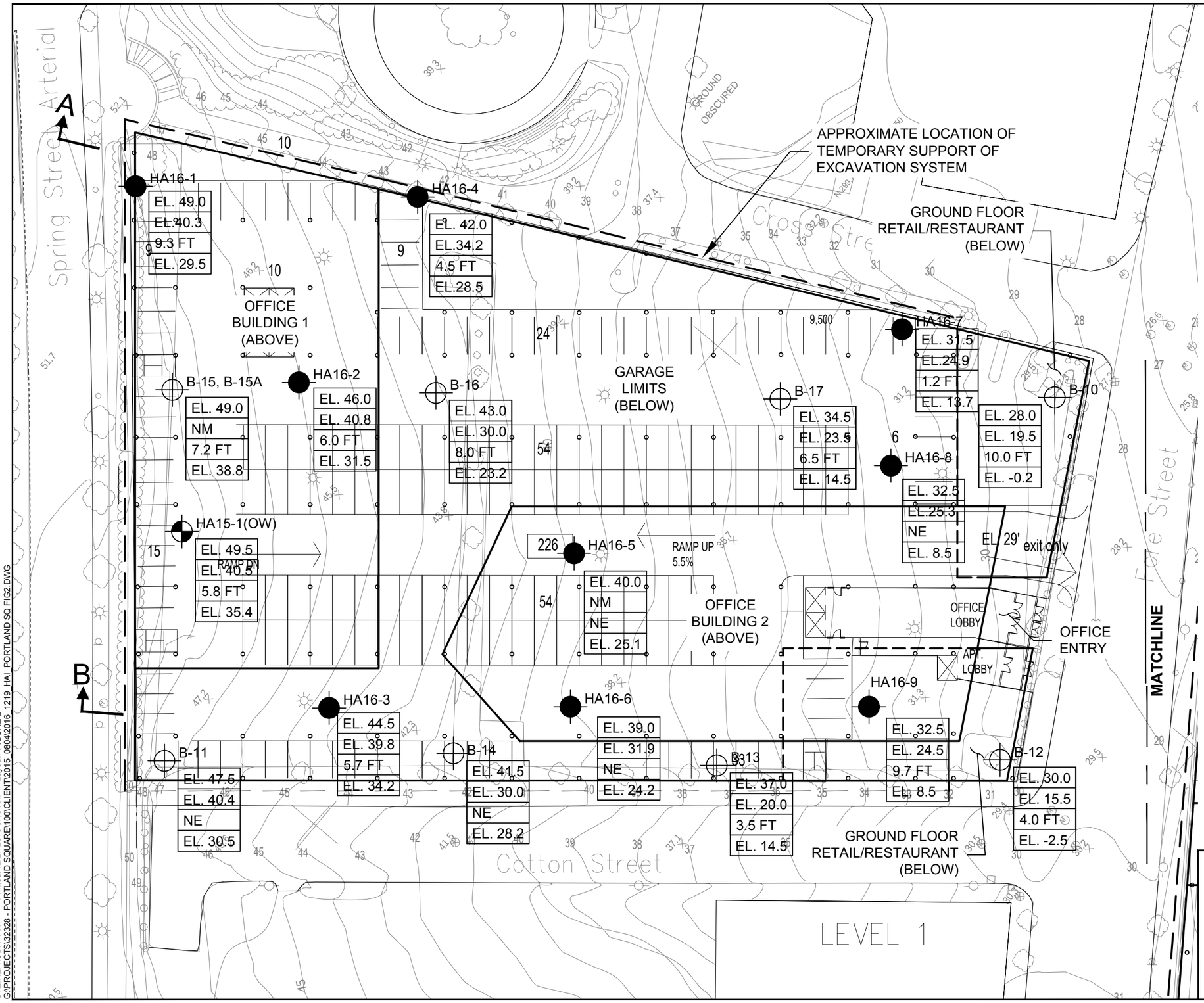
PRELIMINARY GEOTECHNICAL EVALUATION
PORTLAND SQUARE DEVELOPMENT
PORTLAND, MAINE

PROJECT LOCUS

APPROXIMATE SCALE: 1 IN = 2000 FT
DECEMBER 2016

FIGURE 1

32328-100_1_LOCUS.PDF



LEGEND

HA16-1	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS OF LONDONDERRY, NEW HAMPSHIRE DURING THE PERIOD 3-17 OCTOBER 2016 UNDER THE DIRECTION OF HALEY & ALDRICH
HA15-1	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS OF HERMON, MAINE DURING THE PERIOD 10-12 AUGUST 2015 UNDER THE DIRECTION OF HALEY & ALDRICH
B-10	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NORTHEAST DIAMOND DRILLING COMPANY, INC. OF UNION, MAINE OR MAINE TEST BORINGS, INC. OF BREWER, MAINE ON 22 NOVEMBER 1985 AND 7-8 JULY AND 10 SEPTEMBER 1987.
(OW)	DENOTES OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE
NE	DENOTES STRATA NOT ENCOUNTERED
NM	DENOTES WATER LEVEL NOT MEASURED
EL. 49.5	APPROXIMATE GROUND SURFACE ELEVATION
EL. 40.4	APPROXIMATE WATER ELEVATION
5.8 FT	APPROXIMATE MARINE SILT/CLAY THICKNESS
EL. 30.5	APPROXIMATE TOP OF WEATHERED BEDROCK OR BEDROCK ELEVATION, WHICHEVER IS HIGHER
A A	DESIGNATION, LOCATION AND ORIENTATION OF SUBSURFACE PROFILE

NOTES

1. EXISTING SITE CONDITIONS, CONTOURS OF EXISTING GROUND SURFACE ELEVATIONS AND THE LOCATION AND ORIENTATION OF EXISTING AND PROPOSED SITE FEATURES ARE TAKEN FROM THE ELECTRONIC AUTOCAD FILE ENTITLED, "S1.1 L2 and L3.dwg." PROVIDED TO HALEY & ALDRICH, INC. BY WINTON SCOTT ARCHITECTS ON 4 AUGUST 2015.
2. THE PLAN LOCATION OF HISTORIC SUBSURFACE EXPLORATIONS IS APPROXIMATE AND WAS DETERMINED BY OVERLAYING HISTORIC TEST BORING LOCATION PLANS ON TO THE EXISTING CONDITIONS PLAN AND SHOULD BE CONSIDERED APPROXIMATE.
3. 2015 AND 2016 TEST BORING LOCATIONS SHOWN ARE APPROXIMATE AND WERE ESTIMATED BY HALEY & ALDRICH BY TAPING/PACING DISTANCES FROM EXISTING SITE FEATURES.
4. LIMITS AND PLAN LOCATION OF PROPOSED STRUCTURES TAKEN FROM PRELIMINARY CONCEPTUAL MASTER PLANS PROPOSED BY WINTON SCOTT ARCHITECTS DATED 21 AUGUST 2016 (SEE APPENDIX E).

N

0 40 80
SCALE IN FEET

HALEY ALDRICH

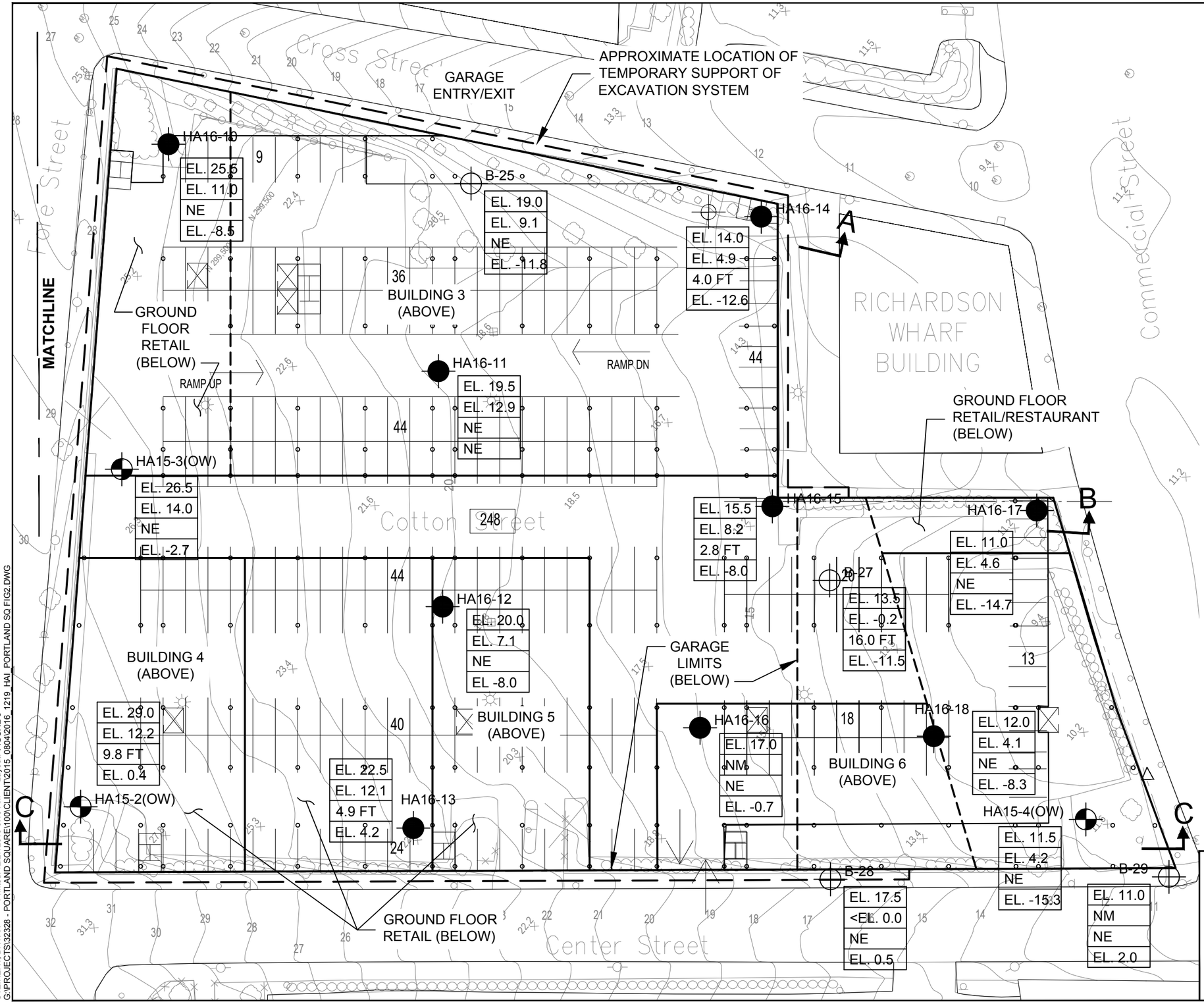
PRELIMINARY GEOTECHNICAL EVALUATION
PORTLAND SQUARE DEVELOPMENT
PORTLAND, MAINE

SITE AND SUBSURFACE EXPLORATION LOCATION PLAN UPPER LOT

SCALE: AS SHOWN
DECEMBER 2016

FIGURE 2

STEINERT, BRYAN Printed: 12/27/2016 9:15 AM Layout: FIGURE 2
G:\PROJECTS\32328 - PORTLAND SQUARE\100\CLIENT\2015_0804\2016_1219_HAI_PORTLAND SQ FIG2.DWG



LEGEND

HA16-1	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS OF LONDONDERRY, NEW HAMPSHIRE DURING THE PERIOD 3-17 OCTOBER 2016 UNDER THE DIRECTION OF HALEY & ALDRICH
HA15-1	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NEW ENGLAND BORING CONTRACTORS OF HERMON, MAINE DURING THE PERIOD 10-12 AUGUST 2015 UNDER THE DIRECTION OF HALEY & ALDRICH
B-10	DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED BY NORTHEAST DIAMOND DRILLING COMPANY, INC. OF UNION, MAINE OR MAINE TEST BORINGS, INC. OF BREWER, MAINE ON 22 NOVEMBER 1985 AND 7-8 JULY AND 10 SEPTEMBER 1987.
(OW)	DENOTES OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE
NE	DENOTES STRATA NOT ENCOUNTERED
NM	DENOTES WATER LEVEL NOT MEASURED
EL. 49.5	APPROXIMATE GROUND SURFACE ELEVATION
EL. 40.4	APPROXIMATE WATER ELEVATION
5.8 FT	APPROXIMATE MARINE SILT/CLAY THICKNESS
EL. 30.5	APPROXIMATE TOP OF WEATHERED BEDROCK OR BEDROCK ELEVATION, WHICHEVER IS HIGHER
A A	DESIGNATION, LOCATION AND ORIENTATION OF SUBSURFACE PROFILE

NOTES

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2. THE PLAN LOCATION OF HISTORIC SUBSURFACE EXPLORATIONS IS APPROXIMATE AND WAS DETERMINED BY OVERLAYING HISTORIC TEST BORING LOCATION PLANS ON TO THE EXISTING CONDITIONS PLAN AND SHOULD BE CONSIDERED APPROXIMATE.
3. 2015 AND 2016 TEST BORING LOCATIONS SHOWN ARE APPROXIMATE AND WERE ESTIMATED BY HALEY & ALDRICH BY TAPING/PACING DISTANCES FROM EXISTING SITE FEATURES.
4. LIMITS AND PLAN LOCATION OF PROPOSED STRUCTURES TAKEN FROM PRELIMINARY CONCEPTUAL MASTER PLANS PROPOSED BY WINTON SCOTT ARCHITECTS DATED 21 AUGUST 2016 (SEE APPENDIX E).

N

0 40 80
SCALE IN FEET

HALEY ALDRICH

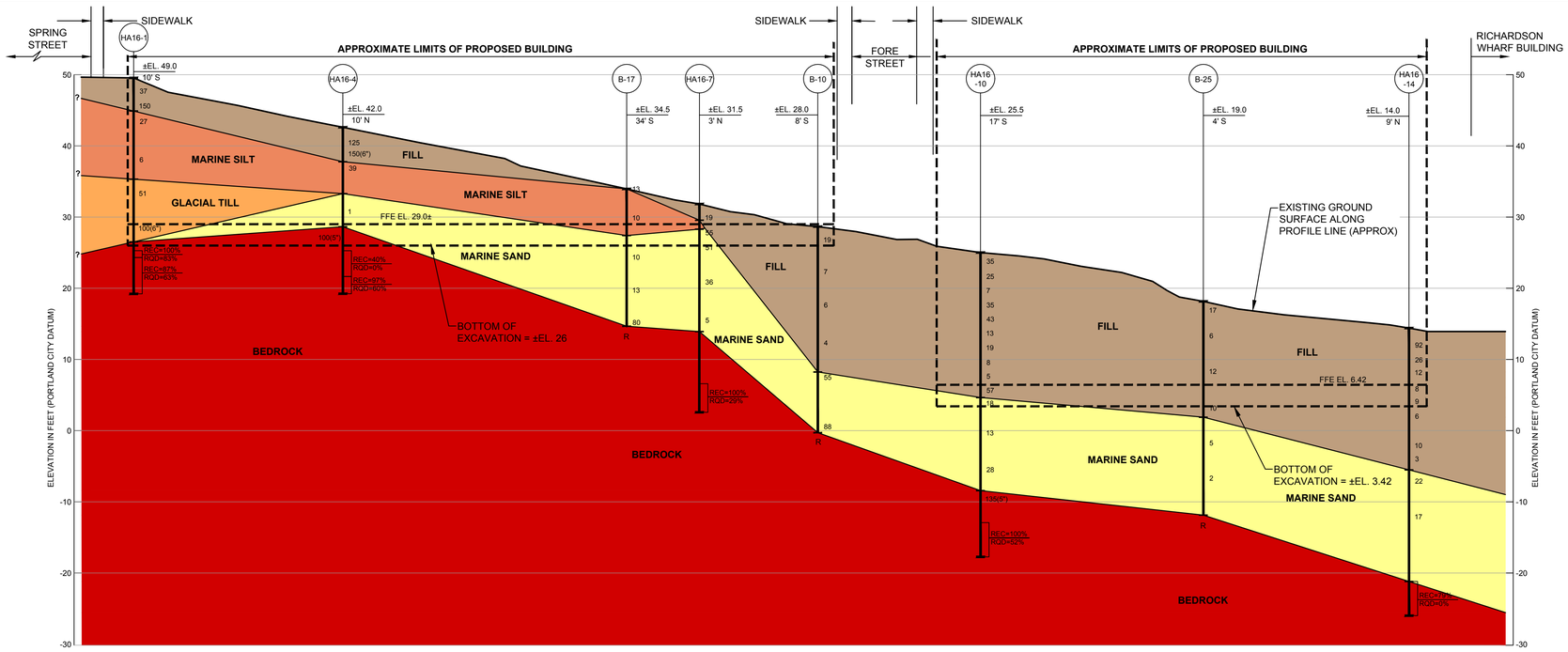
PRELIMINARY GEOTECHNICAL EVALUATION
PORTLAND SQUARE DEVELOPMENT
PORTLAND, MAINE

SITE AND SUBSURFACE EXPLORATION LOCATION PLAN LOWER LOT

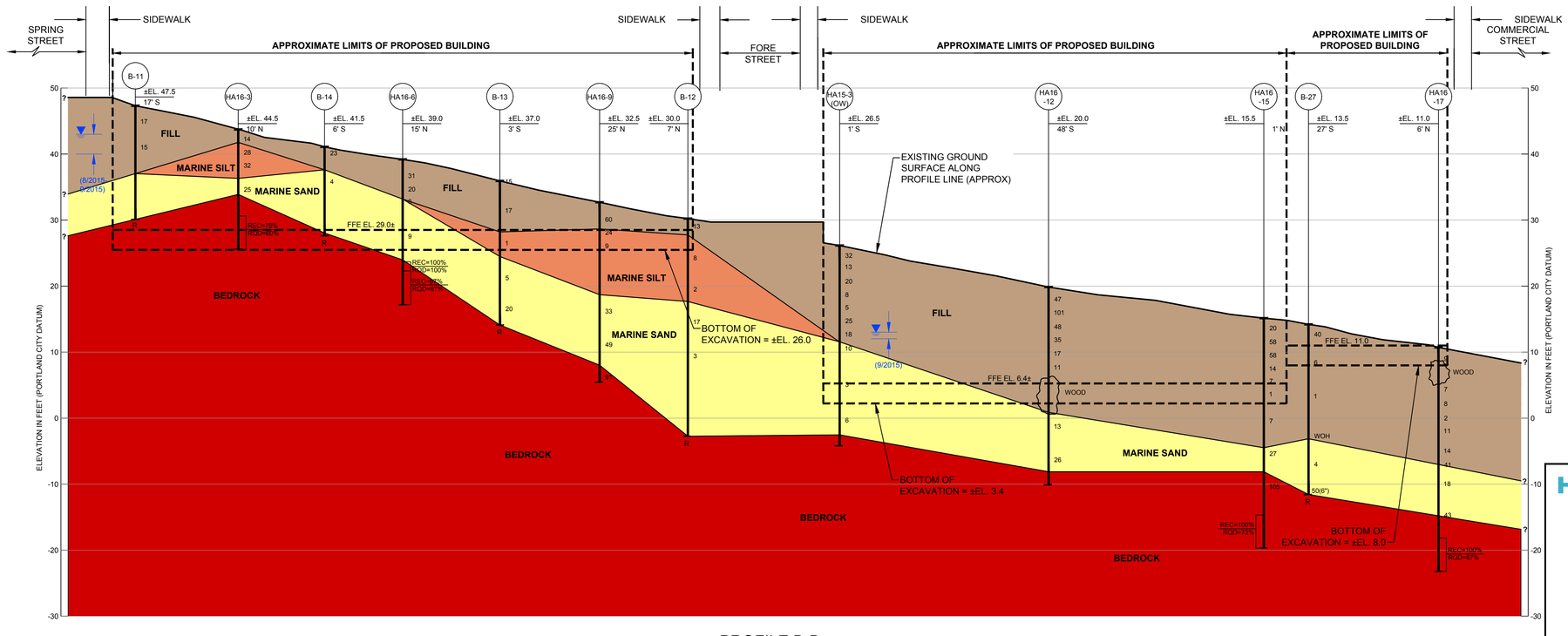
SCALE: AS SHOWN
DECEMBER 2016

FIGURE 3

STEINERT, BRYAN Printed: 12/27/2016 9:16 AM Layout: FIGURE 3
G:\PROJECTS\32328 - PORTLAND SQUARE\100\CLIENT\2015_0804\2016_1219_HAL_PORTLAND SQ FIG2.DWG



PROFILE A-A



PROFILE B-B

NOTES:

1. SEE FIGURES 2 AND 3 FOR PLAN LOCATION OF EXPLORATIONS SHOWN ON PROFILE AND FOR LOCATION / ORIENTATION OF SUBSURFACE PROFILE.
2. SEE FIGURE 6 FOR SUBSURFACE PROFILE LEGEND AND NOTES.
3. LIMITS AND PLAN LOCATION OF PROPOSED STRUCTURES TAKEN FROM PRELIMINARY CONCEPTUAL MASTER PLANS PREPARED BY WINTON SCOTT ARCHITECTS DATED 21 AUGUST 2016 (SEE APPENDIX E).

HORIZ. 0 40 80 120 160
VERT. 0 10 20 30 40
SCALE IN FEET

HALEY ALDRICH

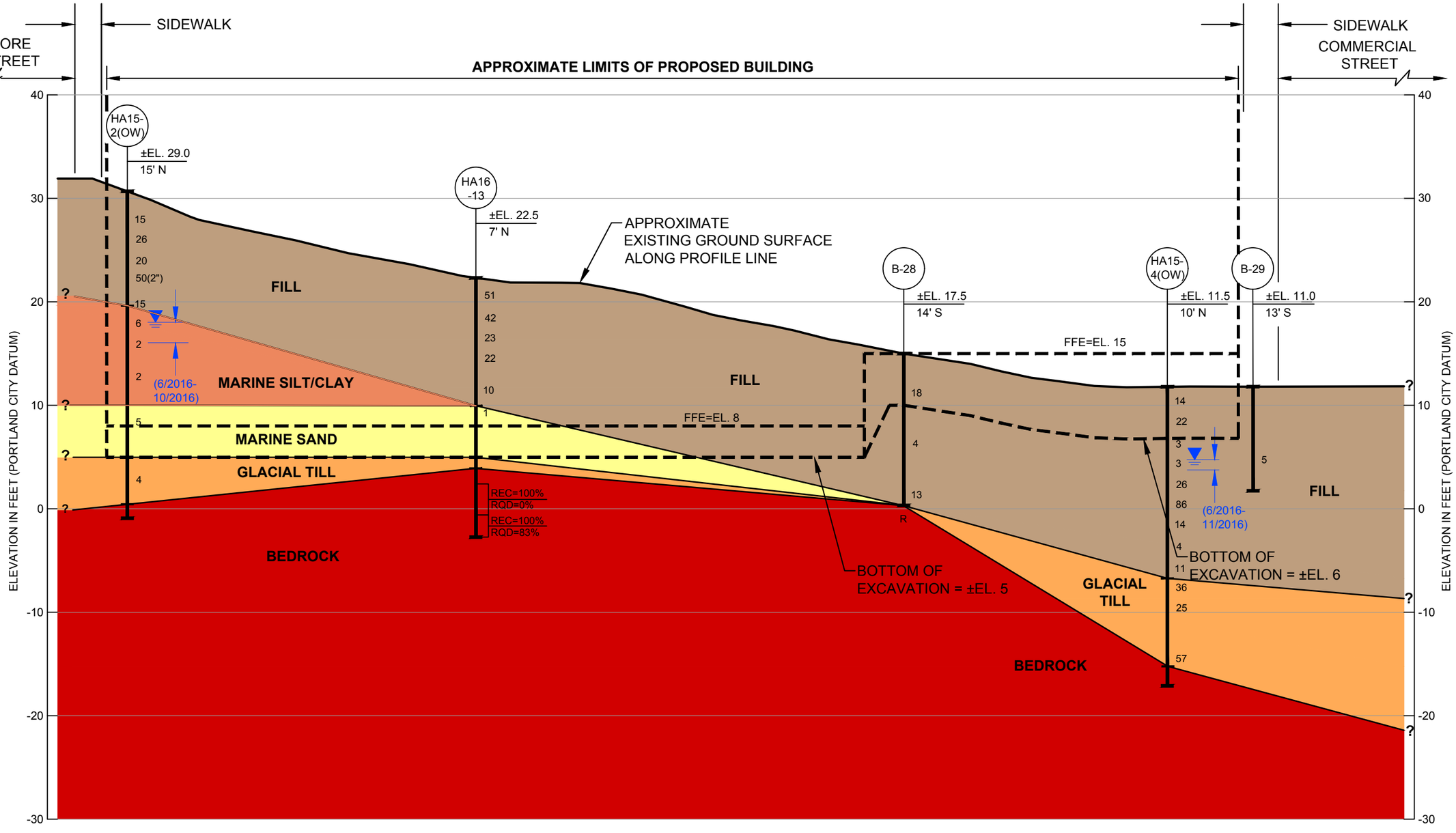
PRELIMINARY GEOTECHNICAL EVALUATION
PORTLAND SQUARE DEVELOPMENT
PORTLAND, MAINE

SUBSURFACE PROFILES A-A AND B-B

SCALE: AS SHOWN
DECEMBER 2016

FIGURE 4

STACEY, MICHELLE Printed: 12/23/2016 4:21 PM Layout: SECTION A-A AND B-B
G:\PROJECTS\32328 - PORTLAND SQUARE\GLOBAL\CAD\32328-111 SECTIONS 20161221.DWG



NOTES:

1. SEE FIGURE 3 FOR PLAN LOCATION OF EXPLORATIONS SHOWN ON PROFILE AND FOR LOCATION / ORIENTATION OF SUBSURFACE PROFILE.
2. SEE FIGURE 6 FOR SUBSURFACE PROFILE LEGEND AND NOTES.
3. LIMITS AND PLAN LOCATION OF PROPOSED STRUCTURES TAKEN FROM PRELIMINARY CONCEPTUAL MASTER PLANS PREPARED BY WINTON SCOTT ARCHITECTS DATED 21 AUGUST 2016 (SEE APPENDIX E).

HORIZ. 0 40 80
VERT. 0 10 20
SCALE IN FEET

HALEY ALDRICH

PRELIMINARY GEOTECHNICAL EVALUATION
PORTLAND SQUARE DEVELOPMENT
PORTLAND, MAINE

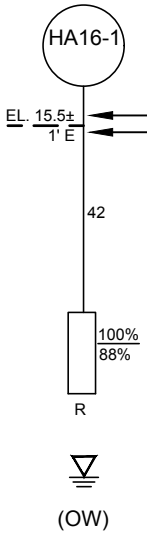
SUBSURFACE PROFILE C-C

SCALE: AS SHOWN
DECEMBER 2016

FIGURE 5

STACEY, MICHELLE Printed: 12/23/2016 4:14 PM Layout: SECTION C-C
G:\PROJECTS\32328 - PORTLAND SQUARE\GLOBAL\CAD\32328-111 SECTIONS 2016-1221.DWG

LEGEND:



DESIGNATION AND APPROXIMATE LOCATION OF TEST BORING DRILLED UNDER THE DIRECTION OF HALEY & ALDRICH, INC. IN 1985, 1987, 2015 AND 2016

APPROXIMATE GROUND SURFACE ELEVATION AT TEST BORING LOCATION DETERMINED BY INTERPOLATING BETWEEN ELEVATION CONTOURS

APPROXIMATE PERPENDICULAR OFFSET DISTANCE AND DIRECTION MEASURED FROM THE SUBSURFACE PROFILE LINE

STANDARD PENETRATION TEST (SPT) N-VALUE (BLOWS PER FOOT); WOR = WEIGHT OF RODS; WOH = WEIGHT OF HAMMER

PERCENT RECOVERY
PERCENT ROCK QUALITY DESIGNATION (RQD)

DENOTES SPLIT-SPOON OR AUGER REFUSAL ENCOUNTERED, JUDGED TO BE BEDROCK

GROUNDWATER LEVEL MEASURED IN COMPLETED BOREHOLE OR OBSERVATION WELL ON DATE SPECIFIED

DENOTES OBSERVATION WELL INSTALLED IN COMPLETED BOREHOLE

NOTES:

1. SEE FIGURES 2 AND 3 FOR LOCATION AND ORIENTATION OF SUBSURFACE PROFILES.
2. EXISTING GROUND SURFACE ELEVATIONS AT TEST BORING LOCATIONS ARE APPROXIMATE AND WERE DETERMINED BY INTERPOLATION USING TOPOGRAPHIC CONTOUR INFORMATION PROVIDED BY WINTON SCOTT ARCHITECTS IN THE ELECTRONIC AUTOCAD FILE ENTITLED, "S1.1 L2 AND L3.dwg," ON 4 AUGUST 2015.
3. EXISTING AND PROPOSED SITE FEATURES AND CONTOURS OF EXISTING GROUND SURFACE ELEVATIONS ARE TAKEN FROM THE ELECTRONIC AUTOCAD FILE ENTITLED, "S1.1 L2 AND L3.dwg," PROVIDED BY WINTON SCOTT ARCHITECTS ON 4 AUGUST 2015.
4. LINES REPRESENTING CHANGES IN STRATA SHOWN ON THE SUBSURFACE PROFILES ARE BASED ON LINEAR INTERPOLATION BETWEEN SUBSURFACE EXPLORATIONS. THESE INTERPRETED STRATA LINES DO NOT REPRESENT ACTUAL FIELD CONDITIONS OTHER THAN AT SPECIFIC EXPLORATION LOCATIONS.
5. LOCATIONS OF THE 1958, 1987, 2015 AND 2016 TEST BORINGS ARE APPROXIMATE AND WERE DETERMINED IN THE FIELD BY TAPING/PACING DISTANCES FROM EXISTING SITE FEATURES.
6. ELEVATIONS ARE IN FEET AND REFERENCE PORTLAND CITY DATUM.
7. REFER TO APPENDIX A FOR LOGS OF THE 1985, 1987, 2015 AND 2016 TEST BORINGS COMPLETED UNDER THE DIRECTION OF HALEY & ALDRICH, INC.

HALEY ALDRICH

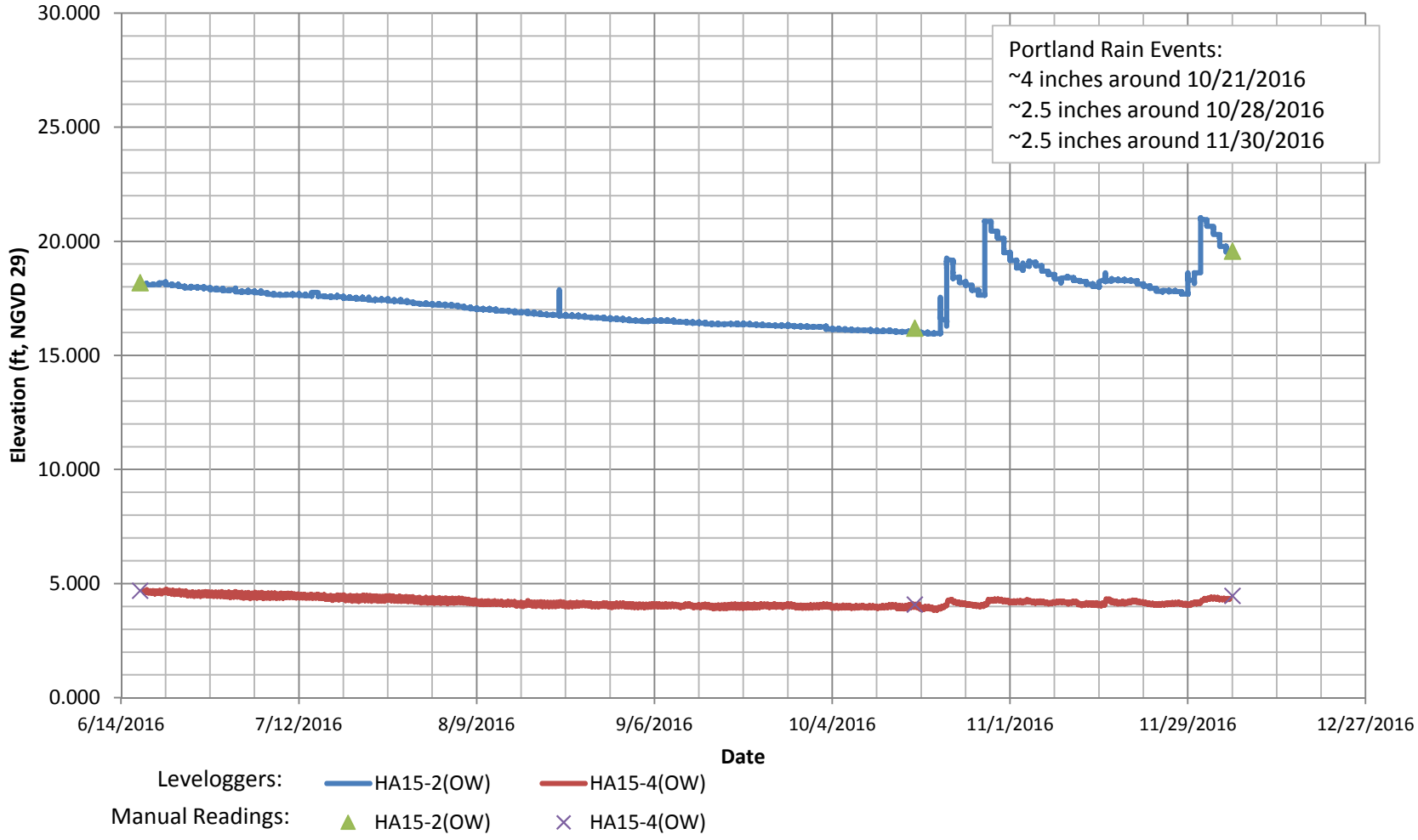
PRELIMINARY GEOTECHNICAL EVALUATION
PORTLAND SQUARE DEVELOPMENT
PORTLAND, MAINE

LEGEND AND NOTES

SCALE: AS SHOWN
DECEMBER 2016

FIGURE 6

STEINERT, BRYAN Printed: 12/23/2016 2:12 PM Layout: HA-FIG-A-P
G:\PROJECTS\32328 - PORTLAND SQUARE\GLOBAL\CAD\LEGEND AND NOTES.DWG



HALEY ALDRICH

PRELIMINARY GEOTECHNICAL EVALUATION
PORTLAND SQUARE DEVELOPMENT
PORTLAND, MAINE

OBSERVATION WELL MONITORING DATA
17 JUNE 2016 TO 5 DECEMBER 2016

FILE NO.: 32328-111 **FIGURE 7**

APPENDIX A

Test Boring Logs

2016 Haley & Aldrich, Inc.
Test Boring Logs

HALEY ALDRICH

TEST BORING REPORT

Boring No. HA16-1

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

File No.	32328-111
Sheet No.	1 of 3
Start	03 October 2016
Finish	03 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	49.0 +/-
Datum	Portland City
Location	See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 20.5 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3		-BITUMINOUS CONCRETE-										
	18 17 20 13	S1 12	1.0 3.0		SW	Dense brown to light brown well graded SAND with gravel (SW), mps 1.375 in., no odor, dry	5	10	20	35	30					
						-FILL-										
	11 100 50 10	S2 13	3.0 5.0	4.7	SW	Very dense light brown well graded SAND with gravel (SW), mps 1.375 in., no odor, moist, trace dark brown organic soil, contains glass fragments	10	5	20	35	25	5				
5	14 13 14 19	S3 13	5.0 7.0		ML	Very stiff olive-brown to gray SILT (ML), mps 1 mm, no odor, moist, mottled with occasional fine sand partings					10	90	S	L	L	L
						-MARINE DEPOSIT-										
10	4 4 2 1	S4 24	10.0 12.0		ML/SP	Medium stiff/loose olive-brown to gray interbedded SILT (ML) and poorly-graded SAND (SP), mps 0.5 in., no odor, wet				5	40	55	R	L	L	L
				14.0												
15	7 13 38 37	S5 6	15.0 17.0		SW	Very dense gray-brown well graded SAND with gravel (SW), mps 1.25 in., no odor, wet	10	15	25	25	20	5				
						-GLACIAL TILL-										
						Note: Drill action indicates stratum change at 19.5 ft.										
20				19.5												

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/3/16	11:50	-	20.5	30.0	8.75

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	24.0
Rock Cored (ft)	6.0
Samples	6S, 2C

Boring No. HA16-1

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-1
File No. 32328-111
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	100	S6 6	20.0 20.5		SM	Very dense olive-brown to gray silty SAND with gravel (SM), mps 0.75 in., no odor, wet, completely to highly weathered bedrock	5	15	25	20	15	20				
						-WEATHERED BEDROCK-										
				22.8		-BEDROCK-										
						Note: Advanced rollercone to 24.0 ft. Begin NX rock core at 24.0 ft.										
				24.0		SEE CORE BORING REPORT FOR ROCK DETAILS										
25																
30																

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-1

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. **HA16-1**
File No. 32328-111
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
25	1:35	C1	24.0 25.0	12 10	100 83	Fresh		Hard to moderately hard, fresh to slightly weathered, light gray, aphanitic to fine-grained PHYLLITE. Joints close to moderate. Primary joints moderately dipping. Secondary joints high angle to vertical, undulating, rough, slightly discolored to decomposed, tight to moderately wide, no infilling. Joints parallel to foliation.
	1:50	C2	25.0 30.0	52 38	87 63	Fresh to Moderate		Hard to moderately hard, fresh to slightly weathered, light gray, aphanitic to fine-grained PHYLLITE. Joints close to moderate. Primary joints moderately dipping. Secondary joints high angle to vertical, undulating, rough, slightly discolored to decomposed, tight to moderately wide, no infilling. Joints parallel to foliation.
	1:45							
	2:20							
	1:45							
	1:50							
30							30.0	BOTTOM OF EXPLORATION 30.0 FT
35								
40								
45								
50								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-2

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 18.7 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 3
Start	04 October 2016
Finish	04 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation Datum	46.0 +/- Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3		BITUMINOUS CONCRETE-										
	32 30 26 10	S1 3	1.0 3.0		SW	Very dense brown well graded SAND with gravel (SW), mps 1.375 in., no odor, dry, occasional 6 in. cobbles -FILL-	20	15	15	25	20	5				
				2.5												
	16 25 16 13	S2 3	3.0 5.0		SP	Dense tan poorly-graded SAND (SP), mps 0.5 in., no odor, dry -FILL-		5	5	20	70					
5 ▽	6 5 10 12	S3 10	5.0 7.0		SP	Medium dense tan poorly-graded SAND (SP), mps 0.5 in., no odor, dry, contains brick pieces		5	5	20	70					
				6.6												
	50/0	NR	7.0 7.0		SM	Medium dense dark brown silty SAND with gravel (SM), mps 1.375 in., no odor, wet, occasional cobble -FILL- Note: Split spoon refusal on probable cobble at 7.0 ft.	10	10	15	20	25	20				
				8.5												
10	20 18 17 12	S4 19	9.0 11.0		ML/SM	Dense olive-brown to yellow-brown and gray-brown interbedded SILT (ML) and silty SAND with gravel (SM) -MARINE DEPOSIT- Note: Drill action indicates change at 14.5 ft.	10	5	10	20	25	30				
				14.5												
15	70 83 84 44	S5 12	15.0 17.0		SM	Very dense olive-brown to gray-brown silty SAND with gravel (SM), mps 1 in., no odor, wet, completely weathered bedrock -WEATHERED BEDROCK-	5	15	25	20	15	20				
				18.7												
20						Note: Advanced rollercone to 20.0 ft. Split spoon refusal at 20.0 ft. -BEDROCK-										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/4/16	12:45	-	18.7	26.0	5.2

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	21.0
Rock Cored (ft)	5.0
Samples	5S, 1C

Boring No. HA16-2

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-2
File No. 32328-111
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	50/0	NR	20.0 20.0	21.0		Note: Advanced rollercone to 21.0 ft. Begin NX rock core at 21.0 ft.										
						SEE CORE BORING REPORT FOR ROCK DETAILS										
25																

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-2

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA16-2
File No. 32328-111
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
25	1:50 1:55 1:45 1:35 2:10	C1	21.0 26.0	60 46	100 77	Fresh		Hard to moderately hard, fresh, light gray, aphanitic to fine-grained PHYLLITE. Joints very close to close, low angle to moderately dipping, planar to undulating, rough, fresh to slightly discolored, open to moderately wide, no infilling.
							26.0	BOTTOM OF EXPLORATION 26.0 FT
30								
35								
40								
45								
50								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-3

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 11.0 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 2
Start	04 October 2016
Finish	05 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	44.5 +/-
Datum	Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3		-BITUMINOUS CONCRETE-										
	6 5 9 11	S1 21	1.0 3.0		SW	Medium dense brown well graded SAND (SW), mps 1.25 in., no odor, dry	15	10	20	30	25					
				1.7	OL	-FILL-					10	90				
				2.3		Medium dense dark brown ORGANIC SOIL (OL), mps <1 mm, no odor, moist										
	9 13 15 17	S2 16	3.0 5.0		ML	-FILL-				5	10	85	S	L	L	L
						Very stiff gray-brown to olive-brown SILT (ML), mps 2 mm, no odor, moist, mottled										
5						-MARINE DEPOSIT-										
	17 16 16 14	S3 13	5.0 7.0		ML	Hard olive-brown to gray-brown SILT (ML), mps 2 mm, no odor, moist, occasional fine sand partings				5	15	80	S	L	L	L
				8.0												
	18 8 17 50/0"	S4 15	9.0 10.5		SM	Medium dense olive-gray silty SAND (SM), mps 0.75 in.		5	20	20	25	30				
10						-MARINE DEPOSIT-										
				10.3		Note: Split spoon refusal at 10.3 ft on moderately weathered bedrock.										
						-WEATHERED BEDROCK-										
						Note: Advanced rollercone to 13.5 ft. Begin NX rock core at 13.5 ft.										
				13.5		SEE CORE BORING REPORT FOR ROCK DETAILS										
15																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/5/16	9:40	-	11.0	18.3	3.5
10/5/16	9:50	-	Open	18.3	4.7

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	13.5
Rock Cored (ft)	4.8
Samples	4S, 1C

Boring No. HA16-3

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA16-3
File No. 32328-111
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
15	3:05 3:15 4:05 7:10 7:00/10"	C1	13.5 18.3	57 35	98 60	Fresh		Hard to moderately hard, fresh to slightly weathered, light gray, aphanitic to fine-grained PHYLLITE. Joints very close to moderate, moderately dipping to vertical, undulating, rough, fresh to slightly discolored, open to moderately wide, no infilling.
							18.3	BOTTOM OF EXPLORATION 18.3 FT
20								
25								
30								
35								
40								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HA_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-4

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 15.0 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 2
Start	03 October 2016
Finish	04 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation Datum	42.0 +/- Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3		-BITUMINOUS CONCRETE-										
	18 54 71 30	S1 8	1.0 3.0		SW	Very dense brown well graded SAND with gravel (SW), mps 1.375 in., no odor, dry, with occasional cobbles -FILL-	15	10	20	25	30					
	100 50/0	S2 6	3.0 3.5		SW	Very dense brown to light brown well graded SAND with gravel (SW), mps 1.375 in., no odor, dry, with occasional cobble Note: Wash through cobble, stratum change at 4.5 ft.	20	10	20	25	25					
5	13 16 23 32	S3 24	5.0 7.0	4.5	ML	Hard olive-brown to light brown SILT (ML), mps 2 mm, no odor, moist, mottled, possibly reworked -MARINE DEPOSIT-			5	5	10	80	S	L	L	L
				9.0												
10	1 WOH 1 WOH	S4 24	10.0 12.0		SM	Very loose olive-gray silty SAND (SM), mps 1 in., no odor, wet -MARINE DEPOSIT- Note: Drill action indicates stratum change at 13.5 ft.	5	5	10	25	30	25				
				13.5												
15	100/5'	S5 5	15.0 15.4		GM	Very dense olive-brown to gray silty GRAVEL (GM), mps 1.375 in., no odor, wet, completely to highly weathered bedrock. -WEATHERED BEDROCK- Note: Advanced rollercone to 17.0 ft. Begin NX rock core at 17.0 ft.										
				17.0		SEE CORE BORING REPORT FOR ROCK DETAILS										
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/4/16	8:55	-	15.0	23.0	5.9
10/4/16	9:05	-	Open	23.0	7.8

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	17.0
Rock Cored (ft)	6.0
Samples	5S, 2C

Boring No. HA16-4

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA16-4
File No. 32328-111
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
	1:10	C1	17.0	17	40	Fresh		Hard to moderately hard, fresh to slightly weathered, light gray, aphanitic to fine-grained PHYLLITE. Highly fractured zone. Note: Very poor recovery and RQD.
	2:20		20.5	0	0			
	1:55							
20	2:10/6"							
	2:10	C2	20.5	29	97	Fresh		
	2:45		23.0	18	60			Hard to moderately hard, fresh to slightly weathered, light gray, aphanitic to fine-grained PHYLLITE. Joints close to moderate, low angle to moderately dipping, undulating, rough, fresh to slightly discolored, tight to open, no infilling. Joints parallel to foliation. Very poor RQD.
	1:50/6"							
							23.0	BOTTOM OF EXPLORATION 23.0 FT
25								
30								
35								
40								
45								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-5

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

File No.	32328-111
Sheet No.	1 of 1
Start	05 October 2016
Finish	05 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	40.0 +/-
Datum	Portland City
Location	See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	--	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	--	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 14.7 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
						Dense brown well graded SAND with gravel (SW), mps 1 in., no odor, dry	10	10	20	35	25					
	15 15 24 25	S1 14	1.0 3.0	1.6	SM	-FILL-										
						Dense dark brown to brown silty SAND with gravel (SM), mps 1.375 in., no odor, dry to moist, with brick pieces	20	10	10	15	25	20				
	46 38 30 32	S2 14	3.0 5.0		SM	-FILL-										
						Very dense olive-brown silty SAND with gravel (SM), mps 1.25 in., slight musty odor, moist, possibly reworked naturally-deposited soil	10	10	15	20	30	15				
						-FILL-										
5	43 46 38 23	S3 11	5.0 7.0	5.0	SM	Very dense olive-brown silty SAND with gravel (SM), mps 1.375 in., strong musty odor, moist	10	10	15	20	30	15				
						-MARINE DEPOSIT-										
						Note: Drill action indicates stratum change at 8.5 ft.										
				8.5												
10	7 5 6 6	S4 20	10.0 12.0		SM	Medium dense gray-brown silty SAND with gravel (SM), mps 1.375 in., no odor, wet	10	10	15	20	30	15				
						-MARINE DEPOSIT-										
15				14.9		Note: Casing refusal at 14.9 ft. Advanced rollercone to 15.0 ft; slightly weathered bedrock chips in wash water return.										
				15.0		BOTTOM OF EXPLORATION 15.0 FT										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/5/16	14:30	--	Open	Caved @14.5	0.6
		Water level dropping slowly			

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	15.0
Rock Cored (ft)	0.0
Samples	4S

Boring No. HA16-5

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Plasticity**: N - Nonplastic L - Low M - Medium H - High
Toughness: L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-6

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 14.8 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 2
Start	05 October 2016
Finish	05 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	39.0 +/-
Datum	Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	18 21 10 7	S1 15	1.0 3.0			Dense brown well graded SAND with gravel (SW), mps 1 in., no odor, dry	5	15	25	30	25					
						-FILL-										
				2.0	SM	Medium dense dark brown silty SAND with gravel (SM), mps 1.375 in., no odor, moist, contains brick pieces	15	10	15	20	25	15				
				3.0	ML/OL	-FILL-										
	11 15 5 7	S2 12	3.0 5.0			Very stiff to stiff olive-brown to yellow-brown SILT with sand (ML) with layer of dark brown ORGANIC SOIL (OL), mps 1.25 in., slight organic odor, moist	5	5	5	10	10	65				
						-FILL-										
5	4 4 4 5	S3 9	5.0 7.0	5.0	ML	Medium stiff olive-brown to yellow-brown sandy SILT with gravel (ML), mps 1 in., no odor, moist to wet, possibly reworked naturally-deposited soil	10	5	5	10	20	50				
				6.5	SM	-FILL-										
						Loose gray silty SAND (SM), mps 2 mm, no odor, wet				10	60	30				
						-MARINE DEPOSIT-										
10	4 2 7 8	S4 17	10.0 12.0		SM	Loose to medium dense gray-brown silty SAND with gravel (SM), mps 1.25 in., no odor, wet	15	10	15	20	25	15				
						Note: Drill action indicates stratum change at 14.8 ft; moderately weathered bedrock observed in wash.										
15				14.8		-WEATHERED BEDROCK-										
				15.0		Note: Advanced rollercone to 15.0 ft. Begin NX rock core at 15.0 ft.										
						SEE CORE BORING REPORT FOR ROCK DETAILS										
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/5/16	13:00	--	14.8	21.5	5.8
10/5/16	13:10	--	Open	Caved @14.2	7.1

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	15.0
Rock Cored (ft)	6.5
Samples	4S, 2C

Boring No. HA16-6

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAL_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA16-6
File No. 32328-111
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
15	3:05	C1	15.0 16.5	18 18	100 100	Fresh		Hard to moderately hard, fresh, light gray to gray, aphanitic to fine-grained PHYLLITE. Joints moderate, moderately dipping to high angle primarily along foliation, undulating, rough, fresh, tight, no infilling. Easily broken along foliation planes.
	2:50							
	2:45	C2	16.5 21.5	52 52	87 87	Fresh		Hard to moderately hard, fresh, light gray to gray, aphanitic to fine-grained PHYLLITE. Joints moderate, moderately dipping to high angle primarily along foliation, undulating, rough, fresh, tight, no infilling. Easily broken along foliation planes.
	2:50							
	3:00							
	3:00							
20	3:10							
							21.5	BOTTOM OF EXPLORATION 21.5 FT
25								
30								
35								
40								
45								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-7

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 17.8 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 3
Start	07 October 2016
Finish	07 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation Datum	31.5 +/- Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	15 9 10 10	S1 17	1.0 3.0			Medium dense brown well graded SAND with gravel (SW), mps 1 in., no odor, dry	10	10	20	30	30					
						-FILL-										
				2.1	ML	Very stiff yellow-brown to olive-brown and gray-brown SILT (ML), mps 1 mm, no odor, moist, mottled with frequent fine sand partings				5	10	85	S	L	L	L
	22 22 33 29	S2 14	3.0 5.0	3.3	SM	-MARINE DEPOSIT- Very dense yellow-brown to light brown and gray-brown silty SAND with gravel (SM), mps 1 in., slight musty odor, moist, mottled	5	10	15	25	20	25				
5	38 32 19 30	S3 4	5.0 7.0		SM	-MARINE DEPOSIT- Very dense yellow-brown to light brown and gray-brown silty SAND with gravel (SM), mps 1.375 in., slight musty odor, moist, slightly mottled	10	10	15	20	20	25				
				9.0		-MARINE DEPOSIT-										
10	20 19 17 26	S4 5	10.0 12.0		GW-GM	Dense gray-brown well graded GRAVEL with silt and sand (GW-GM), mps 1.375 in., no odor, wet	40	20	5	10	15	10				
						-MARINE DEPOSIT-										
15	6 2 3 6	S5 13	15.0 17.0		SM	Loose gray-brown silty SAND with gravel (SM), mps 1 in., no odor, wet	5	10	20	25	25	15				
				17.8		Note: Casing refusal at 17.8 ft.										
20						Note: Advanced rollercone to 25.0 ft; wash indicates highly to moderately weathered bedrock. -WEATHERED BEDROCK-										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/7/16	10:45	--	17.8	29.0	6.6

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	25.0
Rock Cored (ft)	5.0
Samples	5S, 1C

Boring No. HA16-7

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAL_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

TEST BORING REPORT

Boring No. HA16-7
File No. 32328-111
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20						-WEATHERED BEDROCK-										
				24.3		-BEDROCK-										
25				25.0		SEE CORE BORING REPORT FOR ROCK DETAILS										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-7

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA16-7
File No. 32328-111
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
25	2:45 3:10 4:00 4:10	C1	25.0 29.0	48 14	100 29	Moder-ate to Slight		Moderately hard to medium, moderately to slightly weathered, light brown and light gray to gray, aphanitic to fine-grained PHYLLITE. Joints very close to moderate, low angle to vertical, undulating, rough, highly discolored to disintegrated, open to very wide, some silt infilling, occasional quartz veins. Note: Core barrel blocking at 29.0 ft.
							29.0	BOTTOM OF EXPLORATION 29.0 FT
30								
35								
40								
45								
50								
55								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HA_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-8

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

File No.	32328-111
Sheet No.	1 of 3
Start	06 October 2016
Finish	06 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	32.5 +/-
Datum	Portland City
Location	See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 22.2 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	16 13 14 14	S1 19	1.0 3.0			Medium dense brown well graded SAND with gravel (SW), mps 1.375 in., no odor, dry	10	10	20	35	25					
				1.7	ML	-FILL-										
						Very stiff dark brown to red-brown SILT with sand (ML), mps 1 in., musty odor, moist, contains coal fragments				5	10	85	S	L	L	L
	12 14 24 25	S2 12	3.0 5.0	3.2	ML	-FILL-										
						Hard olive-gray to yellow-brown sandy SILT (ML), mps 1.25 in., slight musty odor, moist, contains wood particles, reworked naturally-deposited soil	5	5	5	10	20	55				
5				5.0		-FILL-										
	15 11 7 6	S3 6	5.0 7.0		SM	Medium dense gray-brown silty SAND with gravel (SM), mps 1 in., no odor, wet	10	10	15	25	25	15				
						-MARINE DEPOSIT-										
10	10 12 12 15	S4 7	10.0 12.0		SM	Medium dense gray-brown silty SAND with gravel (SM), mps 1.375 in., no odor, wet	5	10	15	30	20	20				
						-MARINE DEPOSIT-										
15	1 2 7 23	S5 18	15.0 17.0		SM	Loose gray-brown silty SAND with gravel (SM), mps 1.25 in., no odor, wet	10	10	15	25	20	20				
						-MARINE DEPOSIT-										
				16.7		-GLACIAL TILL-										
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/6/16	14:30	--	21.2	31.0	7.2

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	25.0
Rock Cored (ft)	6.0
Samples	6S, 2C

Boring No. HA16-8

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAL_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-8
File No. 32328-111
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	33 51 55 50/1"	S6 10	20.0 21.6		SW	Very dense gray-brown well graded SAND with gravel (SW), mps 1.375 in., no odor, moist, slightly bonded -GLACIAL TILL- Note: Casing refusal at 21.2 ft. Wash ahead to 25.0 ft. Drilling indicates strata change at 24.0 ft.	15	10	15	30	25	5				
				24.0		-WEATHERED BEDROCK-										
25	~~50/0"~~	~~S7~~	~~25.0~~	25.0		Note: Advanced rollercone to 25.0 ft. Begin NX rock core at 25.0 ft. SEE CORE BORING REPORT FOR ROCK DETAILS										
30																

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-8

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA16-8
File No. 32328-111
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
25	2:05	C1	25.0 26.0	10 8	83 67			Moderately hard to medium, slightly to moderately weathered, tan to light brown, aphanitic to fine-grained QUARTZITE. Joints very close, low angle to vertical, rough, undulating, discolored to decomposed, open to very wide, some silt infilling. Note: Very poor RQD, recovered core mostly rubble.
	1:45	C2	26.0 31.0	38 0	63 0			Moderately hard to medium, slightly to moderately weathered, tan to light brown, aphanitic to fine-grained QUARTZITE. Joints very close, low angle to vertical, rough, undulating, discolored to decomposed, open to very wide, some silt infilling. Note: Very poor RQD, recovered core mostly rubble.
	2:40							
	2:20							
	2:40							
30	2:50							
							31.0	BOTTOM OF EXPLORATION 31.0 FT
35								
40								
45								
50								
55								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-9

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	--	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	--	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 10.0 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 2
Start	06 October 2016
Finish	06 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	32.5 +/-
Datum	Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	23 41 19 10	S1 13	1.0 3.0			Very dense brown well graded SAND with gravel (SW), mps 1.25 in., no odor, dry	10	10	20	30	30					
				1.8		-FILL-										
					SP	Medium dense tan poorly-graded SAND (SP), mps 1 in., no odor, dry	5		5	15	70	5				
						-FILL-										
	9 9 15 9	S2 17	3.0 5.0	3.4	SM	Medium dense olive-brown to black silty SAND with gravel (SM), mps	5	10	15	25	25	20				
				3.8	ML/SM	0.75 in., no odor, moist, with coal fragments and ash					10	90	S	L	L	L
						-FILL-				10	70	20				
5	4 4 5 7	S3 22	5.0 7.0			Stiff olive-brown to yellow-brown SILT (ML) with frequent SAND seams (SM), mps 2 mm, no odor, moist										
					ML/SM	-MARINE DEPOSIT-					10	90	S	L	L	L
						Stiff gray-brown to gray interbedded SILT (ML) and silty SAND (SM), mps 2 mm, no odor, moist to wet				10	70	20				
						-MARINE DEPOSIT-										
10	WOR WOR WOH WOH	S4 24	10.0 12.0		ML/SM	Very soft gray-brown to gray interbedded sandy SILT (ML) to silty SAND (SM), mps 0.75 in., no odor, wet				10	10	80	S	L	L	L
								5	10	25	35	25				
						-MARINE DEPOSIT-										
				13.5												
15	9 13 20 8	S5 8	15.0 17.0		SM	Dense to medium dense gray-brown silty SAND with gravel (SM), mps 1.25 in., no odor, wet	10	10	15	20	30	15				
						-MARINE DEPOSIT-										
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/6/16	9:35	--	10.0	26.7	7.2
10/6/16	9:50	--	Open	Caved @22.8	8.0

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	26.7
Rock Cored (ft)	0.0
Samples	7S

Boring No. HA16-9

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAL_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-9
File No. 32328-111
Sheet No. 2 of 2

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	22 20 29 19	S6 12	20.0 22.0		SM	Dense gray-brown silty SAND with gravel (SM), mps 1.375 in., no odor, wet -MARINE DEPOSIT- Note: Drill action indicates stratum change at 24.0 ft.	15	10	15	20	25	15				
				24.0												
25	33 45 46 100/2"	S7 6	25.0 26.7		GM	Very dense yellow-brown to gray-brown silty GRAVEL (GM), mps 1.375 in., no odor, wet, completely to highly weathered bedrock -WEATHERED BEDROCK- Note: Split-spoon refusal at 26.7 ft.	30	20	15	10	5	20				
				26.7		BOTTOM OF EXPLORATION 26.7 FT										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-9

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-10

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 34.5 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 3
Start	07 October 2016
Finish	10 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	25.5 +/-
Datum	Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	12 16 19 21	S1 16	1.0 3.0		SW	Dense brown well-graded SAND with gravel (SW), mps 1.375 in., no odor, dry	10	10	20	35	25					
				2.6		-FILL-										
	26 14 11 11	S2 16	3.0 5.0		SW	Medium dense to dense dark brown to black well graded SAND with gravel (SW), mps 1.25 in., moderate organic odor, dry to moist, contains brick, coal and concrete fragments	5	10	25	35	20	5				
						-FILL-										
5	13 4 3 9	S3 12	5.0 7.0		SW	Loose brown to dark brown well graded SAND with gravel (SW), mps 1.375 in., slight organic odor, moist, contains brick, wood, coal and glass fragments	15	10	20	30	20	5				
	39 27 8 11	S4 9	7.0 9.0	7.0	GP	Dense dark brown poorly-graded GRAVEL with sand (GP), mps 1.375 in., no odor, moist, contains concrete and brick fragments	50	15	15	15	5					
						-FILL-										
	20 40 9 5	S5 12	9.0 11.0	8.7	SW	Dense medium brown to yellow-brown well graded SAND with gravel (SW), mps 1.375 in., no odor, moist, contains concrete, brick, coal and ceramic fragments	15	10	20	30	20	5				
10						-FILL-										
	8 7 6 8	S6 19	11.0 13.0	11.4	ML	Stiff olive-brown to brown SILT (ML), mps 0.75 in., no odor, moist, contains brick and coal particles		5		5	10	80	S	L	L	L
						-FILL-										
	29 7 12 7	S7 5	13.0 15.0	13.0	GW	Medium dense brown well graded GRAVEL with sand (GW), mps 1.375 in., no odor, wet, contains concrete and brick fragments	35	25	15	10	10	5				
						-FILL-										
15	7 4 4 7	S8 5	15.0 17.0		GW	Loose olive-brown to gray-brown well graded GRAVEL with silt and sand (GW), mps 1 in., no odor, wet, contains brick particles	20	30	20	10	10	10				
	4 2 3 3	S9 15	17.0 19.0	17.0	SM	Loose dark brown to gray-brown silty SAND (SM), mps 0.5 in., no odor, wet, contains brick, coal and glass particles, reworked naturally-deposited soil		10	20	25	25	20				
						-FILL-										
	6 30	S10 12	19.0 21.0		SM	Very dense dark brown silty SAND with gravel (SM), mps 1 in., no odor, wet, contains wood fragments and brick and glass particles	10	10	15	25	20	20				
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/10/16	8:25	--	24.0	23.0	6.6
10/10/16	11:05	--	Open	Caved @33.0	14.5

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	38.5
Rock Cored (ft)	4.7
Samples	14S, 1C

Boring No. HA16-10

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAL_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-10
File No. 32328-111
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	27 28															
	22 11 7 4	S11 8	21.0 23.0	21.0 21.5	GW SM	Dense yellow-brown well graded GRAVEL with sand (GW), mps 1.375 in., no odor, wet -MARINE DEPOSIT- Medium dense gray-brown silty SAND (SM), mps 0.25 in., no odor, wet	20	30	20 15	15 20	10 25	5 40				
25	6 5 8 6	S12 16	25.0 27.0		SM/ML	-MARINE DEPOSIT- Medium dense gray-brown silty SAND (SM) with occasional SILT (ML) layers, mps 0.75 in., no odor, wet		10	20	25 10	30 10	25 80				
				28.5		Note: Drill action indicates stratum change at 28.5 ft.										
30	13 11 17 23	S13 13	30.0 32.0		SM/ML/ SW	Medium dense gray-brown to olive-brown interbedded silty SAND with gravel (SM), SILT (ML), and well graded SAND with gravel (SW), mps 1.25 in., no odor, wet -MARINE DEPOSIT-	5 15	10 10	20 25	20 10 35	25 10 15	20 80 5				
				34.0		Note: Drill action indicates stratum change at 34.0 ft; casing refusal at 34.5 ft.										
35	135/5"	S14 5	35.0 35.4			Note: Split-spoon refusal at 35.4 ft on highly to moderately weathered bedrock. -WEATHERED BEDROCK-										
				38.5		Note: Advanced rollercone to 38.5 ft. Begin NX rock core at 38.5 ft. SEE CORE BORING REPORT FOR ROCK DETAILS										
40																

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-10

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAL_TB HA16-1_.GPJ 21 Dec 16

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CORE BORING REPORT

Boring No. **HA16-10**
File No. 32328-111
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
40	1:40 2:30 1:35 6:50 3:20	C1	38.5 43.2	56 29	100 52	Fresh to Slight		Hard to medium, fresh to slightly weathered, light gray to gray, aphanitic to fine-grained PHYLLITE. Joints close to moderate, low to high angle, primarily moderately dipping, undulating, rough, slightly discolored to slightly decomposed, tight to moderately wide, no infilling. Joints primarily along foliation. Note: Core barrel blocked at 43.2 ft.
							43.2	BOTTOM OF EXPLORATION 43.2 FT
45								
50								
55								
60								
65								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-11

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	--	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	--	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 5.0 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 2
Start	11 October 2016
Finish	12 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	19.5 +/-
Datum	Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	9 11 22 21	S1 12	1.0 3.0			Dense brown well graded SAND with gravel (SW), mps 1 in., no odor, dry	10	15	20	25	30					
				2.2		-FILL-										
	20 30 25 190/5"	S2 21	3.0 4.9	3.0	SM/SW	Dense dark brown to light brown and gray-brown interbedded silty SAND with gravel (SM) and well graded SAND with gravel (SW), mps 1.25 in., no odor, moist, contains ceramic and brick fragments	15	10	15	20	20	20				
					SW/SM	-FILL-	15	10	15	20	20	20				
5				4.9		Very dense gray-brown to dark brown interbedded well graded SAND with gravel (SW) and silty SAND with gravel (SM), mps 1.375 in., no odor, moist, contains concrete, brick, and glass fragments -FILL- Note: Split-spoon refusal at 4.9 ft.										
	22 13 10 5	S3 6	6.5 8.5	6.5	SW/SM	Note: Advance rollercone through concrete to 6.5 ft. Encountered steel, probable rebar, unable to advance boring. Moved rig approximately 2 ft east and continued drilling. -CONCRETE-	15	10	15	20	25	15				
	6 10 13 12	S4 5	8.5 10.5		SW/SM	Medium dense dark brown to brown interbedded well graded SAND with gravel (SW) and silty SAND with gravel (SM), mps 1.357 in., slight organic odor, wet, contains brick and concrete fragments	15	10	15	20	20	20				
10						Medium dense dark brown to brown interbedded well graded SAND with gravel (SW) and silty SAND with gravel (SM), mps 1.357 in., slight organic odor, wet, contains brick and concrete fragments										
	13 15 19 21	S5 8	10.5 12.5		SW/SM	-FILL- Dense dark brown to brown interbedded well graded SAND with gravel (SW) and silty SAND with gravel (SM), mps 1.357 in., slight organic odor, wet, contains brick and concrete fragments	15	10	15	20	20	20				
	27 16 9 13	S6 9	12.5 14.5		SW/SM	Medium dense dark brown to brown interbedded well graded SAND with gravel (SW) and silty SAND with gravel (SM), mps 1.357 in., slight organic odor, wet, contains brick and concrete fragments	20	10	10	15	20	25				
15	15 6 4 14	S7 15	14.5 16.5		SM	Loose to medium dense dark brown silty SAND with gravel (SM), mps 1 in., no odor, wet, with shell fragments, contains brick	5	15	15	20	25	20				
				15.3	SM	Loose to medium dense gray-brown silty SAND (SM), mps 0.25 in., no odor, wet, contains brick and concrete particles, reworked naturally-deposited soil			20	30	25	25				
	9 6 5 9	S8 24	16.5 18.5		SM	-FILL- Medium dense gray-brown silty SAND (SM), mps 1.25 in., no odor, wet, contains wood and ash fragments	5	5	20	25	25	20				
				17.9	ML	Very stiff gray-brown to gray sandy SILT with gravel (ML), mps 1 in., no odor, wet, reworked naturally-deposited soil -FILL-	5	10	5	10	10	60	S	L	L	L
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/12/16	10:35	--	5.0	Caved @33.5	7.1

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	35.5
Rock Cored (ft)	0.0
Samples	10S

Boring No. HA16-11

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-11
File No. 32328-111
Sheet No. 2 of 2

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	28 21 17 55	S9 10	20.0 22.0	20.0	SM/OL	Dense dark brown to black silty SAND (SM) with ORGANIC SOIL (OL), mps 0.5 in., anaerobic odor, wet, with shells, contains brick, coal and rubber fragments and particles, reworked naturally-deposited soil -FILL- Note: Drill action indicates stratum change at 24.0 ft.		10	25	20	15	30				
25	5 6 5 7	S10 24	25.0 27.0	24.0	SM/ML/CL	Medium dense/stiff gray-brown to gray interbedded silty SAND (SM), SILT (ML), and lean CLAY (CL), mps 0.25 in., slight anaerobic odor, wet -MARINE DEPOSIT- Note: Wash ahead open hole with rollercone, hole collapsing, unable to take sample at 30.0 ft. Note: Attempted to wash ahead with rollercone to find bedrock refusal, losing drilling water at 35.5 ft.										
30																
35				35.5		BOTTOM OF EXPLORATION 35.5 FT (No Refusal) Note: Drilled three borings several feet apart, encountered concrete at 5 ft, and rebar at 6 ft at each location. Used 3-in. rollerbit to advance past rebar and drilled open hole in the third boring.										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-11

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-12

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	--	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	--	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 25.0 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 2
Start	10 October 2016
Finish	10 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation Datum	20.0 +/- Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	14 23 24 17	S1 22	1.0 3.0			Dense brown well graded SAND with gravel (SW), mps 1 in., no odor, dry	10	10	20	25	35					
				1.5	SP-SM	-FILL-										
						Dense dark brown to light brown interbedded poorly-graded SAND with gravel (SP) and silty SAND with gravel (SM), mps 1.375 in., no odor, moist, contains brick fragments	10 5	10 10	5 10	10 25	60 30	5 20				
				2.7	ML	-FILL-										
	17 11 90 29	S2 9	3.0 5.0			Hard olive-brown to dark brown SILT with sand (ML), mps 1 in., no odor, moist, contains brick, coal and ash particles	5	5	5	10	10	65	S	L	L	L
5						-FILL-										
	27 29 19 17	S3 14	5.0 7.0	5.0	SM/SW	Very dense dark brown to black interbedded silty SAND (SM) and well graded SAND with gravel (SW), mps 1.375 in., no odor, moist, contains concrete, wood, brick and slag fragments	15	5 10	20 20	25 30	30 20	20 5				
						-FILL-										
	35 18 17 12	S4 12	7.0 9.0	7.0	SM	Dense dark brown to black silty SAND with gravel (SM), mps 1.375 in., no odor, moist, contains brick, coal, and ceramic fragments	20	10	10	20	25	15				
						-FILL-										
	14 7 10 7	S5 7	9.0 11.0	9.0	SM	Medium dense dark brown silty SAND with gravel (SM), mps 1.25 in., slight organic odor, moist, contains brick and ceramic particles, trace organic soil	10	5	15	25	30	15				
10						-FILL-										
	6 4 7 6	S6 16	11.0 13.0		SM	Medium dense brown to dark brown silty SAND with gravel (SM), mps 1.375 in., slight wood ash odor, moist, contains wood, coal, brick, glass and ash fragments and particles	10	5	15	25	30	15				
						-FILL-										
				12.7	SP	Medium dense gray-brown poorly-graded SAND (SP), mps 4 mm, no odor, moist, contains brick particles, reworked naturally-deposited soil										
				14.0		-FILL-										
						Note: Wood encountered at 14.0 ft.										
15						-WOOD-										
	78 100/3"	S7 9	15.0 15.8													
				19.0		Note: Wash ahead with rollercone through wood at 19.0 ft. Wash at 19.0 ft turned gray-brown.										
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/10/16	14:25	--	Open	Caved @26.5	12.9

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	30.0
Rock Cored (ft)	0.0
Samples	9S

Boring No. HA16-12

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-12
File No. 32328-111
Sheet No. 2 of 2

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	3 7 6 7	S8 22	20.0 22.0	20.4	SW ML/SM	Loose gray-brown well graded SAND with gravel (SW), mps 1.375 in., no odor, wet -MARINE DEPOSIT- Medium dense gray-brown to gray interbedded SILT (ML) and silty SAND (SM), mps 2 mm, no odor, wet -MARINE DEPOSIT-				5 15	15 70	80 15	R	L	N	N
25	7 11 15 21	S9 17	25.0 27.0		SM/SW	Medium dense gray-brown interbedded silty SAND (SM) and well graded SAND with gravel (SW), mps 1.25 in., no odor, wet	15	10	5 20	20 30	60 20	15 5				
				28.0		Note: Drill action and contents of wash water return indicates stratum change at 28.0 ft to highly weathered bedrock. -WEATHERED BEDROCK-										
30				30.0		BOTTOM OF EXPLORATION 30.0 FT										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-12

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-13

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 19.0 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 3
Start	11 October 2016
Finish	11 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation Datum	22.5 +/- Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	23 25 26 35	S1 11	1.0 3.0			Very dense brown well graded SAND with gravel (SW), mps 1 in., no odor, dry -FILL-	10	10	25	30	25					
	43 25 17 25	S2 14	3.0 5.0	2.3	SW	Very dense to dense dark brown to black well graded SAND with gravel (SW), mps 1.25 to 1.375 in., slight to strong petroleum-like odor, moist, contains asphalt, brick and ash fragments -FILL-	10	10	20	25	30	5				
5	12 10 13 9	S3 6	5.0 7.0	5.0	GW	Medium dense dark brown to black well graded GRAVEL with sand (GW), mps 1.375 in., strong petroleum-like odor, moist, contains asphalt, brick and slag fragments -FILL-	20	10	20	20	25	5				
	5 10 12 100/3"	S4 11	7.0 8.7	7.0	SW-SM	Medium dense dark brown to brown well graded SAND with silt and gravel (SW-SM), mps 1.375 in., strong petroleum-like odor, wet, contains concrete, brick and wood fragments -FILL-	35	20	10	15	15	5				
10	44 7 3 2	S5 10	10.0 12.0	10.0	SW-SM	Medium dense dark brown to brown well graded SAND with silt and gravel (SW-SM), mps 1.375 in., strong petroleum-like odor, wet, contains concrete, brick and wood fragments	20	15	15	20	20	10				
				10.7	OL					10	10	80				
				11.2	ML	Dark brown ORGANIC SOIL layer with wood -FILL-	5		5	10	10	70				
	1 WOH 1 WOH	S6 24	12.0 14.0	12.3	ML/SM	Medium stiff olive-brown to gray-brown SILT (ML), mps 1 in., no odor, wet, contains trace brick and ash, reworked naturally-deposited soil -FILL-				5 5	5 70	90 25	S	L	L	L
15						Very soft/very loose olive-gray to gray-brown interbedded SILT (ML) and silty SAND (SM), mps 2 mm, no odor, wet -MARINE DEPOSIT- Note: Drill action and wash indicates stratum change at 17.2 ft.										
				17.2	SW	Note: Gray-brown well graded SAND with gravel (SW) observed in wash water.										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/11/16	11:15	--	19.0	25.0	8.4
10/11/16	11:30	--	Open	Caved @17.0	10.4

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	20.0
Rock Cored (ft)	5.0
Samples	6S, 1C

Boring No. HA16-13

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None **Toughness**: L - Low M - Medium H - High **Plasticity**: N - Nonplastic L - Low M - Medium H - High **Dry Strength**: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-13
File No. 32328-111
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
				18.3		-PROBABLE GLACIAL TILL- Note: Drill action and wash indicates stratum change to moderately weathered bedrock at 18.3 ft.										
						-WEATHERED BEDROCK- Note: Advanced rollercone to 20.0 ft. Begin NX rock core at 20.0 ft.										
20				20.0		SEE CORE BORING REPORT FOR ROCK DETAILS										
25																

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-13

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

CORE BORING REPORT

Boring No. HA16-13
File No. 32328-111
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weathering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
20	2:55	C1A	20.0 23.0	36 0	100 0	Moder-ate to Slight		Moderately hard to medium, slightly to moderately weathered, gray, aphanitic to fine-grained PHYLLITE. Joints very close to close, low angle to high angle, undulating, rough, moderately discolored to decomposed, open to very wide, moderately pitted, some silt infilling. Highly fractured zone, very poor RQD.
	3:45							
	2:50							
	3:15	C1B	23.0 25.0	24 20	100 83	Fresh	23.0	Hard, fresh, light gray, aphanitic QUARTZITE. Joints moderate, moderately dipping, planar, smooth, fresh, tight, no infilling.
	3:20							
25							25.0	BOTTOM OF EXPLORATION 25.0 FT
30								
35								
40								
45								
50								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-14

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 31.0 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 3
Start	14 October 2016
Finish	17 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	14.0 +/-
Datum	Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE- Very dense brown well graded SAND with gravel (SW), mps 1.25 in., no odor, dry	10	10	20	30	30					
	20 34 58 26	S1 16	1.0 3.0	1.3	SW-SM	-FILL- Very dense brown to dark brown and black well graded SAND with silt and gravel (SW-SM), mps 1.375 in., no odor, dry, contains brick, coal and ash fragments	15	10	15	25	25	10				
	15 13 13 10	S2 15	3.0 5.0	3.0	SW	-FILL- Medium dense dark brown well graded SAND (SW), mps 1 in., slight burnt odor, dry to moist, contains concrete and brick fragments, glass, coal and wood particles	5	5	20	35	30	5				
5	13 8 4 2	S3 5	5.0 7.0		SW	-FILL- Medium dense to loose brown to dark brown well graded SAND with gavel (SW), mps 1.25 in., no odor, moist, contains concrete, brick and coal particles	10	10	25	35	20					
	1 3 5 5	S4 8	7.0 9.0	6.5	SM	Loose brown silty SAND (SM), mps 0.5 in., no odor, moist to wet, contains concrete, brick, glass and wood particles		5	15	25	30	25				
						-FILL-										
	5 3 6 6	S5 4	9.0 11.0	8.7	SP-SM	Loose gray-brown poorly-graded SAND with silt (SP-SM), mps 2 mm, no odor, wet				10	80	10				
10				9.0	SM	-FILL- Loose gray-brown to brown silty SAND (SM), mps 4 mm, no odor, wet			10	15	60	15				
						-FILL-										
	2 3 3 2	S6 8	11.0 13.0	11.0	SW-SM	Loose olive-brown to dark brown well graded SAND with silt and gravel (SW-SM), mps 1.25 in., slight burnt odor, wet, contains concrete, brick, slag and foam particles	15	15	15	20	25	10				
						-FILL-										
						Note: Drill action indicates stratum change at 14.0 ft.										
				14.0												
15	6 5 5 2	S7 16	15.0 17.0		ML	Stiff gray-brown to olive-gray SILT with sand (ML), mps 0.25 in., no odor, wet, contains brick and glass particles, reworked naturally-deposited soils			5	5	10	80				
						-FILL-										
	1 1 2 2	S8 17	17.0 19.0		ML	Soft gray-brown SILT with sand (ML), mps 0.75 in., no odor, wet, occasional brown sand layers, contains brick particles		5	10	10	15	60				
				19.5												
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/14/16	14:15	--	31.0	39.7	9.1

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	35.0
Rock Cored (ft)	4.7
Samples	10S, 1C

Boring No. HA16-14

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-14
File No. 32328-111
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	10 12 10 8	S9 19	20.0 22.0		ML/SW	Medium dense dark brown to gray-brown sandy SILT (ML), mps 0.5 in., slight anaerobic odor, wet, contains wood, brick and shell fragments, brown well graded sand layer		5	5 30	10 40	20 25	60 5				
						-MARINE DEPOSIT-										
						Note: Drill action indicates stratum change at 23.5 ft.										
				23.5												
25	9 8 9 14	S10 13	25.0 27.0		SM	Medium dense gray-brown silty SAND with gravel (SM), mps 1.25 in., no odor, wet, slightly bonded	10	15	15	25	20	15				
						-MARINE DEPOSIT-										
				26.6												
30	9 8 31 100	S11 15	30.0 32.0			Dense gray-brown WEATHERED ROCK with silt and well graded rock fragments	35	5	10	10	10	10				
35				35.0		SEE CORE BORING REPORT FOR ROCK DETAILS										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-14

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. **HA16-14**
File No. 32328-111
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
35	2:20	C1	35.0	44	79			Hard to moderately hard, moderately to highly weathered, light brown to light gray, aphanitic to fine-grained QUARTZITE. Joints very close, low angle to vertical, undulating, rough, slightly decomposed to disintegrated, moderately wide to very wide, some pitting, some sand and silt infilling. Very poor RQD, highly fractured/jointed zone.
	2:30		39.7	0	0			
	2:45							
	2:50							
	3:00/0.7'							
							39.7	BOTTOM OF EXPLORATION 39.7 FT
40								
45								
50								
55								
60								
65								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-15

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

File No.	32328-111
Sheet No.	1 of 3
Start	13 October 2016
Finish	13 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	15.5 +/-
Datum	Portland City
Location	See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 27.0 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	2 6 14 43	S1 14	1.0 3.0			Medium dense brown well graded SAND with gravel (SW), mps 1.375 in., no odor, dry	15	10	20	30	25					
				1.9		-FILL-										
	47 33 25 16	S2 8	3.0 5.0		SW/SM	Very dense brown to dark brown interbedded well graded SAND with gravel (SW) and silty SAND with gravel (SM), mps 1.375 in., no odor, moist, contains brick particles	10	10	20	25	20	15				
					SW-SM	Very dense brown to dark brown well graded SAND with silt and gravel (SW-SM), mps 1 in., no odor, moist contains brick and wood particles	10	10	20	25	25	10				
						-FILL-										
5	24 27 31 23	S3 8	5.0 7.0		SW-SM	Very dense brown to dark brown well graded SAND with silt and gravel (SW-SM), mps 1.375 in., no odor, moist, contains brick fragments	10	5	20	30	25	10				
	15 9 5 7	S4 12	7.0 9.0	7.2	SP/SW	Medium dense yellow-brown to tan interbedded poorly-graded SAND (SP) and well graded SAND with gravel (SW), mps 1 in., no odor, moist, contains brick and ceramic fragments	10	10	15	25	35	5				
				8.8		-FILL-										
10	7 3 4 2	S5 18	9.0 11.0		SM	Loose gray-brown to dark brown silty SAND with gravel (SM), mps 0.75 in., slight anaerobic odor, wet, contains brick, metal, glass and ceramic fragments	5	10	15	20	20	30				
						-FILL-										
	1 WOH 1 WOH	S6 0	11.0 13.0		SM	No recovery, wash indicates similar to S5										
				14.0		Note: Drill action indicates stratum change at 14.0 ft.										
15	2 4 3 4	S7 4	15.0 17.0		GM	Loose gray-brown silty GRAVEL with sand (GW), mps 1 in., slight anaerobic odor, wet, contains occasional wood fragments, reworked naturally-deposited soil	40	20	10	5	5	20				
						-FILL-										
				18.0		Note: Drill wash water indicates stratum change at 18.0 ft. Dark brown wash water contains wood, brick and leather fragments.										
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/13/16	12:00	--	27.0	35.0	7.3

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	30.0
Rock Cored (ft)	5.0
Samples	9S, 1C

Boring No. HA16-15

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-15
File No. 32328-111
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	18 15 12 18	S8 15	20.0 22.0	20.7	SM/SW	Medium dense dark brown to gray-brown interbedded silty SAND (SM) and well graded SAND with gravel (SW), mps 1 in., slight anaerobic odor, wet, contains wood fragments and brick particles	15	10	15	20	20	20				
					ML/SM	Medium dense gray-brown interbedded SILT with sand (ML) and silty SAND (SM), mps 2 mm, no odor, wet -MARINE DEPOSIT-				5 5	10 65	85 30				
				23.5		Note: Drill action indicates stratum change at 23.5 ft.										
25	36 23 82 64	S9 15	25.0 27.0		GC	Very dense gray-brown clayey GRAVEL with sand (GC), mps 1.375 in., no odor, wet, completely to highly weathered bedrock (phyllite) -WEATHERED BEDROCK-	40	20	10	10	5	15				
30				30.0		Note: Advanced rollercone to 30.0 ft. Begin NX rock core at 30.0 ft. SEE CORE BORING REPORT FOR ROCK DETAILS										
35																

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-15

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. **HA16-15**
File No. 32328-111
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
30	4:20 3:55 3:50 4:15 4:45	C1	30.0 35.0	60 43	100 72	Fresh to Slight		Hard, fresh to slightly weathered, light brown to light gray, aphanitic to fine-grained QUARTZITE. Joints close to wide, low to high angle, undulating, rough, slightly discolored to moderately disintegrated, partly open to moderately wide, moderate pitting from 30.0 to 30.8 ft, no infilling.
35							35.0	BOTTOM OF EXPLORATION 35.0 FT
40								
45								
50								
55								
60								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-16

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	--	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	--	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 14.0 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 2
Start	12 October 2016
Finish	12 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	17.0 +/-
Datum	Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	8 40 57 31	S1 17	1.0 3.0			Medium dense brown well graded SAND with gravel (SW), mps 1.375 in., no odor, dry	15	10	20	25	30					
				1.5	SW	-FILL-										
						Very dense dark brown to brown well graded SAND with gravel (SW), mps 1 in., no odor, dry, contains brick, concrete and coal fragments	10	10	15	30	30	5				
	24 20 16 14	S2 6	3.0 5.0		SW	Dense brown well graded SAND (SW), mps 0.5 in., dry		5	25	35	30	5				
						-FILL-										
5				4.8	SM	Medium dense dark brown silty SAND (SM), mps 0.5 in., no odor, dry		5	15	25	35	20				
	14 200/5"	S3 11	5.0 5.9	5.5		-FILL-										
						-CONCRETE-										
						Note: Advanced rollercone to 7.0 ft.										
	12 24 50/0"	S4 8	7.0 8.0	7.0	GW	Dense gray-brown well graded GRAVEL with sand (GW), mps 1.375 in., no odor, dry, contains brick, concrete and coal fragments	50	25	10	10	5					
						-FILL-										
						Note: Drilled through obstruction at 8.0 ft with 6-in. rollerbit, possible cobble-stones (granite).										
10				10.0		Layer of red-brown oxidized iron fragments										
	27 10 5 5	S5 12	10.0 12.0	10.5	SM	Medium dense olive-brown to yellow-brown silty SAND (SM), mps 1.25 in., slight organic odor, wet	5	5	15	25	35	15				
	9 7 11 13	S6 12	12.0 14.0		SM	Medium dense olive-brown to brown silty SAND with gravel (SM), mps 1.25 in., no odor, wet, contains brick particles	5	10	15	25	30	15				
						-FILL-										
				13.7												
	22 10 18 40	S7 9	14.0 16.0		SW/ML	Dense to medium dense olive-brown to gray-brown and dark brown interbedded well graded SAND (SW) and SILT (ML), mps 1 in., slight anaerobic odor, wet, contains wood fragments and brick particles, reworked naturally-deposited soil	5	5	20	35	30	5				
15											10	90	S	L	L	L
						-FILL-										
						Note: Drill action indicates stratum change at 17.7 ft, highly weathered bedrock.										
				17.7												

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/12/16	14:45	--	Open	Caved @11.3	2.4

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	20.0
Rock Cored (ft)	0.0
Samples	7S

Boring No. HA16-16

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAL_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-16
File No. 32328-111
Sheet No. 2 of 2

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
						-WEATHERED BEDROCK-										
						Note: Advanced rollercone to 20.0 ft into moderately weathered bedrock.										
20				20.0		BOTTOM OF EXPLORATION 20.0 FT										
						Note: Unable to core rock due to damaged casing shoe.										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-16

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-17

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 21.0 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 3
Start	17 October 2016
Finish	17 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	11.0 +/-
Datum	Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	2 3 6 100/3"	S1 15	1.0 2.8	1.0	SW	Brown well graded SAND with gravel (SW), mps 1.5 in., no odor, dry	10	10	20	35	25		S	L	L	L
						-FILL-										
					ML	Stiff dark brown to gray-brown sandy SILT (ML), mps 1 in., slight organic odor, moist to wet, contains brick, concrete and glass particles										
				2.4		-FILL-										
						Note: Drive casing and wash through wood from 2.4 to 5.5 ft.										
5						-WOOD-										
	4 4 3 5	S2 0	5.5 7.5	5.5	SM	Note: Wash indicates loose dark brown to gray silty SAND (SM), contains wood and brick particles.										
	7 5 3 8	S3 1	7.5 9.5		SM	Loose gray-brown to gray silty SAND (SM), mps 4 mm, strong burnt wood/ash odor, wet, contains wood and brick particles			20	40	25	15				
						-FILL-										
10	6 1 1 1	S4 11	10.0 12.0		SM/OL	Very loose gray-brown to black interbedded silty SAND with gravel (SM) and ORGANIC SOIL (OL), mps 1.25 in., strong burnt wood/ash odor, wet, contains wood, ash and brick particles	10	5	10	30	25	20				
										10	10	80	S	L	L	L
	6 5 6 12	S5 24	12.0 14.0		SM/OL	Medium dense gray-brown to black interbedded silty SAND with gravel (SM) and ORGANIC SOIL (OL), mps 1.25 in., strong burnt wood/ash odor, wet, contains wood, ash and brick particles	10	5	10	30	25	20				
										10	10	80	S	L	L	L
				12.8	SP	Medium dense black to gray brown poorly-graded SAND (SP), mps 4 mm, moderate burnt wood/ash odor, wet, contains brick, wood and shell particles			5	15	75	5				
15	13 6 8 16	S6 12	15.0 17.0		SP/ML	Medium dense olive-brown to gray-brown and black interbedded poorly-graded SAND (SP) and sandy SILT (ML), mps 4 mm, moderate burnt wood/ash odor, wet to moist, contains brick and wood particles, reworked naturally-deposited soil			5	10	80	5				
									5	10	20	65				
						-FILL-(Reworked Marine Deposit)										
	18 16 25 13	S7 17	17.0 19.0		SP/ML	Dense gray-brown to black interbedded poorly-graded SAND with gravel (SP) and sandy SILT (ML), mps 1.25 in., moderate burnt wood/ash odor, wet to moist, contains brick, wood and shell particles	10	5	5	10	65	5				
				18.0					5	10	20	65				
					ML/SP	Dense gray to gray-brown interbedded sandy SILT (ML) and poorly-graded SAND (SP), mps 2 mm, no odor, moist to wet				10	10	80	S	L	L	L
										5	90	5				

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/17/16	12:40	--	21.0	34.0	6.4
10/17/16	13:15	--	Open	Caved @22.1	6.4

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	29.0
Rock Cored (ft)	5.0
Samples	9S, 1C

Boring No. HA16-17

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAL_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-17
File No. 32328-111
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
						-MARINE DEPOSIT-										
20	11 9 9 8	S8 8	20.0 22.0	20.0	SW	Medium dense gray-brown well graded SAND with gravel (SW), mps 1.25 in., no odor, wet	10	25	30	20	15					
						-MARINE DEPOSIT-										
25	20 23 50/2"	S9 9	25.0 26.2	25.7	SW	Dense gray-brown well graded SAND with gravel (SW), mps 1.25 in., no odor, wet	20	15	15	25	20	5				
						Highly to moderately weathered BEDROCK										
						-WEATHERED BEDROCK-										
				29.0		Note: Advanced rollercone to 29.0 ft. Begin NX rock core at 29.0 ft.										
30						SEE CORE BORING REPORT FOR ROCK DETAILS										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

CORE BORING REPORT

Boring No. HA16-17
File No. 32328-111
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
30	2:50 6:45 6:10 8:05 4:40	C1	29.0 34.0	60 52	100 87			Moderately hard to very hard, fresh to moderately weathered, light gray to gray, aphanitic to very coarse-grained PHYLLITE and QUARTZ. Joints close to moderate, high angle to vertical primarily along foliation, undulating, rough, fresh to slightly discolored, tight to open, no infilling.
							34.0	BOTTOM OF EXPLORATION 34.0 FT
35								
40								
45								
50								
55								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-18

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	HW	S	NX	Rig Make & Model: Acker Drill AD-II
Inside Diameter (in.)	4.0	1.375	1.875	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	16	30	-	Casing: HW Driven to 17.8 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: N/A

File No.	32328-111
Sheet No.	1 of 3
Start	13 October 2016
Finish	14 October 2016
Driller	M. D'Ambrosio
H&A Rep.	B. Estes
Elevation	12.0 +/-
Datum	Portland City
Location	See Plan

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0				0.3	SW	-BITUMINOUS CONCRETE-										
	4 12 15 16	S1 13	1.0 3.0			Medium dense brown well graded SAND with gravel (SW), mps 1.25 in., no odor, dry	15	10	20	30	25					
				2.0		-FILL-										
					SW	Dense dark brown well graded SAND with gravel (SW), mps 1.375 in., slight organic odor, moist, contains brick, concrete and coal fragments	10	10	20	30	30					
	13 6 5 4	S2 5	3.0 5.0	3.0	GW	-FILL- Medium dense dark brown to red-brown well graded GRAVEL with sand (GW), mps 1.375 in., no odor, moist, contains brick and concrete fragments	40	25	15	10	10					
5						-FILL-										
	2 3 2 14	S3 9	5.0 7.0	5.0	GW/OL	Loose tan to dark brown and yellow-brown well graded GRAVEL with sand (GW) with layer of ORGANIC SOIL (OL), mps 1.25 in., strong moldy odor, wet, contains brick concrete, coal and ash fragments	40	25	15	10	10					
						-FILL-					10	90				
	24 34 24 20	S4 8	7.0 9.0	7.0	GW	Very dense tan to brown well graded GRAVEL with sand (GW), mps 1.375 in., organic odor, wet, contains concrete, brick and wood fragments	40	30	15	10	5					
						-FILL-										
				9.0		Note: Advanced rollercone through wood layer from 9.0 to 10.0 ft.										
				10.0		-WOOD-										
10	6 4 4 5	S5 11	10.0 12.0		SP/SW/ ML	Loose black to gray-brown interbedded poorly-graded SAND (SP), well graded SAND (SW), and SILT (ML), mps 0.5 in., slight anaerobic odor, wet, reworked naturally-deposited soil		5	10 20	10 40	80 30	5				
						FILL-					10	90	S	L	L	L
	8 8 12 14	S6 13	12.0 14.0		SP/SW/ ML	Medium dense black to gray-brown interbedded poorly-graded SAND (SP), well graded SAND (SW), and SILT (ML), mps 0.75 in., slight anaerobic odor, wet, contains coal, slag and metal fragments, brick, ceramic and wood particles		5	10 20	10 40	80 30	5				
											10	90	S	L	L	L
15	11 10 9 17	S7 17	15.0 17.0		SW/ML/ OL	Medium dense black to gray-brown and olive-gray interbedded well-graded SAND (SW), SILT (ML), and ORGANIC SOIL (OL), mps 0.75 in., anaerobic odor, wet, contains brick, ceramic, coal and metal fragments, brick and wood particles	5	5	20	35 10	30 10	5 80	S	L	L	L
	20 28 22 18	S8 11	17.0 19.0	17.0	SW-SM	Dense gray-brown to dark brown well graded SAND with silt and gravel (SW-SM), mps 1.25 in., no odor, wet, contains brick, wood and metal particles, reworked naturally-deposited soil	20	10	15	20	25	10				
						-FILL-										
20																

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
10/14/16	10:00	--	21.0	30.0	7.9

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	25.0
Rock Cored (ft)	5.0
Samples	9S, 1C

Boring No. HA16-18

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAL_TB HA16-1_.GPJ 21 Dec 16

TEST BORING REPORT

Boring No. HA16-18
File No. 32328-111
Sheet No. 2 of 3

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	57 100	S9 9	20.0 21.0	20.3		Highly weathered BEDROCK -WEATHERED BEDROCK- Note: Advanced rollercone to 25.0 ft. Begin NX rock core at 25.0 ft.										
25				25.0		SEE CORE BORING REPORT FOR ROCK DETAILS										
30																

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA16-18

H&A-TEST BORING-07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

HALEY ALDRICH

CORE BORING REPORT

Boring No. **HA16-18**
File No. 32328-111
Sheet No. 3 of 3

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weath-ering	Elev./ Depth (ft)	Visual Description and Remarks
								SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
25	1:20 2:10 4:05 3:40 3:35	C1	25.0 30.0					Hard to moderately hard, fresh to slightly weathered, light gray, aphanitic to fine-grained QUARTZITE with quartz veins. Joints close to moderate, low angle to moderately dipping, planar to undulating, smooth to rough, tight to moderately wide, fresh to slightly discolored, no infilling.
30							30.0	BOTTOM OF EXPLORATION 30.0 FT
35								
40								
45								
50								
55								

H+A_CORE+WELL07-1 HA-LIB09-REV.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\111\FIELD\GINT DATABASE\32328-111_HAI_TB HA16-1_.GPJ 21 Dec 16

2015 Haley & Aldrich, Inc.
Test Boring Logs

HALEY ALDRICH

TEST BORING REPORT

Boring No. HA15-1(OW)

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

File No. 32328-100
Sheet No. 1 of 2
Start 11 August 2015
Finish 11 August 2015
Driller C. Dupuis
H&A Rep. K. Russ
Elevation 49.5
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	NQ	Rig Make & Model: Mobile B53
Inside Diameter (in.)	3.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: NW Drive to 14.1 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0						49.2		-BITUMINOUS CONCRETE-										
	5 10 18	S1 10	0.5 2.2			0.3	SW	Medium dense brown well graded SAND (SW), mps 0.75 in., no odor, dry, contains several brick fragments -FILL-		10	20	30	35	5				
	13 8 7 5 5	S1A 3 S2 12	2.2 2.5 2.5 4.5			47.3 2.2	SM	Medium dense dark brown to black silty SAND (SM), mps 1 in., mulch-like odor, dry, contains wood, brick, glass, ash and coal -FILL-	5	5	15	15	45	15				
						45.0	SM	Medium dense dark brown silty SAND (SM), mps 1.25 in., sulfur-like odor, dry, contains wood, brick, glass and coal	5	5	5	10	50	25				
5	2 3 5 7	S3 7	4.5 6.5			4.5	ML	Medium stiff olive-gray SILT with sand (ML), mps 0.5 in., no odor, dry, probable reworked naturally-deposited soil -FILL-					15	85				
	10 10	S4 9	6.5 7.2			42.3	ML	Very stiff olive-brown sandy SILT (ML), mps 0.75 in., no odor, dry, contains brick fragments, probable reworked naturally-deposited soil		5	10	10	15	60				
	13 13	S4A 13	7.2 8.5			7.2	ML	Very stiff olive-gray SILT with sand (ML), mps 0.42 mm, no odor, dry, frequent fine sand layers (0.5 in. thick) -MARINE DEPOSIT-					25	75				
10	10 4 4 3	S5 15	10.0 12.0				ML	Medium stiff light brown to olive-gray SILT with sand (ML), mps 1.25 in., no odor, wet, frequent 1 in. fine sand layers, clay content increasing with depth	5				20	75				
						36.5 13.0		Note: Likely strata change at approximately 13.0 ft based on increased casing blows. -PROBABLE GLACIAL TILL- Note: Casing refusal at 14.1 ft. SEE CORE BORING REPORT FOR ROCK DETAILS										
15																		

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
8/11/15	13:30	0	--	14.0 In Well	6.8

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	14.1
Rock Cored (ft)	4.4
Samples	5S, 1C

Boring No. HA15-1(OW)

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 PID HA-LIB09.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 24 Sep 15

HALEY ALDRICH

CORE BORING REPORT

Boring No. HA15-1(OW)
File No. 32328-100
Sheet No. 2 of 2

Depth (ft)	Drilling Rate (min./ft)	Run No.	Run Depth (ft)	Recovery/RQD in.	Recovery/RQD %	Weathering	Well Diagram	Elev./ Depth (ft)	Visual Description and Remarks
									SEE TEST BORING REPORT FOR OVERBURDEN DETAILS
15		C1	14.1 18.5	50 31	95 59	Fresh to Mod.		35.4 14.1	Hard to medium hard, fresh, greenish gray aphanitic PHYLLITE. Joints moderately dipping to high angle with depth, moderately close to close grading to extremely close from 18.0-18.5 ft, planar to undulating, smooth to rough, tight to open. Foliation parallel to high angle joints. Slight silt infilling on some joint surfaces.
								31.0 18.5	BOTTOM OF EXPLORATION 18.5 FT
20									Notes: 1. No elevated PID readings detected during drilling. 2. Observation well installed in completed borehole. See Groundwater Observation Well Installation Report HA15-1(OW) for details.
25									
30									
35									
40									

H+A_CORE+WELL07-1 HA-LIB09.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 24 Sep 15

TEST BORING REPORT

Boring No. HA15-2(OW)

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

File No. 32328-100
Sheet No. 1 of 2
Start 11 August 2015
Finish 12 August 2015
Driller C. Dupuis
H&A Rep. K. Russ
Elevation 29.0
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	NQ	Rig Make & Model: Mobile B53
Inside Diameter (in.)	3.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: NW Drive to 28.6 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	1	S1	0.0			28.7	SM	Medium dense dark brown silty SAND (SM), mps 0.5 in.,			5	20	55	20				
	7	4	0.3			0.3	SW-SM	organic odor, wet, contains roots	5	10	15	40	20	10				
	8	S1A	0.3					-TOPSOIL-										
	9	12	2.0					Medium dense brown well graded SAND with silt and gravel (SW-SM), no odor, moist, single 1.5 in. lens of silt										
						27.0												
	13	S2	2.0			2.0	SM	-FILL-	10	5	5	15	35	30				
	15	17	4.0					Medium dense olive-brown silty SAND with gravel (SM), mps 1.5 in., sulfur-like odor, moist, contains large fragments of brick and occasional coal										
	11																	
	7																	
	5	S3	4.0				SW-SM	Medium dense olive-brown well graded SAND with silt and	15	10	20	25	20	10				
5	10	8	6.0					gravel (SW-SM), mps 1.5 in., petroleum-like odor, moist, contains brick, concrete, styrofoam and coal										
	10							-FILL-										
	6																	
	5	S4	6.0				SP-SM	Very dense olive-brown poorly-graded SAND with silt and	15	15	10	20	30	10				
	50/2"	7	6.8					gravel (SP-SM), mps 1.75 in., no odor, moist, contains brick and coal										
								Note: Augered from 6.8 to 8.2 ft with moderate resistance.										
		*S5	7.4					*Sample S5 taken from flights of auger with probable concrete in sample.										
			8.2															
	56	S6	8.2				GW	Medium dense olive-brown well graded GRAVEL with sand	35	25	20	10	5	5				
	12	6	9.2					(GW), mps 1.5 in., cement-like odor, wet, contains brick										
						19.8												
	3	S6A	9.2			9.2	ML	Stiff olive SILT (ML), mps 0.075 mm, slight chemical odor, wet						100				
	3	8	10.0															
10	4	S7	10.0				ML	Medium stiff olive SILT (ML), mps 4.75 mm, no odor, wet			5			95				
	3	1	12.0															
	3							-MARINE DEPOSIT-										
	2					17.5												
						11.5												
	WOH	S8	12.0				CL	Very soft olive-gray lean CLAY (CL), mps 0.42 mm, no odor,					5	95				
	WOH	24	14.0					wet, occasional 0.25 in. layers of fine sand										
	2																	
	1							-MARINE DEPOSIT-										
15																		
	1	S9	15.0				CL	Very soft olive-gray lean CLAY (CL), mps 0.42 mm, no odor,					5	95				
	1	2	17.0					wet										
	1																	
	1																	

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
8/12/15	16:50	0	--	18.0 In Well	10.7

Sample ID
O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram
Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	28.6
Rock Cored (ft)	0.0
Samples	11S

Boring No. HA15-2(OW)

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 PID HA-LIB09.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 24 Sep 15

TEST BORING REPORT

Boring No. HA15-2(OW)
File No. 32328-100
Sheet No. 2 of 2

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
								Note: Drill action indicates strata change at approximately 19.0 ft below ground surface.										
						10.0 19.0												
20	7 4	S10 7	20.0 20.6			8.4	SC	Loose olive-gray clayey SAND with gravel (SC), mps 0.75 in., no odor, wet	5	10	5	20	30	30				
	1 2	S10A 13	20.6 21.4			20.6	ML	-MARINE DEPOSIT- Medium stiff olive-gray SILT with sand (ML), mps 0.75 in., no odor, wet	5				25	70				
								-MARINE DEPOSIT-										
						5.0 24.0												
25	2 2 2 3	S11 10	25.0 27.0				SM	Very loose olive-gray silty SAND with gravel (SM), mps 1 in., no odor, wet, loosely bonded	10	5	10	15	30	30				
								-GLACIAL TILL-										
								Note: Casing refusal at 28.6 ft.										
						0.4 28.6		Note: Advanced roller bit through probable bedrock from 28.6 to 29.9 ft.										
						-0.9 29.9		-PROBABLE BEDROCK- BOTTOM OF EXPLORATION 29.9 FT										
								Notes: 1. No elevated PID readings detected during drilling. 2. Observation well installed in completed borehole. See Groundwater Observation Well Installation Report HA15-2(OW) for details.										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA15-2(OW)

H&A-TEST BORING-07-1 PID HA-LIB09.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 24 Sep 15

TEST BORING REPORT

Boring No. HA15-3(OW)

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

File No. 32328-100
Sheet No. 1 of 2
Start 12 August 2015
Finish 12 August 2015
Driller C. Dupuis
H&A Rep. K. Russ
Elevation 26.5
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	NQ	Rig Make & Model: Mobile B53
Inside Diameter (in.)	3.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: NW Drive to 29.2 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0						26.1		-BITUMINOUS CONCRETE-										
	8 19	S1 10	0.5 1.3			0.4 25.2	SW	Dense brown well graded SAND with gravel (SW), mps 1.75 in., no odor, dry	10	5	15	30	40					
	13 13	S1A 6	1.3 2.5			1.3	SM	-FILL- / Dense dark brown silty SAND with gravel (SM), mps 1.5 in., no odor, dry, contains brick fragments	15	10	15	15	30	15				
	5 7	S2 11	2.5 3.4				SM	Medium dense dark brown silty SAND with gravel (SM), mps 1.75 in., slight sulfur-like odor, dry, contains brick and coal	10	15	20	20	15	20				
	6 8	S2A 6	3.4 4.5			23.1 3.4	ML	Stiff olive-brown sandy SILT (ML), mps 0.75 in., sulfur-like odor, dry, contains brick, ash, wood, and coal		5	5	10	20	60				
	3 11	S3 9	4.5 5.2				ML	-FILL- / Very stiff dark brown sandy SILT with gravel (ML), mps 1.25 in., sulfur-like odor, dry, contains iron, ash, brick, wood and coal	5	10	10	10	15	50				
5	9 5	S3A 7	5.2 6.5			21.3 5.2	SP	Medium dense red-brown poorly-graded SAND (SP), mps 0.5 in., no odor, dry			5	30	65					
	3 4 4 4	S4 15	6.5 8.5				SP	Loose brown poorly-graded SAND (SP), mps 1 in., no odor, dry, contains one wood fragment piece / -FILL-	5	5	5	25	55	5				
	2 2 3 5	S5 13	8.5 10.5			18.0 8.5	ML	Medium stiff olive-brown sandy SILT (ML), mps 1 in., no odor, moist, contains ceramic, wood, brick and concrete / -FILL-			5	5	15	75				
10	30	S6 7	10.5 11.1			16.0 10.5 15.4	GM	Dense dark brown silty GRAVEL with sand (GM), mps 1.5 in., creosol-like odor, wet, contains brick, concrete, ceramic, and wood	40	10	10	10	15	15				
	34 10 15	S6A 4 / S6B 5	11.1 11.4 / 11.4 12.3			11.1 15.1 11.4	ML	CONCRETE / Hard olive-brown SILT with gravel (ML), mps 1.25 in., sulfur-like odor, dry, contains ash, wood, shells, and brick	10	5	5		5	75				
	3 6 12 9	S7 6	12.5 14.5			14.0 12.5	SM	-FILL- / Medium dense brown silty SAND with gravel (SM), mps 1.25 in., no odor, wet, contains ceramics, brick, ash, and steel wire (1/8 in. diameter)	5	10	5	20	30	30				
15	4 4 6 7	S8 12	14.5 16.5			12.0 14.5	SM	-FILL- / Loose olive-gray silty SAND with gravel (SM), mps 2 in., no odor, wet, silt content decreases with depth	15	10	10	5	30	30				
								-MARINE DEPOSIT-										

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
8/12/15	17:50	0	--	18.0 In Well	11.4

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	29.2
Rock Cored (ft)	0.0
Samples	10S

Boring No. HA15-3(OW)

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

***Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.**

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 PID HA-LIB09.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 24 Sep 15

TEST BORING REPORT

Boring No. HA15-3(OW)
File No. 32328-100
Sheet No. 2 of 2

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
20	11 1 2 4	S9 16	20.0 22.0				SM	Very loose olive-gray silty SAND (SM), mps 1 in., no odor, wet	5	5			55	35				
								-MARINE DEPOSIT-										
25	1 2 4 4	S10 24	25.5 27.5				SM	Loose olive-gray silty SAND (SM), mps 1 in., no odor, wet Note: Drill wash becomes more coarse grained at approximately 27.0 ft.		5	5		55	35				
						-0.5 27.0		-PROBABLE GLACIAL TILL- Note: Casing refusal at 28.9 ft.										
						-2.4 28.9		-PROBABLE WEATHERED BEDROCK-										
30						-2.7 29.2		Note: Top of probable bedrock at 29.2 ft. Advanced roller bit to 30.3 ft.										
						-3.8 30.3		-PROBABLE BEDROCK- BOTTOM OF EXPLORATION 30.3 FT										

Notes:
1. No elevated PID readings detected during drilling.
2. Observation well installed in completed borehole. See Groundwater Observation Well Installation Report HA15-3(OW) for details.

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA15-3(OW)

H&A-TEST BORING-07-1 PID HA-LIB09.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 24 Sep 15

TEST BORING REPORT

Boring No. HA15-4(OW)

Project	Portland Square Development, Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors

File No. 32328-100
Sheet No. 1 of 2
Start 10 August 2015
Finish 10 August 2015
Driller C. Dupuis
H&A Rep. K. Russ
Elevation 11.5
Datum Portland City Datum
Location See Plan

	Casing	Sampler	Barrel	Drilling Equipment and Procedures
Type	NW	S	NQ	Rig Make & Model: Mobile B53
Inside Diameter (in.)	3.0	1.375	2.0	Bit Type: Roller Bit
Hammer Weight (lb)	300	140	-	Drill Mud: None
Hammer Fall (in.)	24	30	-	Casing: NW Drive to 26.4 1 ft
				Hoist/Hammer: Winch Safety Hammer
				PID Make & Model: MiniRAE 2000 10.6 eV

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
0	5	S1	0.0	0.0		11.0	SM	Medium dense dark brown to brown silty SAND with gravel (SM), mps 0.75 in., no odor, dry, trace roots	10	5	5	5	60	15				
	7	6	0.5	1.7		0.5	SW	-TOPSOIL-	5	15	15	20	40	5				
	7	S1A	0.5					Medium dense brown well graded SAND with gravel (SW), mps 0.75 in., no odor, dry										
	6	8	2.0			9.5												
	10	S2	2.0	3.8		2.0	SP-SM	-FILL-	10	10	10	5	55	10				
	12	15	4.0					Medium dense brown poorly-graded SAND with silt and gravel (SP-SM), mps 1 in., no odor, dry, contains coal, ash, and brick										
	10																	
	11																	
	5	S3	4.0	0.0			SM	Very loose brown to red-brown silty SAND with gravel (SM), mps 1 in., no odor, dry, contains ash and brick	10	10	20	30	15	15				
5	2	16	6.0					-FILL-										
	1																	
	2																	
	6	S4	6.0	0.0			SM	Very loose dark brown silty SAND with gravel (SM), mps 1.5 in., no odor, wet, contains brick, ash, and iron oxide, 2 in. layer of silty fine sand at 7.5 ft	20	10	10	15	30	15				
	1	15	8.0															
	2																	
	3																	
	4	S5	8.0	6.0			SM	Medium dense brown silty SAND with gravel (SM), mps 0.75 in., no odor, wet, 2 in. layer of silt	5	10	10	10	25	40				
	19	3	9.2			2.3												
	7	S5A	9.2	0.1		9.2	SP-SM	Medium dense dark gray poorly-graded SAND with silt and gravel (SP-SM), mps 1.25 in., sulfur-like odor, wet, possible concrete, ash, and coal	10	5	10	40	25	10				
10	33	9	10.0															
	21	S6	10.0	1.0			SW-SM	Very dense black well graded SAND with silt and gravel (SW-SM), mps 1 in., sulfur-like odor, wet, possible concrete, ash and coal, 2 in. layer of silty fine sand at bottom of sample	5	20	20	25	20	10				
	56	15	12.0															
	30																	
	28																	
	13	S7	12.0	10.9			SW-SM	Medium dense black well graded SAND with silt and gravel (SW-SM), mps 1.5 in., sulfur-like odor, wet, contains coal throughout sample	15	10	30	20	15	10				
	7	11	14.0					-FILL-										
	7																	
	4																	
	5	S8	14.0	2.1			SM	Very loose black silty SAND with gravel (SM), mps 1 in., sulfur-like odor, wet, contains coal throughout sample	10	20	20	20	15	15				
15	2	6	16.0															
	2																	
	2																	
	2	S9	16.0	0.3			SM	Medium dense black silty SAND with gravel (SM), mps 1 in., sulfur-like odor, wet, contains coal and brick fragments	10	20	20	20	15	15				
	4	9	17.4															
	7					-5.9												
	13	S9A	17.4	0.0		17.4	SM	Medium dense olive-gray silty SAND (SM), mps 0.5 in., no		5	20	35	15	25				

Water Level Data

Date	Time	Elapsed Time (hr.)	Depth (ft) to: Bottom of Casing	Bottom of Hole	Water
8/10/15	~12:00	0	8.0	8.0	7.0

Sample ID

O - Open End Rod
T - Thin Wall Tube
U - Undisturbed Sample
S - Split Spoon Sample

Well Diagram

Riser Pipe
Screen
Filter Sand
Cuttings
Grout
Concrete
Bentonite Seal

Summary

Overburden (ft)	26.8
Rock Cored (ft)	0.0
Samples	12S

Boring No. HA15-4(OW)

Field Tests: **Dilatancy**: R - Rapid S - Slow N - None
Toughness: L - Low M - Medium H - High
Plasticity: N - Nonplastic L - Low M - Medium H - High
Dry Strength: N - None L - Low M - Medium H - High V - Very High

*Note: Maximum particle size (mps) is determined by direct observation within the limitations of sampler size.

Note: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

H&A-TEST BORING-07-1 PID HA-LIB09.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 25 Sep 15

TEST BORING REPORT

Boring No. HA15-4(OW)
File No. 32328-100
Sheet No. 2 of 2

Depth (ft)	Sampler Blows per 6 in.	Sample No. & Rec. (in.)	Sample Depth (ft)	PID Readings (ppm) (sample/bkgd)	Well Diagram	Stratum Change Elev/Depth (ft)	USCS Symbol	VISUAL-MANUAL IDENTIFICATION AND DESCRIPTION (Density/consistency, color, GROUP NAME, max. particle size*, structure, odor, moisture, optional descriptions GEOLOGIC INTERPRETATION)	Gravel % Coarse	Gravel % Fine	Sand % Coarse	Sand % Medium	Sand % Fine	% Fines	Field Test Dilatancy	Field Test Toughness	Field Test Plasticity	Field Test Strength
	22 20 16 21	8 S10 6	18.0 18.0 20.0			-6.5 18.0	SW-SM	odor, wet, probable reworked naturally-deposited soil -FILL- Dense olive-gray well graded SAND with silt and gravel (SW-SM), mps 1.5 in., no odor, wet, moderately to well bonded	20	10	10	20	30	10				
20	30 18 7 4	S11 8	20.0 22.0	0.3			SP-SM	Medium dense gray-brown poorly-graded SAND with silt (SP-SM), mps 0.5 in., no odor, wet, well bonded to loosely bonded with depth		5	10	5	70	10				
								-GLACIAL TILL-										
25	34 23 27/5"	S12 5	25.0 26.4	1.2			SP-SM	Dense gray-brown poorly-graded SAND with silt and gravel (SP-SM), mps 1.25 in., no odor, wet, medium to well bonded	15	10	10	5	50	10				
	50/5"	S12A 5	26.4 26.8			-14.9 26.4 -15.3 26.8		-WEATHERED BEDROCK- -PROBABLE BEDROCK-										
						-16.8 28.3		BOTTOM OF EXPLORATION 28.3 FT Notes: 1. No elevated PID readings detected during drilling. 2. Observation well installed in completed borehole. See Groundwater Observation Well Installation Report HA15-4(OW) for details.										

NOTE: Soil identification based on visual-manual methods of the USCS as practiced by Haley & Aldrich, Inc.

Boring No. HA15-4(OW)

H&A-TEST BORING-07-1 PID HA-LIB09.GLB HA-TB+CORE+WELL-07-1.GDT G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 25 Sep 15

1985 and 1987 Haley & Aldrich, Inc.
Test Boring Logs

HALEY ALDRICH

NORTHEAST DIAMOND DRILLING CO., INC.

P. O. BOX 617 UNION, MAINE 04862

SHEET 1 OF 1
DATE 11-22-85
HOLE NO. B-10
LINE & STA.
OFFSET
SURF. ELEV.

TO Haley & Aldrich
PROJECT NAME Proposed Office Building
REPORT SENT TO
SAMPLES SENT TO Taken

ADDRESS Portland, Maine
LOCATION Portland, Maine
PROJ. NO.
OUR JOB NO. M-86-37

GROUND WATER OBSERVATIONS
At 3:10PM 11-22-85 8.5' after Hours
At after Hours

	CASING	SAMPLER	CORE BAR.
Type	BW	SS	
Size I.D.	2.5	1-5/8	
Hammer Wt.	300	140	
Hammer Fall	24	30	BIT

	Date	Time
START		
COMPLETE		
TOTAL HRS.		

BORING FOREMAN G Wright
INSPECTOR C Nickerson
SOILS ENGR.

LOCATION OF BORING:

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist.	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc.	SAMPLE No.	Pen	Rec
0	7	0-1.5	d	10	10	9	damp		Br sand& Gravel	1	1.5	1.0
	10											
	9											
	6											
5	4	5-6.5'	d	3	1	6	wet		Sand & Gravel brick Frag	2	1.5	.4
	3								sand ,silt small cobbles trace Clay			
	21											
	130											
	32											
10	26	10-11.5	d	3	3	3	moist		Gray Marine deposits sand silt	3	1.5	1.5
	2								small cobbles trace of clay			
	5											
	6											
	8											
15	6	15-16.5	d	4	2	2				4	1.5	1.5
	7											
	9											
	12											
	17											
20	23	20-21.5	d	16	22	33			Gray Br silt	5	1.5	1.5
	(Roller	Bit ahead)										
25												
		27.2-28.2	d	100	88				Br till or Decomposed Rock	6	1.5	8
									Refusal @ 28.2			
30												

GROUND SURFACE TO 27' USED BW "CASING: THEN

Sample Type
D=Dry C=Cored W=Washed
UP=Undisturbed Piston
TP=Test Pit A=Auger V=Vane Test
UT=Undisturbed Thinwall

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

140 lb Wt. x 30" fall on 2" O.D. Sampler

Cohesionless Density
0-10 Loose
10-30 Med. Dense
30-50 Dense
50 + Very Dense

Cohesive Consistency
0-4 Soft
4-8 M/Stiff
8-15 Stiff
15-30 V-Stiff
30 + Hard

SUMMARY:
Earth Boring 27'
Rock Coring
Samples 6

HOLE NO. B-10

TOWN PRESS · EAST PROVIDENCE — (401) 434-4086

NORTHEAST DIAMOND DRILLING CO., INC.

P. O. BOX 617 UNION, MAINE 04862

SHEET 1 OF 1
DATE 11-22-85
HOLE NO. B-11
LINE & STA.
OFFSET
SURF. ELEV.

TO Haley & Aldrich
PROJECT NAME Proposed Office Building
REPORT SENT TO
SAMPLES SENT TO Taken

ADDRESS Portland, Maine
LOCATION Portland, Maine
PROJ. NO.
OUR JOB NO. M-86-37

GROUND WATER OBSERVATIONS
At 10:17 AM 11-22-85 after 7.1' Hours
At ____ after ____ Hours

	CASING	SAMPLER	CORE BAR.
Type	BW	SS	
Size I.D.	2.5	1-5/8	
Hammer Wt.	300	140	BIT
Hammer Fall	24	30	

	Date	Time
START	11-22-85	7:00
COMPLETE	11-22-85	10:30
TOTAL HRS.		
BORING FOREMAN	G Wright	
INSPECTOR	C Nickerson	
SOILS ENGR.		

LOCATION OF BORING:

DEPTH	Casing Blows per foot	Sample Depths From - To	Type of Sample	Blows per 6" on Sampler From 0-6	To 6-12	To 12-18	Moisture Density or Consist.	Strata Change Elev.	SOIL IDENTIFICATION Remarks include color, gradation, Type of soil etc. Rock-color, type, condition, hardness, Drilling time, seams and etc.	SAMPLE No.	Pen	Re
0		1.4-2.9	d	12	10	7	damp		Drilled through Pavement with Roller bit- 0'-1.4'	1	1.5	.4
	5/6								Sand heavy Gray . Brick peices (Fill)			
	8											
	10											
5	10	5'-6.5	d	7	5	10				2	1.5	0
	16											
	10											
	8											
	4											
10	10	10'-11.5'	d				wet		Gray sand & Gravel Cobbles	3	1.5	1.
	14											
	23											
	18											
	19											
15	47	15'-16.5'	d						soft Grsy fine sand small Cobbles	4	1.5	1.
	7											
	4											
	10/0 pen								Refusal @ 17' 50 Blows no Pen			

GROUND SURFACE TO 17' USED BW "CASING: THEN

Sample Type
D=Dry C=Cored W=Washed
UP=Undisturbed Piston
TP=Test Pit A=Auger V=Vane Test
UT=Undisturbed Thinwall

Proportions Used
trace 0 to 10%
little 10 to 20%
some 20 to 35%
and 35 to 50%

140 lb Wt. x 30" fall on 2" O.D. Sampler

Cohesionless Density		Cohesive Consistency	
0-10	Loose	0-4	Soft
10-30	Med. Dense	4-8	M/Stiff
30-50	Dense	8-15	Stiff
50+	Very Dense	15-30	V-Stiff
		30+	Hard

SUMMARY:
Earth Boring 17'
Rock Coring
Samples 4

HOLE NO. B-11

TOWN PRESS • EAST PROVIDENCE — (401) 434-4086

MAINE TEST BORINGS, INC. BREWER, MAINE 04412	CLIENT Northland	SHEET 1 OF 1 HOLE NO. B-12
DRILLER Darrel McKeen	PROJECT NAME Portland Square	LINE & STATION
M.T.B. JOB NUMBER 87-159	LOCATION Portland, Maine	OFFSET

GROUND WATER OBSERVATIONS

AT _____ FT. AFTER _____ HOURS

AT _____ FT. AFTER _____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT.		140	
HAMMER FALL		30"	

DATE START 7/8/87 DATE FIN. 7/8/8

SURFACE ELEV. _____

GROUND WATER ELEV. _____

CASING BLOWS PER FOOT	SAMPLE NO.	O.D.	PEN.	REC.	DEPTH @ BOT	BLOWS PER 6" ON SAMPLER 0-6	6-12	12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
	1D	2"	18"		1.5	4	5	8		2.0	Brown silty gravelly sand w/trace of brick
	2D	2"	24"		6.0	2	3	4	4	8.0	Gray brown silty mottled clay
	3D	2"	18"		11.0	0	1	1		12.0	Gray silty clay w/sand layers
	4D	2"	18"		16.0	4	7	10			Gray silty sand w/trace of gravel trace of cla
	D	2"	24"	0	21.0	3	1	2	2		
	5D	2"	18"		23.8	3	4	5			
	6D	2"	18"		26.0	2	3	4		27.5	Brown coarse sand w/trace of silt
	7D	2"	18"		31.0	13	25	45		30.5	Brown gravelly sandy silt
	D	2"	0	0	32.5	50				32.5	Refusal @ 32.5' Water @ 14.5 w/auger Caved @ 10.5'

SAMPLES
- D = Split Spoon
- C = 2" Shelby Tube
- U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
- [X] Driller Visually
- [ ] Soil Technician Visually
- [ ] Laboratory Tests

REMARKS

HOLE NO. B-12

MTB-14

MAINE TEST BORINGS, INC.
BREWER, MAINE 04412

CLIENT: Northland

SHEET 1 OF 1
HOLE NO. B-13

DRILLER: Darrel McKeen
M.T.B. JOB NUMBER: 87-159

PROJECT NAME: Portland Square
LOCATION: Portland, Maine

LINE & STATION:
OFFSET:

GROUND WATER OBSERVATIONS
AT ____ FT. AFTER ____ HOURS
AT ____ FT. AFTER ____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT		140	
HAMMER FALL		30"	

DATE START 7/8/87 DATE FIN. 7/8/
SURFACE ELEV.
GROUND WATER ELEV.

CASING BLOWS PER FOOT	SAMPLE NO.	O.D.	PEN.	REC.	DEPTH @ BOT	BLOWS PER 6" ON SAMPLER 0-6	6-12	12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
	1D	2"	18"		1.5	2	4	11		0.5	Brown gravelly sand
	2D	2"	18"		6.0	4	9	8		8.5	Gray brown silty mottled clay
	3D	2"	18"		11.0	1	WOH	1		12.0	Gray sandy silty clay w/trace of gravel
	4D	2"	18"		16.0	2	2	3		22.5	Gray silty sand w/trace of gravel trace of cl
	5D	2"	18"		21.0	8	10	10			
	D	2"	0	0	22.5	50					Refusal @ 22.5' Water @ 17.0 w/auger Caved @ 6.5'

SAMPLES
D = Splite Spoon
C = 2" Shelby Tube
U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
[X] Driller - Visually
[ ] Soil Technican - Visually
[ ] Laboratory Tests

REMARKS:

HOLE NO. B-13

MTB-14

MAINE TEST BORINGS, INC. BREWER, MAINE 04412	CLIENT Northland	SHEET 1 OF 1 HOLE NO. B-14
DRILLER Darrel McKeen	PROJECT NAME Portland Square	LINE & STATION
M.T.B. JOB NUMBER 87-159	LOCATION Portland, Maine	OFFSET

GROUND WATER OBSERVATIONS

AT _____ FT. AFTER _____ HOURS

AT _____ FT. AFTER _____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT.		140	
HAMMER FALL		30"	

DATE START 7/7/87 DATE FIN 7/7/8

SURFACE ELEV. _____

GROUND WATER ELEV. _____

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE O.D.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT.	BLOWS PER 6" ON SAMPLER 0-6	BLOWS PER 6" ON SAMPLER 6-12	BLOWS PER 6" ON SAMPLER 12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
	1D	2"	18"		1.5	10	11	12		3.5	Brown silty gravelly sand w/trace of black
	2D	2"	18"		6.0	1	2	2		13.2	Gray silty sand w/trace of gravel
	3D	2"	1"		13.3	50				13.3	Weathered rock

Refusal @ 13.3'
Water @ 11.7' w/auger
Caved @ 12.3'
Water @ 11.3' w/out auger

SAMPLES
D = Splite Spoon
C = 2" Shelby Tube
U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
[X] Driller - Visually
[ ] Soil Technican - Visually
[ ] Laboratory Tests

REMARKS

HOLE NO. B-14

MAINE TEST BORINGS, INC.
BREWER, MAINE 04412

CLIENT: Northland

SHEET 1 OF 1
HOLE NO. B-15

DRILLER: Darrel McKeen
M.T.B. JOB NUMBER: 87-159

PROJECT NAME: Portland Square
LOCATION: Portland, Maine

LINE & STATION:
OFFSET:

GROUND WATER OBSERVATIONS
AT ____ FT. AFTER ____ HOURS
AT ____ FT. AFTER ____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT.		140	
HAMMER FALL		30"	

DATE START 7/7/87 DATE FIN. 7/7/
SURFACE ELEV.
GROUND WATER ELEV.

CASING BLOWS PER FOOT	SAMPLE NO.	O.D.	PEN.	REC.	DEPTH @ BOT.	BLOWS PER 6" ON SAMPLER 0-6	6-12	12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
										0.2	Pavement
	1D	2"	18"		2.5	3	4	7		3.0	Brown silty sandy gravel w/trace of black
	2D	2"	18"		6.0	5	7	11			Gray brown silty mottled clay w/fine sand lay
	D	2"	8"	0	10.2	3	52			10.2	
											Refusal @ 10.2'
											Caved @ 8.4'

SAMPLES
D = Split Spoon
C = 2" Shelby Tube
U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
[X] Driller - Visually
[ ] Soil Technican - Visually
[ ] Laboratory Tests

REMARKS

HOLE NO. B-15

MTB-14

MAINE TEST BORINGS, INC. BREWER, MAINE 04412	CLIENT Northland	SHEET 1 OF 1 HOLE NO. B-15A
DRILLER Darrel McKeen	PROJECT NAME Portland Square	LINE & STATION
M.T.B. JOB NUMBER 87-159	LOCATION Portland, Maine	OFFSET

GROUND WATER OBSERVATIONS

AT _____ FT. AFTER _____ HOURS

AT _____ FT. AFTER _____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT.		140	
HAMMER FALL		30"	

DATE START 7/7/87 DATE FIN. 7/7/8

SURFACE ELEV. _____

GROUND WATER ELEV. _____

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE O.D.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	BLOWS PER 6" ON SAMPLER 0-6	BLOWS PER 6" ON SAMPLER 6-12	BLOWS PER 6" ON SAMPLER 12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
										0.2	Pavement
										3.5	Brown silty sandy gravel w/trace of black
										8.0	Gray brown silty mottled clay w/sand layers
	1D	2"	11"		10.4	3	53			10.4	Brown silty sand w/trace of gravel
											Refusal @ 10.4' Caved @ 7.7'

SAMPLES
D = Split Spoon
C = 2" Shelby Tube
U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
[X] Driller Visually
[ ] Soil Technican - Visually
[ ] Laboratory Tests

REMARKS:

HOLE NO. B-15A

MTB-14

MAINE TEST BORINGS, INC.
BREWER, MAINE 04412

CLIENT: Northland

SHEET 1 OF 1
HOLE NO. B-16

DRILLER: Darrel McKeen
PROJECT NAME: Portland Square
LINE & STATION:
M.T.B. JOB NUMBER: 87-159
LOCATION: Portland, Maine
OFFSET:

GROUND WATER OBSERVATIONS
AT ____ FT. AFTER ____ HOURS
AT ____ FT. AFTER ____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT.		140	
HAMMER FALL		30"	

DATE START 7/7/87 DATE FIN. 7/7
SURFACE ELEV.
GROUND WATER ELEV.

CASING BLOWS PER FOOT	SAMPLE NO.	O.D.	PEN.	REC.	DEPTH @ BOT.	BLOWS PER 6" ON SAMPLER 0-6	6-12	12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
	1D	2"	18"		1.5	10	10	17		0.5	Brown silty sandy gravel
										0.8	Brown fine to coarse sand
										1.0	Brick
										3.5	Brown silty sandy gravel
	2D	2"	18"		6.0	7	8	13			Brown gray silty mottled clay w/trace of sand
										9.0	
										11.5	Gray silty clay
	D	2"	36"		12.5	0 - 1	1	1	1 - 1		
	3D	2"	18"		14.0	3	1	2			Gray silty sand
	4D	2"	18"		16.0	16	35	39		16.5	
										19.0	Gray silty sandy gravel
	5D	2"	3"		19.8	68				19.8'	Weathered rock

Refusal @ 19.8'
Water @ 15.9' w/auger
Caved @ 11.0'
Water @ 10.0' w/out auger

SAMPLES
D = Splite Spoon
C = 2" Shelby Tube
U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
[X] Driller Visually
[ ] Soil Technican - Visually
[ ] Laboratory Tests

REMARKS:

HOLE NO. B-16

MTB-14

MAINE TEST BORINGS, INC.
BREWER, MAINE 04412

CLIENT: Northland

SHEET 1 OF 1
HOLE NO. B-17

DRILLER: Darrel McKeen
M.T.B. JOB NUMBER: 87-159
PROJECT NAME: Portland Square
LOCATION: Portland, Maine
LINE & STATION:
OFFSET:

GROUND WATER OBSERVATIONS
AT ____ FT. AFTER ____ HOURS
AT ____ FT. AFTER ____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT.		140	
HAMMER FALL		30"	

DATE START 7/8/87 DATE FIN. 7/8/
SURFACE ELEV.
GROUND WATER ELEV.

CASING BLOWS PER FOOT	SAMPLE NO.	O.D.	PEN.	REC.	DEPTH @ BOT.	BLOWS PER 6" ON SAMPLER 0-6	6-12	12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
	1D	2"	18"		1.5	10	5	8		1.0	Brown silty gravelly sand
											Gray brown sandy silt w/mottled clay
	2D	2"	18"		6.0	6	4	6		7.5	
											Gray silty clayey sand
	3D	2"	18"		11.0	3	3	7		11.5	
											Gray silty sand w/trace of gravel
	4D	2"	18"		16.0	3	5	8		17.0	
										19.6	Brown coarse sand
	4D	2"	6"		20.0	80				20.0	Weathered rock
											Refusal @ 20.0' Water@ 10.6' w/auger Caved @ 15.0' Water@ 11.5' w/out auger

SAMPLES
D = Splite Spoon
C = 2" Shelby Tube
U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
[X] Driller - Visually
[ ] Soil Technican - Visually
[ ] Laboratory Tests

REMARKS:

HOLE NO. B-

MTB-14

MAINE TEST BORINGS, INC.
BREWER, MAINE 04412

CLIENT: Northland

SHEET 1 OF 1
HOLE NO. B-25

DRILLER: Darrel McKeen
PROJECT NAME: Portland Square
LINE & STATION:
M.T.B. JOB NUMBER: 87-159
LOCATION: Portland, Maine
OFFSET:

GROUND WATER OBSERVATIONS
AT ____ FT. AFTER ____ HOURS
AT ____ FT. AFTER ____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT.		140	
HAMMER FALL		30"	

DATE START 7/8/87 DATE FIN. 7/8/
SURFACE ELEV.
GROUND WATER ELEV.

CASING BLOWS PER FOOT	SAMPLE NO.	O.D.	PEN.	REC.	DEPTH @ BOT.	BLOWS PER 6" ON SAMPLER 0-6	6-12	12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
	1D	2"	18"		1.5	3	8	9			Brown silty sandy gravel Rubble
	–									5.5	
	2D	2"	18"		6.5	3	3	3			Gray brown sandy silty clayey gravel, brick
	3D	2"	18"		11.5	10	9	3			
	4D	2"	18"		16.5	2	3	7		16.5	
										17.0	Wood
	5D	2"	18"		21.5	2	1	4			Gray clayey silty sand w/trace of gravel
	6D	2"	18"		26.5	1	1	1			
										28.0	Gray silty sandy gravel
	7D	2"	9"		30.8	5	5			30.8'	
											Refusal @ 30.8' Water @ 11.0' w/auger Caved @ 14.7' Water @ 8.8' w/out auger

SAMPLES
D = Splite Spoon
C = 2" Shelby Tube
U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
[X] Driller - Visually
[ ] Soil Technican - Visually
[ ] Laboratory Tests

REMARKS:

HOLE NO. B-25

MTB-14

MAINE TEST BORINGS, INC. BREWER, MAINE 04412	CLIENT Northland	SHEET 1 OF 1 HOLE NO. B-27
DRILLER Darrel McKeen	PROJECT NAME Portland Square	LINE & STATION
M.T.B. JOB NUMBER 87-159	LOCATION Portland, Maine	OFFSET

GROUND WATER OBSERVATIONS

AT _____ FT. AFTER _____ HOURS

AT _____ FT. AFTER _____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT.		140	
HAMMER FALL		30"	

DATE START 7/8/87 DATE FIN. 7/8/

SURFACE ELEV. _____

GROUND WATER ELEV. _____

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE O.D.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT.	BLOWS PER 6" ON SAMPLER 0-6	6-12	12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
										0.5	Brwon gravelly sand
	1D	2"	18"		1.5	3	20	20			
											Black silty sandy gravel w/trace of brick, wo
										4.0	
	2D	2"	18"		6.0	3	3	3			Brown silty sandy gravel
										9.0	
	3D	2"	18"		11.0	0	0	1			Brown sandy organic silt
										16.5	
	4D	2"	24"		17.0	WOH	WOH	WOH	3		
											Gray sandy silty clay w/trace of gravel
	5D	2"	18"		21.0	2	2	2			
	D	2"	0	0	25.0	50				25.0	
											Refusal @ 25.0' Water@ 21.4' w/auger Caved @ 9.6' Water @ 6.0' w/out auger

SAMPLES
D - Splite Spoon
C = 2" Shelby Tube
U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
[X] Driller Visually
[ ] Soil Technican - Visually
[ ] Laboratory Tests

REMARKS

HOLE NO. B-27

MTB-14

BREWER, MAINE 04412

Northland

HOLE NO. B-2B

DRILLER: Jim Goody

PROJECT NAME: Portland Square Project

LINE & STATION:

M.T.B. JOB NUMBER: 87-159A

LOCATION: Portland, Maine

OFFSET:

GROUND WATER OBSERVATIONS

AT ____ FT. AFTER ____ HOURS

AT ____ FT. AFTER ____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT.		140	
HAMMER FALL		30"	

DATE START 9/10/87 DATE FIN. 9/1(

SURFACE ELEV.

GROUND WATER ELEV.

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE O.D.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	BLOWS PER 6" ON SAMPLER 0-6	6-12	12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
											Brown black silty gravelly sand w/brick, ash, mixed fill
										4.0	
	1D	2"	18"		6.5	6	9	9			
	2D	2"	18"		11.5	3	2	2			Black silty gravelly sand w/ash and mixed fi
	3D	2"	18"		16.5	3	6	7			
										17.0	
											Refusal @ 17.0'
											Hole dry @ 17.0' w/augers
											Caved dry @ 7.0'

SAMPLES
D = Splite Spoon
C = 2" Shelby Tube
U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
[X] Driller - Visually
[ ] Soil Technican - Visually
[ ] Laboratory Tests

REMARKS:

HOLE NO. B-

MTB-14

MAINE TEST BORINGS, INC.
BREWER, MAINE 04412

Northland

HOLE NO. B-29

DRILLER: Jim Goody
M.T.B. JOB NUMBER: 87-159A
PROJECT NAME: Portland Square Project
LOCATION: Portland, Maine
LINE & STATION:
OFFSET:

GROUND WATER OBSERVATIONS
AT ____ FT. AFTER ____ HOURS
AT ____ FT. AFTER ____ HOURS

	CASING	SAMPLER	CORE BARREL
TYPE	HS	SS	
SIZE I.D.	2 1/2"	1 3/8"	
HAMMER WT.		140	
HAMMER FALL		30"	

DATE START 9/10/87 DATE FIN. 9/10/8
SURFACE ELEV.
GROUND WATER ELEV.

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE O.D.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT.	BLOWS PER 6" ON SAMPLER 0-6	6-12	12-18	VANE READING	DEPTH	STRATUM DESCRIPTION
	1D	2"	18"		6.5	3	3	2			Black silty gravelly sand w/wood and mixed fi
										9.0	
											Refusal @ 9.0'

SAMPLES
D = Splite Spoon
C = 2" Shelby Tube
U = 3½" Shelby Tube

SOIL CLASSIFIED BY:
[X] Driller - Visually
[ ] Soil Technican - Visually
[ ] Laboratory Tests

REMARKS:

HOLE NO. B-2

MTB-14

APPENDIX B

Laboratory Test Results

GeoTesting EXPRESS

Technologies to manage risk for infrastructure

Boston
Atlanta
Chicago
Los Angeles
New York

www.geotesting.com

Transmittal

TO:

Bryan Steinert

Haley & Aldrich, Inc.

75 Washington Avenue, Suite 203

Portland, ME 04101-2617

DATE: 11/30/2016	GTX NO: 305581
RE: Portland Square Development	

COPIES	DATE	DESCRIPTION
	11/30/2016	**November 2016 Laboratory Test Report**

REMARKS:

SIGNED:

Jonathan Campbell, Assistant Laboratory Manager

CC:

APPROVED BY:

Ethan Marro, Assistant Laboratory Manager

GeoTesting EXPRESS

Technologies to manage risk for infrastructure

Boston
Atlanta
Chicago
Los Angeles
New York
www.geotesting.com

November 30, 2016

Bryan Steinert
Haley & Aldrich, Inc.
75 Washington Avenue, Suite 203
Portland, ME 04101-2617

RE: Portland Square Development, Portland, ME (GTX-305581)

Dear Bryan:

Enclosed are the test results you requested for the above referenced project. GeoTesting Express, Inc. (GTX) received 16 samples from you on 11/4/2016. These samples were labeled as follows:

Boring	Sample	Depth
HA16-1	S1 + S2	1.0-5.0 ft
HA16-1	S3	5.0-7.0 ft
HA16-1	S4	10.0-12.0 ft
HA16-2	S4	9.0-11.0 ft
HA16-3	S2 + S3	3.0-7.0 ft
HA16-4	S1 + S2	1.0-3.5 ft
HA16-4	S3	5.0-7.0 ft
HA16-4	S4	10.0-12.0 ft
HA16-5	S4	10.0-12.0 ft
HA16-7	S2 + S3	3.0-7.0 ft
HA16-7	S5	15.0-17.0 ft
HA16-8	S5	15.0-17.0 ft
HA16-10	S2 + S3	3.0-7.0 ft
HA16-11	S2	3.0-4.9 ft
HA16-11	S5 + S6	10.5-14.5 ft
HA16-13	S2	3.0-5.0 ft

GTX performed the following test on each of these samples:

ASTM D422 - Grain Size Analysis - Sieve Only

A copy of your test request is attached.

The results presented in this report apply only to the items tested. This report shall not be reproduced except in full, without written approval from GeoTesting Express. The remainder of these samples will be retained for a period of sixty (60) days and will then be discarded unless otherwise notified by you. Please call me if you have any questions or require additional information. Thank you for allowing GeoTesting Express the opportunity of providing you with testing services. We look forward to working with you again in the future.

Respectfully yours,



Jonathan Campbell
Assistant Laboratory Manager

GeoTesting EXPRESS

Technologies to manage risk for infrastructure

Boston
Atlanta
Chicago
Los Angeles
New York

www.geotesting.com

Geotechnical Test Report **11/30/2016**

GTX-305581

Portland Square Development

Portland, ME

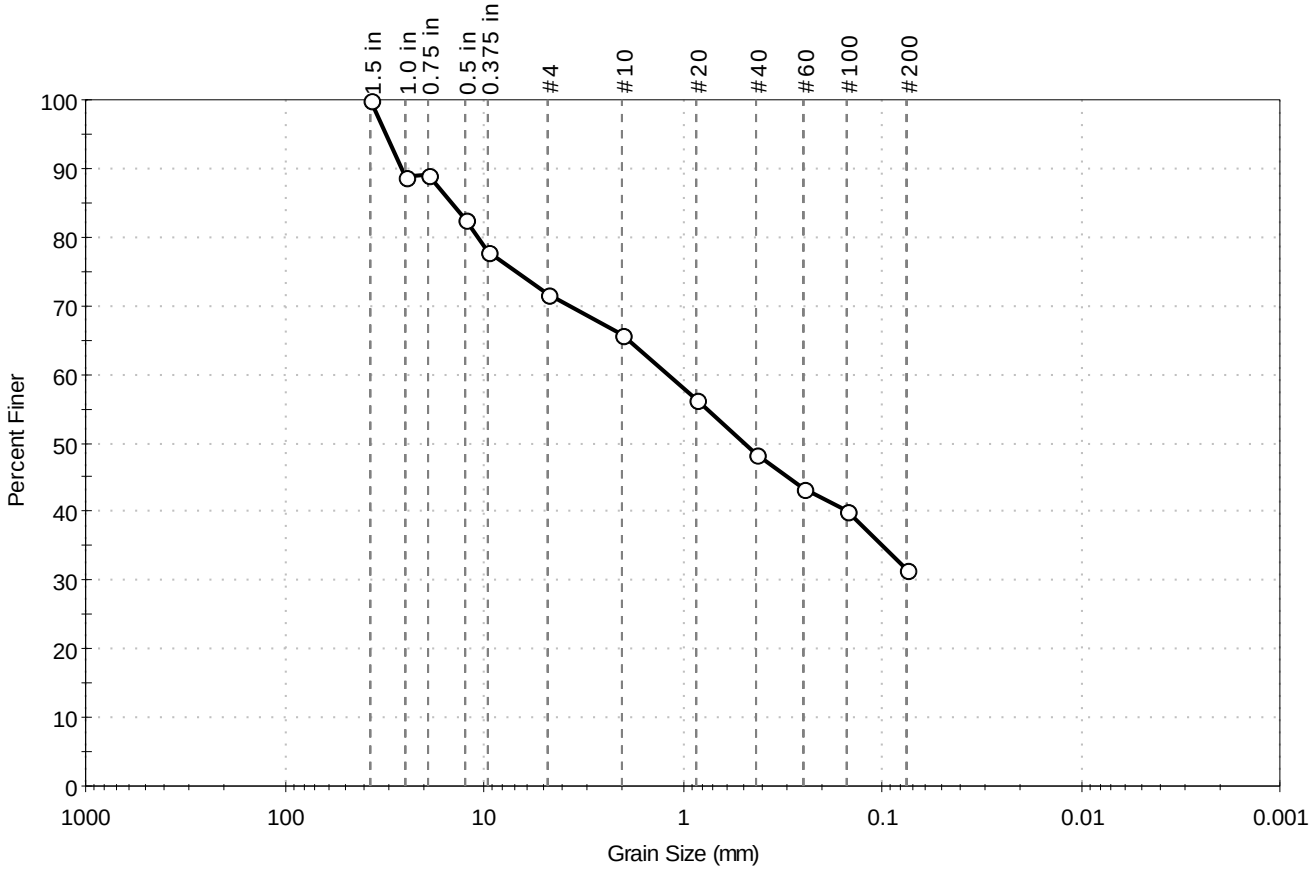
Client Project No.: 32328-111

Prepared for:

Haley & Aldrich, Inc.

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-1	Sample Type:	jar	Tested By:	GA
Sample ID:	S1 + S2	Test Date:	11/11/16	Checked By:	emm
Depth :	1.0-5.0 ft	Test Id:	397697		
Test Comment:	---				
Visual Description:	Moist, dark olive brown clayey sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	28.4	40.1	31.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.5 in	37.50	100		
1.0 in	25.00	89		
0.75 in	19.00	89		
0.5 in	12.50	83		
0.375 in	9.50	78		
#4	4.75	72		
#10	2.00	66		
#20	0.85	56		
#40	0.42	48		
#60	0.25	44		
#100	0.15	40		
#200	0.075	32		

Coefficients

D_{85} = 14.6438 mm D_{30} = N/A

D_{60} = 1.1816 mm D_{15} = N/A

D_{50} = 0.4932 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

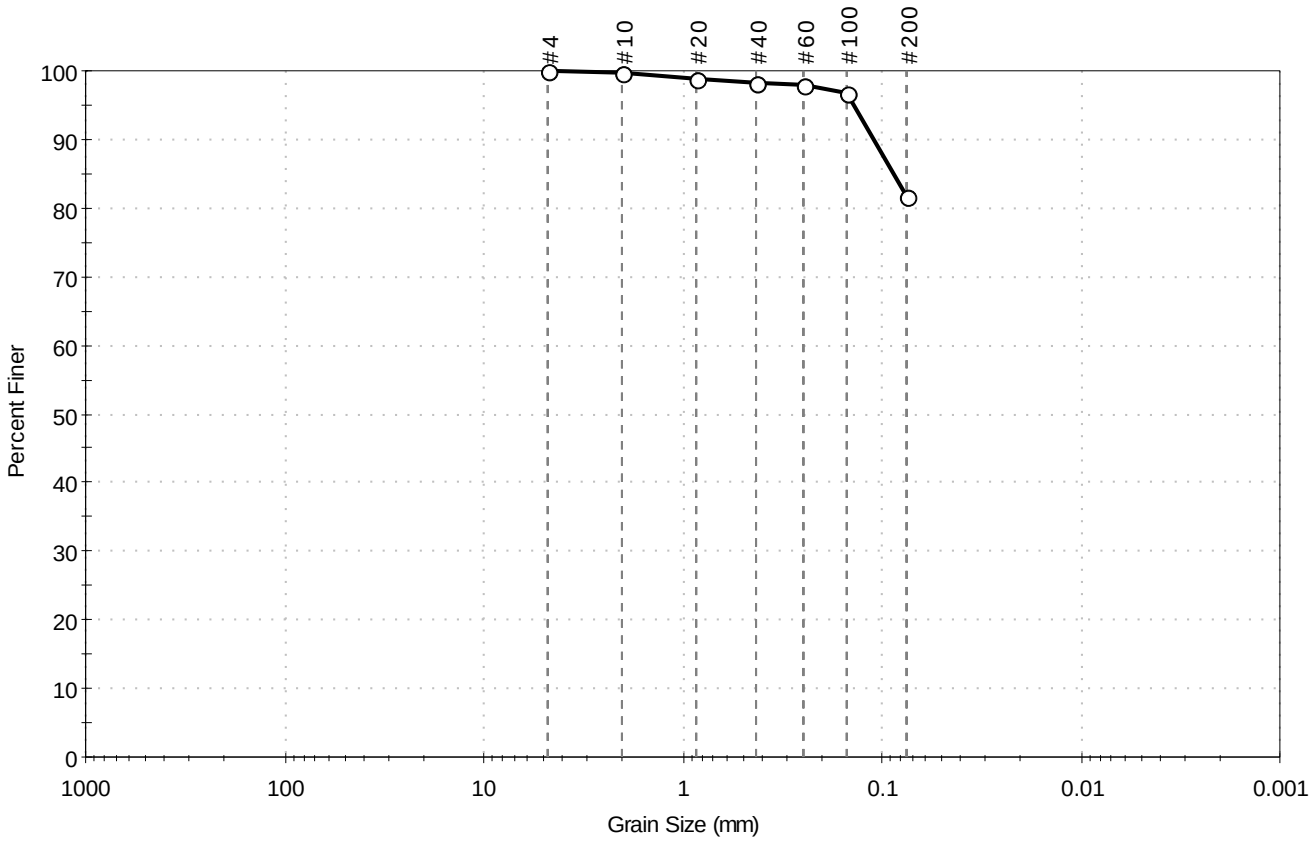
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-1	Sample Type:	jar	Tested By:	GA
Sample ID:	S3	Test Date:	11/11/16	Checked By:	emm
Depth :	5.0-7.0 ft	Test Id:	397706		
Test Comment:	---				
Visual Description:	Moist, olive gray clay with sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	0.0	18.2	81.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	98		
#60	0.25	98		
#100	0.15	97		
#200	0.075	82		

Coefficients

D_{85} = 0.0871 mm	D_{30} = N/A
D_{60} = N/A	D_{15} = N/A
D_{50} = N/A	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

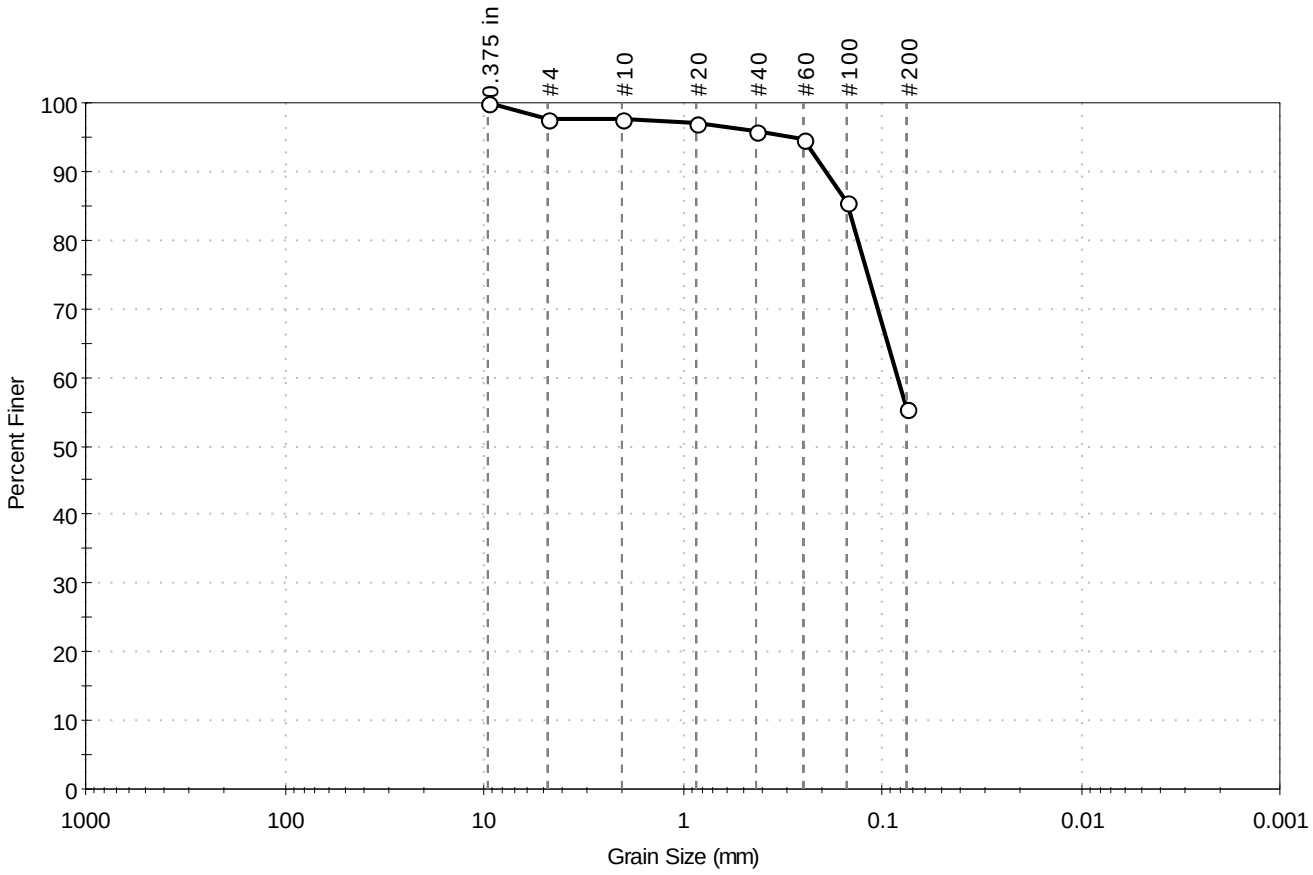
Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-1	Sample Type:	jar	Tested By:	GA
Sample ID:	S4	Test Date:	11/11/16	Checked By:	emm
Depth :	10.0-12.0 ft	Test Id:	397696		
Test Comment:	---				
Visual Description:	Moist, olive gray sandy silt				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	2.2	42.4	55.4

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	98		
#10	2.00	98		
#20	0.85	97		
#40	0.42	96		
#60	0.25	95		
#100	0.15	86		
#200	0.075	55		

Coefficients

D_{85} = 0.1477 mm	D_{30} = N/A
D_{60} = 0.0833 mm	D_{15} = N/A
D_{50} = N/A	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

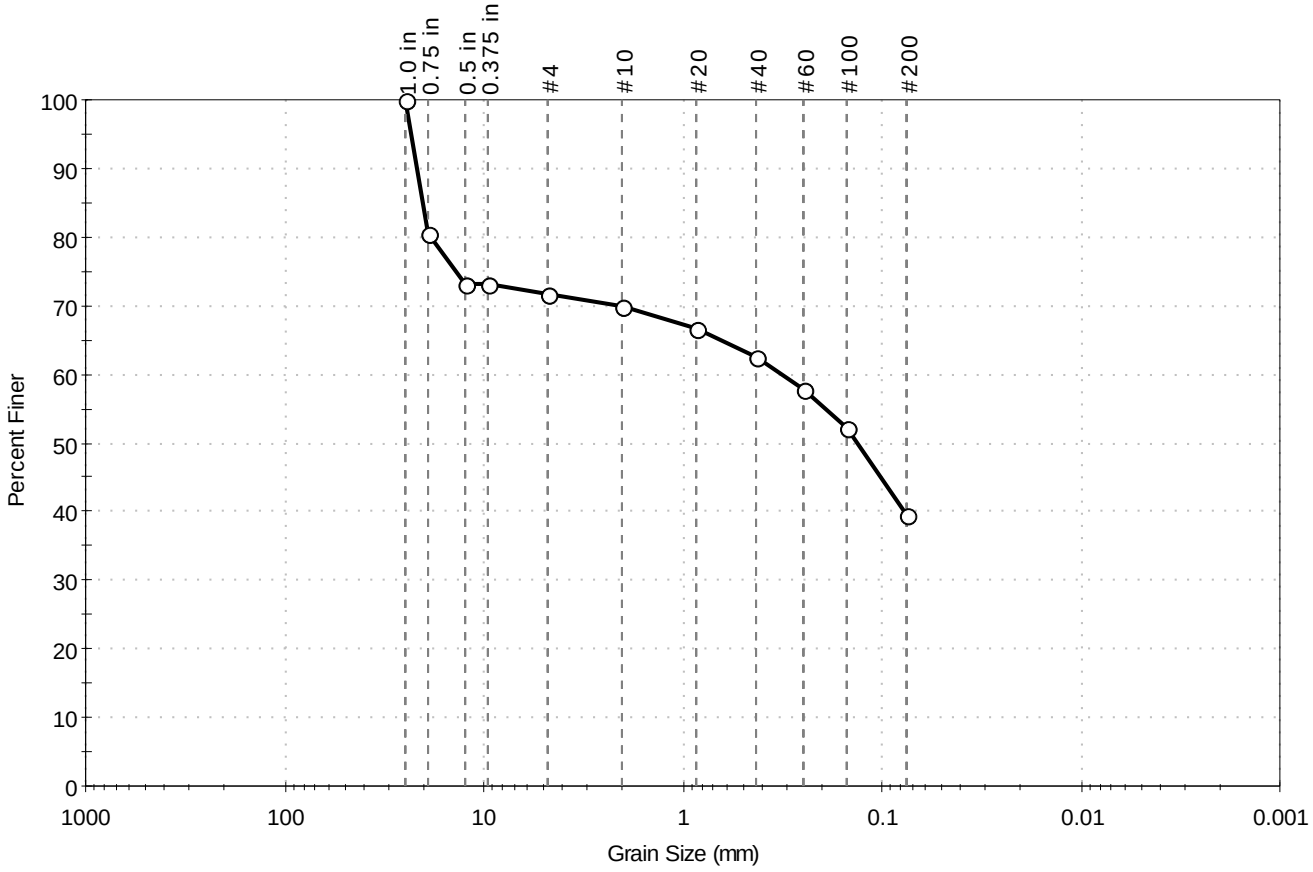
Sample / Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-2	Sample Type:	jar	Tested By:	GA
Sample ID:	S4	Test Date:	11/11/16	Checked By:	emm
Depth :	9.0-11.0 ft	Test Id:	397698		
Test Comment:	---				
Visual Description:	Moist, olive clayey sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	28.4	32.1	39.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.0 in	25.00	100		
0.75 in	19.00	81		
0.5 in	12.50	73		
0.375 in	9.50	73		
#4	4.75	72		
#10	2.00	70		
#20	0.85	67		
#40	0.42	63		
#60	0.25	58		
#100	0.15	52		
#200	0.075	39		

Coefficients

D_{85} = 20.2247 mm	D_{30} = N/A
D_{60} = 0.3170 mm	D_{15} = N/A
D_{50} = 0.1321 mm	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

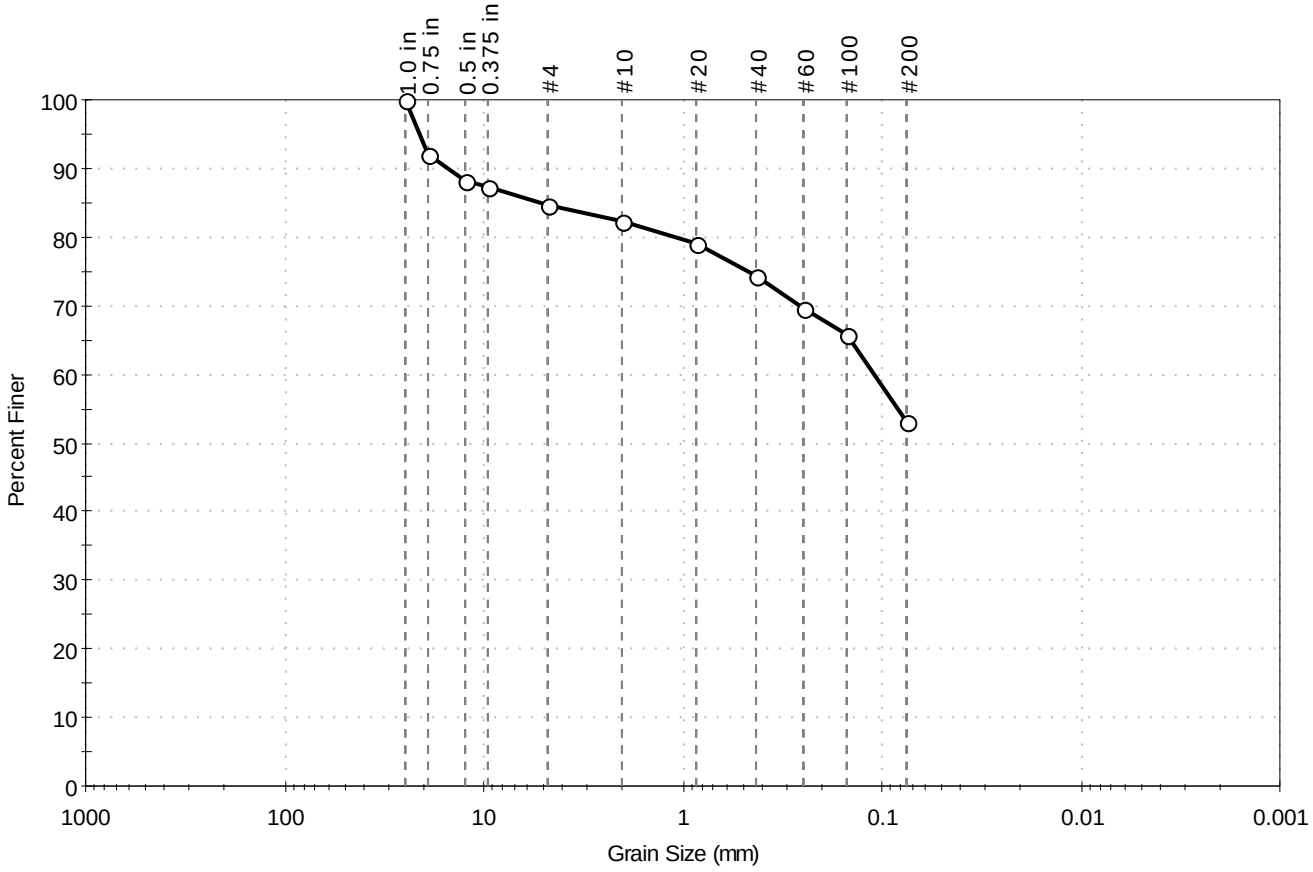
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-3	Sample Type:	jar	Tested By:	GA
Sample ID:	S2 + S3	Test Date:	11/11/16	Checked By:	emm
Depth :	3.0-7.0 ft	Test Id:	397707		
Test Comment:	---				
Visual Description:	Moist, dark olive gray sandy clay with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	15.4	31.5	53.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.0 in	25.00	100		
0.75 in	19.00	92		
0.5 in	12.50	88		
0.375 in	9.50	87		
#4	4.75	85		
#10	2.00	82		
#20	0.85	79		
#40	0.42	74		
#60	0.25	70		
#100	0.15	66		
#200	0.075	53		

Coefficients

D_{85} = 5.3336 mm D_{30} = N/A

D_{60} = 0.1097 mm D_{15} = N/A

D_{50} = N/A D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

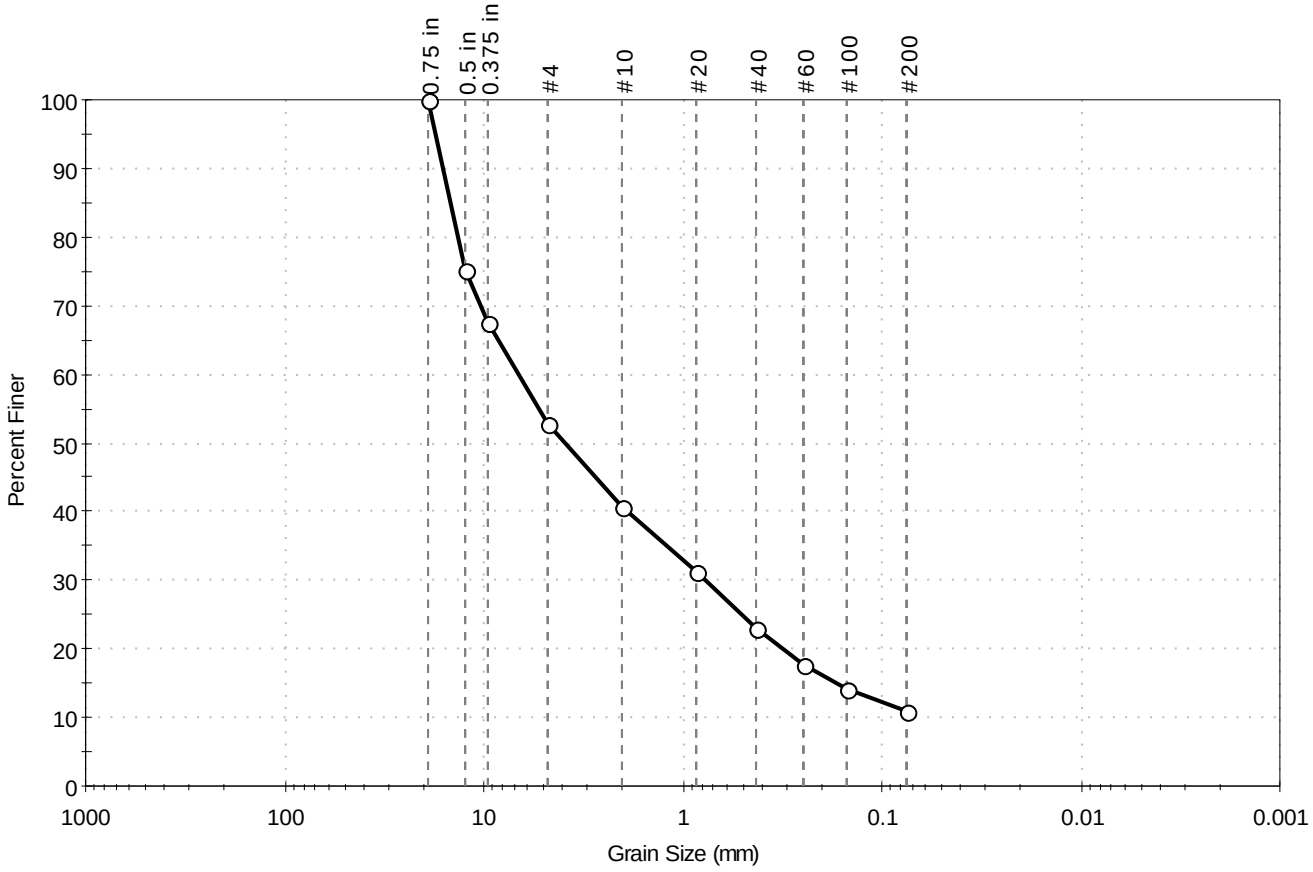
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-4	Sample Type:	jar	Tested By:	GA
Sample ID:	S1 + S2	Test Date:	11/11/16	Checked By:	emm
Depth :	1.0-3.5 ft	Test Id:	397708		
Test Comment:	---				
Visual Description:	Moist, gray gravel with silt and sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	47.3	41.9	10.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	75		
0.375 in	9.50	68		
#4	4.75	53		
#10	2.00	41		
#20	0.85	31		
#40	0.42	23		
#60	0.25	18		
#100	0.15	14		
#200	0.075	11		

Coefficients

D_{85} = 14.7454 mm D_{30} = 0.7642 mm

D_{60} = 6.6597 mm D_{15} = 0.1702 mm

D_{50} = 3.9077 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-a (0))

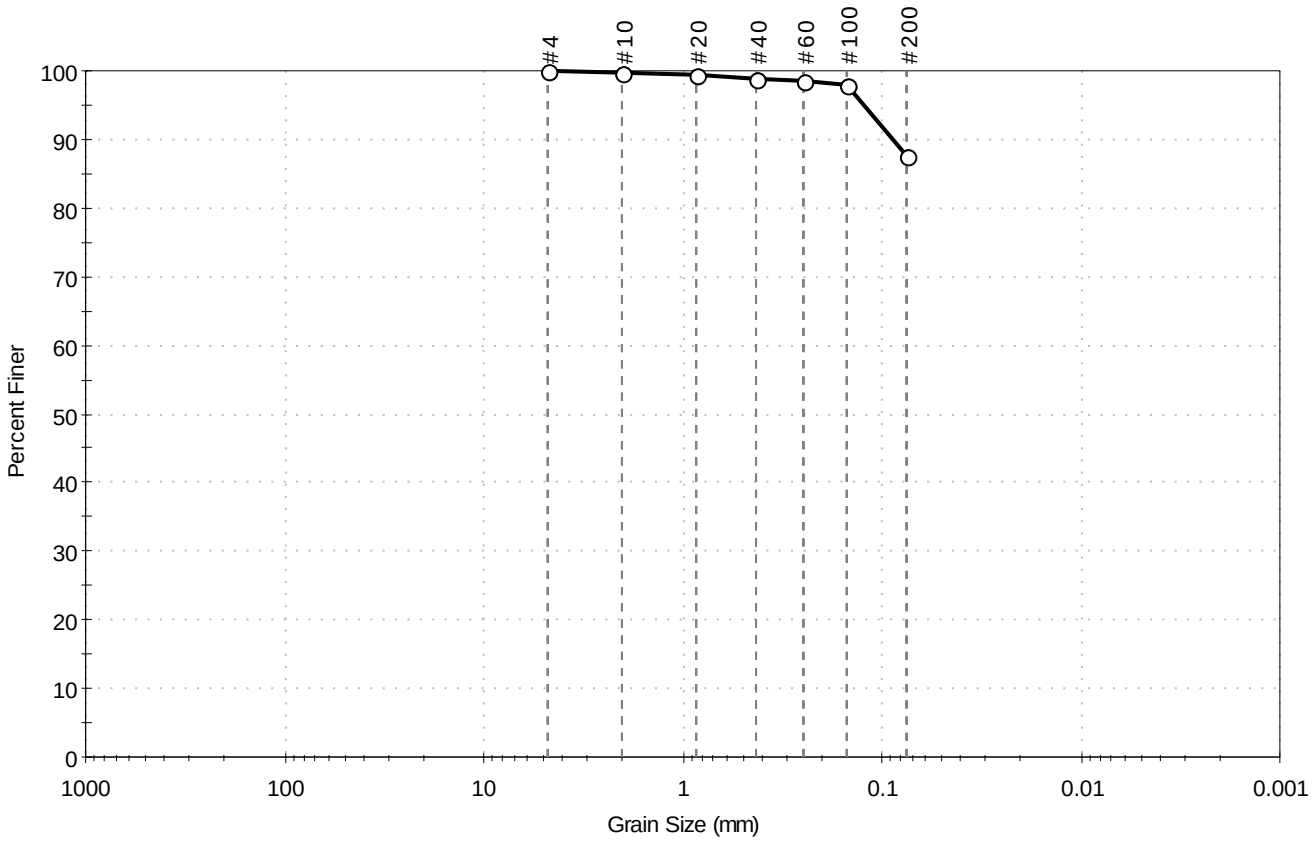
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-4	Sample Type:	jar	Tested By:	GA
Sample ID:	S3	Test Date:	11/11/16	Checked By:	emm
Depth :	5.0-7.0 ft	Test Id:	397709		
Test Comment:	---				
Visual Description:	Moist, olive gray clay				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	0.0	12.5	87.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
#4	4.75	100		
#10	2.00	100		
#20	0.85	99		
#40	0.42	99		
#60	0.25	98		
#100	0.15	98		
#200	0.075	87		

Coefficients

D_{85} = N/A	D_{30} = N/A
D_{60} = N/A	D_{15} = N/A
D_{50} = N/A	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

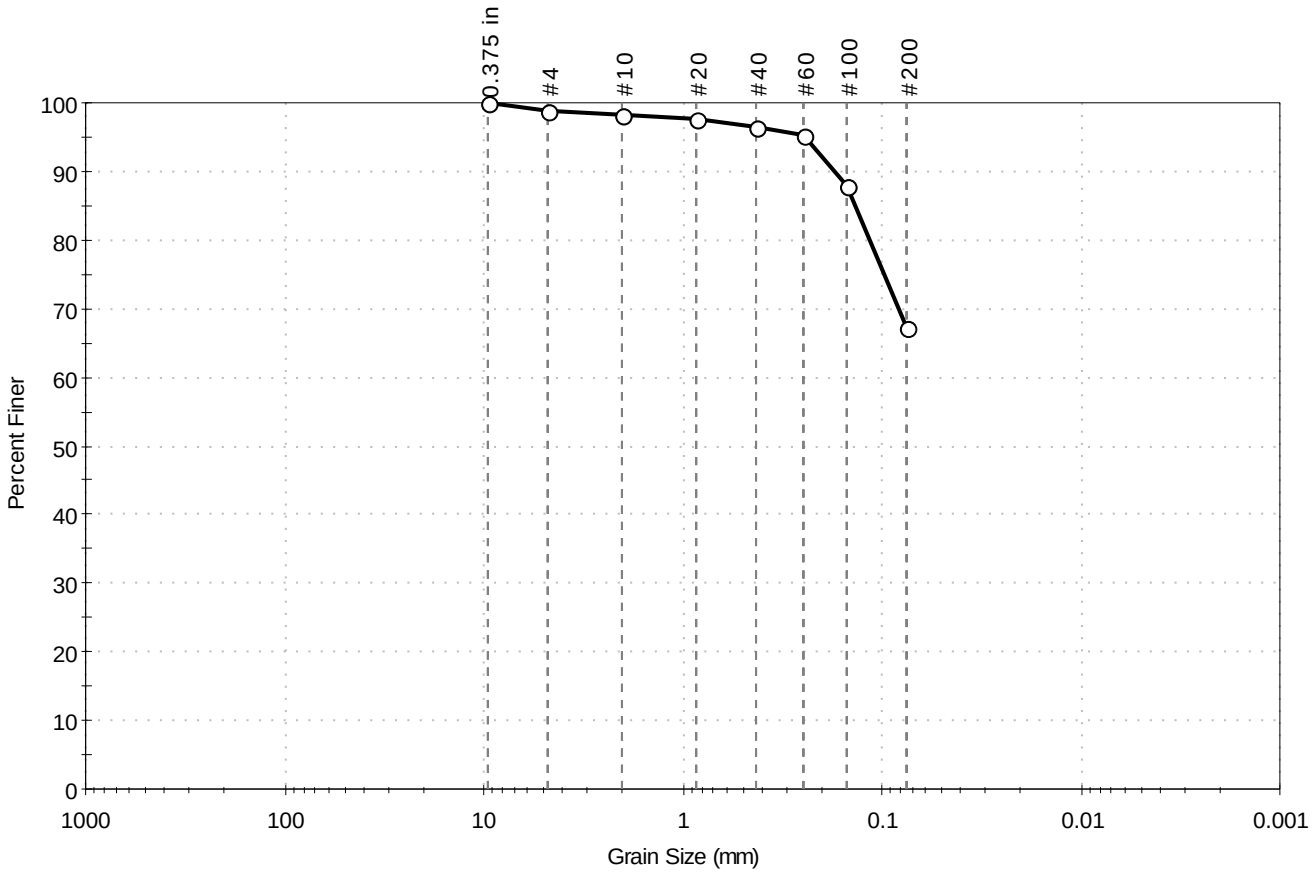
Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-4	Sample Type:	jar	Tested By:	GA
Sample ID:	S4	Test Date:	11/11/16	Checked By:	emm
Depth :	10.0-12.0 ft	Test Id:	397699		
Test Comment:	---				
Visual Description:	Moist, gray sandy clay				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	1.1	31.6	67.3

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.375 in	9.50	100		
#4	4.75	99		
#10	2.00	98		
#20	0.85	98		
#40	0.42	97		
#60	0.25	95		
#100	0.15	88		
#200	0.075	67		

Coefficients

D_{85} = 0.1355 mm	D_{30} = N/A
D_{60} = N/A	D_{15} = N/A
D_{50} = N/A	D_{10} = N/A
C_u = N/A	C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

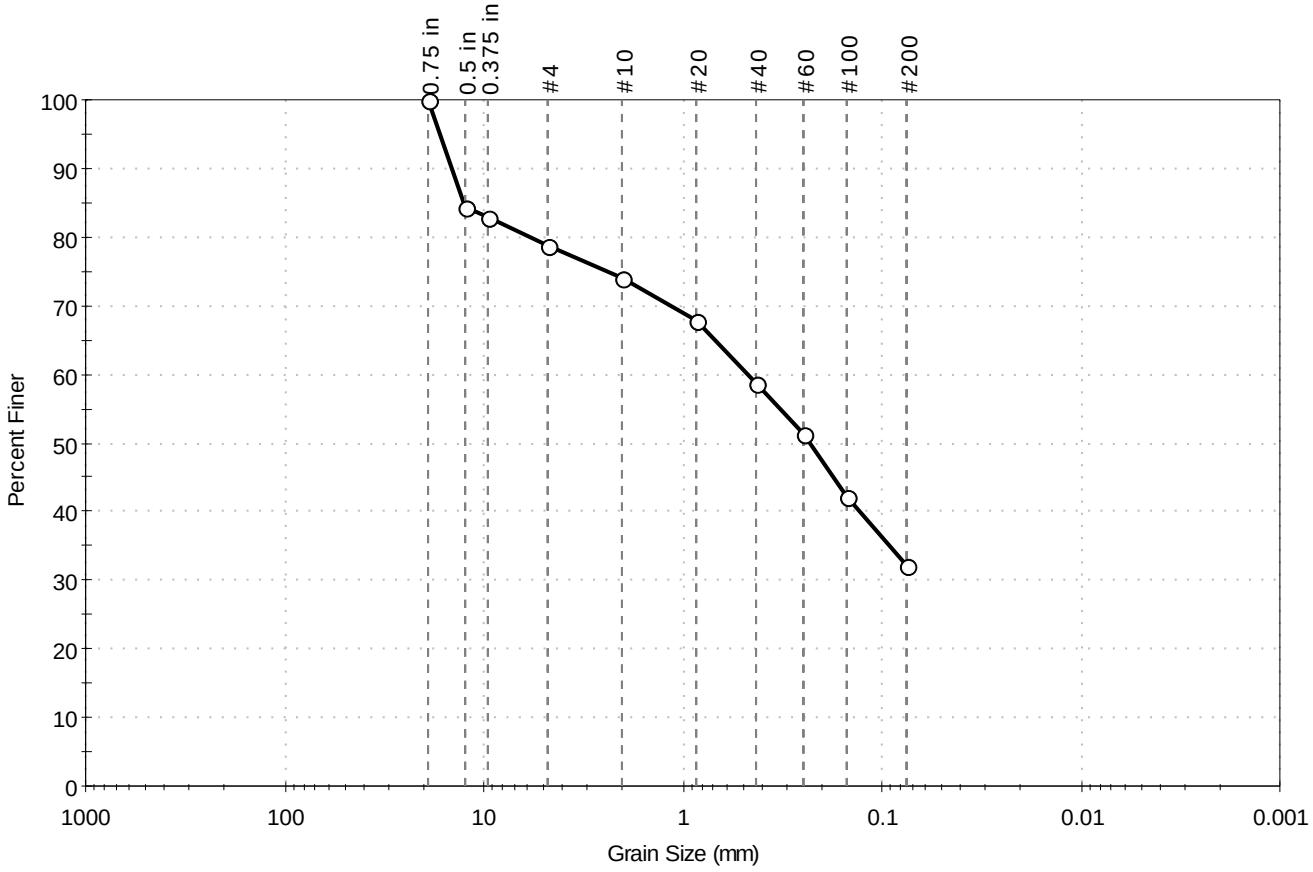
Sample/Test Description

Sand/Gravel Particle Shape : ---

Sand/Gravel Hardness : ---

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-5	Sample Type:	jar	Tested By:	GA
Sample ID:	S4	Test Date:	11/11/16	Checked By:	emm
Depth :	10.0-12.0 ft	Test Id:	397700		
Test Comment:	---				
Visual Description:	Moist, gray silty sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	21.1	46.8	32.1

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	84		
0.375 in	9.50	83		
#4	4.75	79		
#10	2.00	74		
#20	0.85	68		
#40	0.42	59		
#60	0.25	51		
#100	0.15	42		
#200	0.075	32		

Coefficients

D_{85} = 12.7356 mm D_{30} = N/A

D_{60} = 0.4644 mm D_{15} = N/A

D_{50} = 0.2325 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

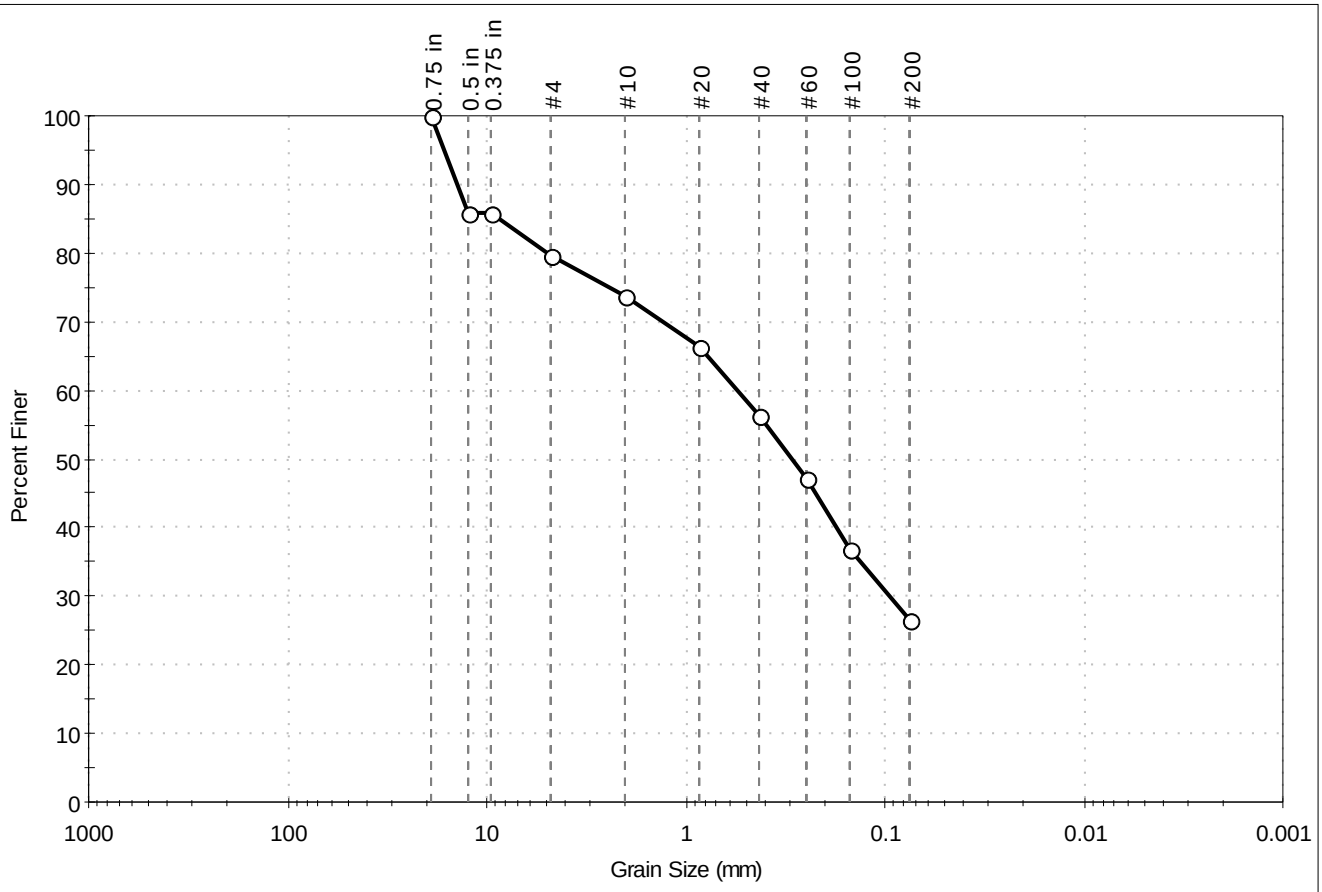
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-7	Sample Type:	jar	Tested By:	GA
Sample ID:	S2 + S3	Test Date:	11/11/16	Checked By:	emm
Depth :	3.0-7.0 ft	Test Id:	397711		
Test Comment:	---				
Visual Description:	Moist, dark olive brown clayey sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	20.5	53.0	26.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	86		
0.375 in	9.50	86		
#4	4.75	80		
#10	2.00	74		
#20	0.85	66		
#40	0.42	56		
#60	0.25	47		
#100	0.15	37		
#200	0.075	27		

Coefficients

D_{85} = 8.5801 mm D_{30} = 0.0949 mm

D_{60} = 0.5496 mm D_{15} = N/A

D_{50} = 0.2964 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

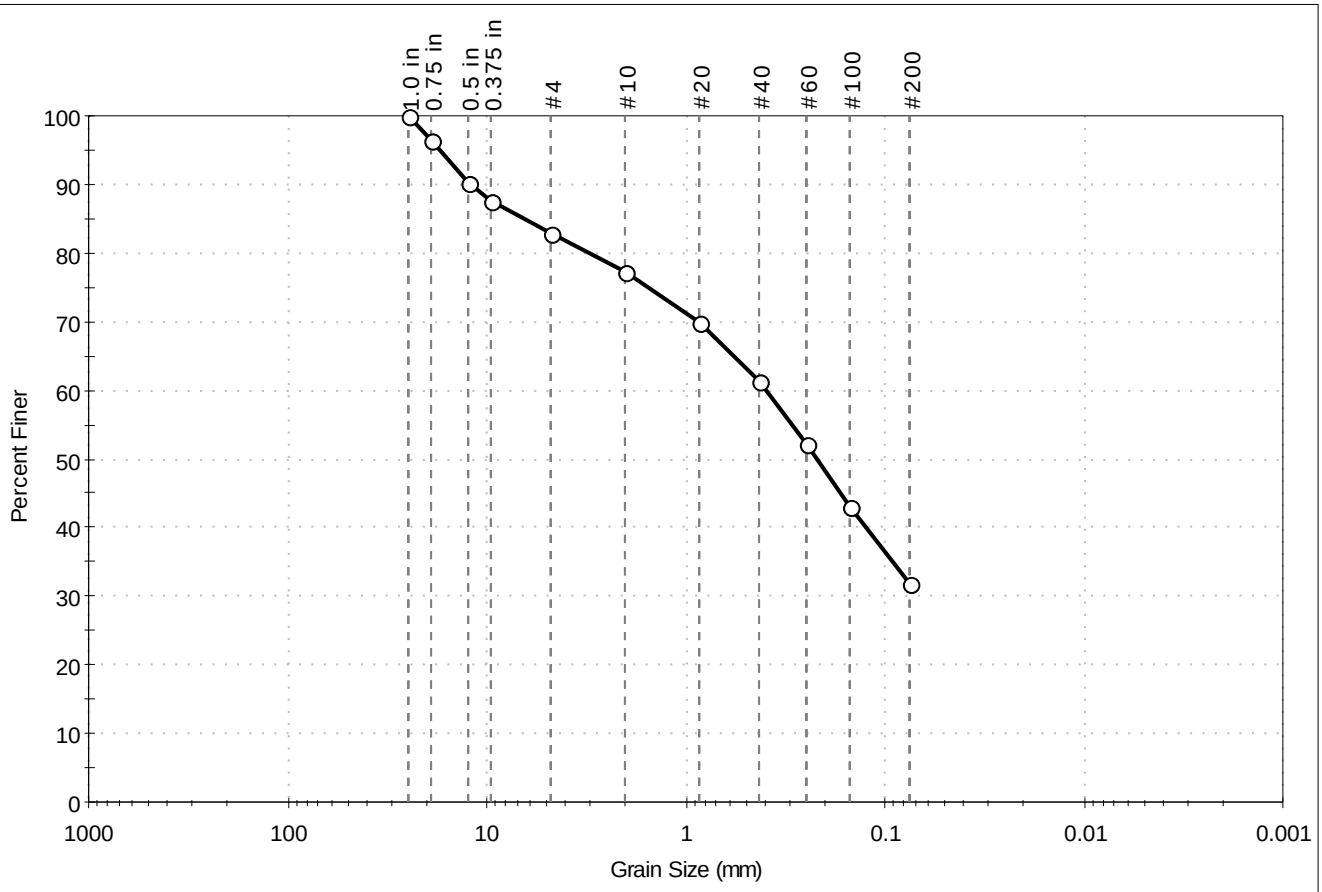
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-7	Sample Type:	jar	Tested By:	GA
Sample ID:	S5	Test Date:	11/11/16	Checked By:	emm
Depth :	15.0-17.0 ft	Test Id:	397710		
Test Comment:	---				
Visual Description:	Moist, gray silty sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	17.1	51.1	31.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.0 in	25.00	100		
0.75 in	19.00	96		
0.5 in	12.50	90		
0.375 in	9.50	88		
#4	4.75	83		
#10	2.00	77		
#20	0.85	70		
#40	0.42	61		
#60	0.25	52		
#100	0.15	43		
#200	0.075	32		

Coefficients

D_{85} = 6.4856 mm D_{30} = N/A

D_{60} = 0.3954 mm D_{15} = N/A

D_{50} = 0.2203 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Gravel and Sand (A-2-4 (0))

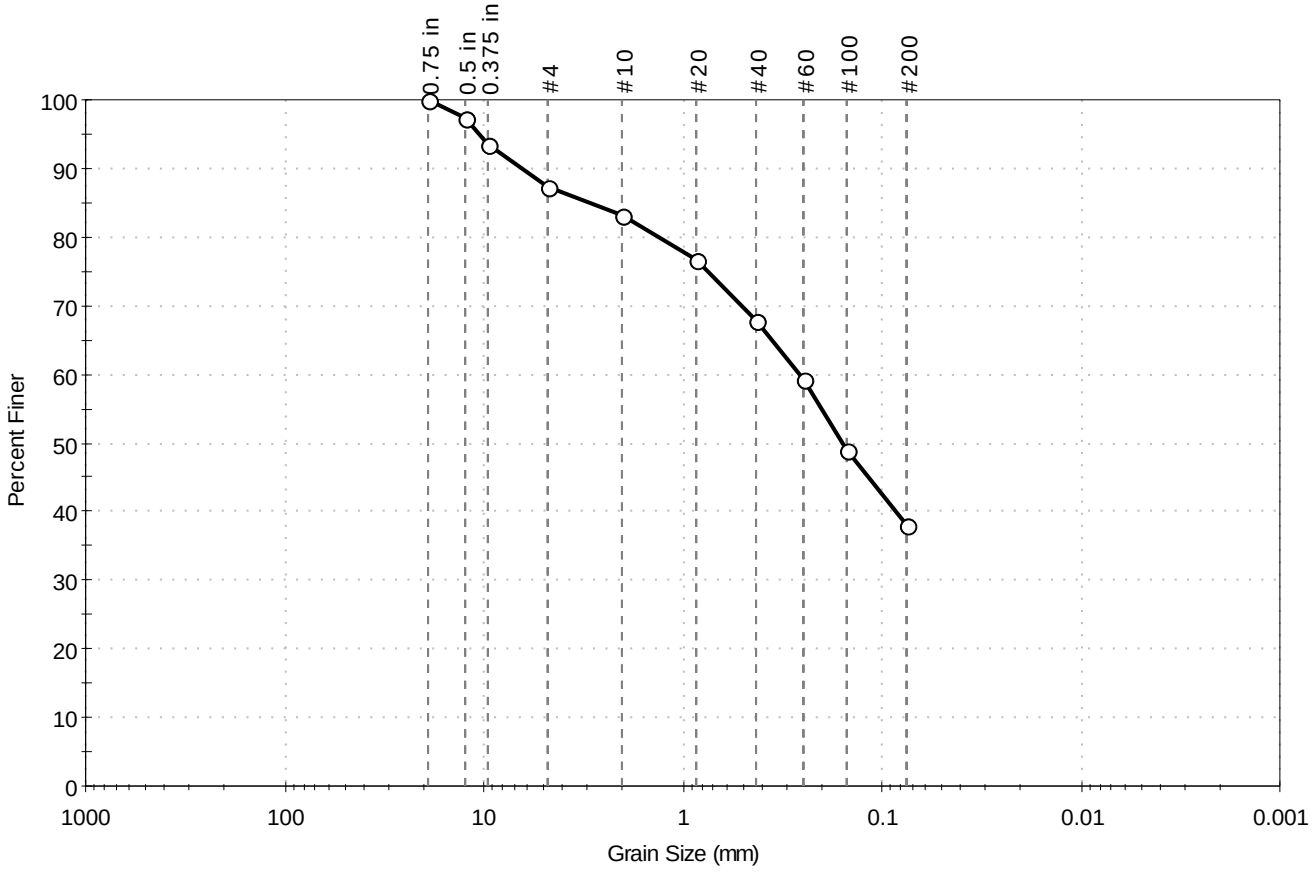
Sample/Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-8	Sample Type:	jar	Tested By:	GA
Sample ID:	S5	Test Date:	11/11/16	Checked By:	emm
Depth :	15.0-17.0 ft	Test Id:	397701		
Test Comment:	---				
Visual Description:	Moist, gray silty sand				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	12.7	49.3	38.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	97		
0.375 in	9.50	93		
#4	4.75	87		
#10	2.00	83		
#20	0.85	77		
#40	0.42	68		
#60	0.25	59		
#100	0.15	49		
#200	0.075	38		

Coefficients

D_{85} = 2.9536 mm D_{30} = N/A

D_{60} = 0.2633 mm D_{15} = N/A

D_{50} = 0.1580 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Silty Soils (A-4 (0))

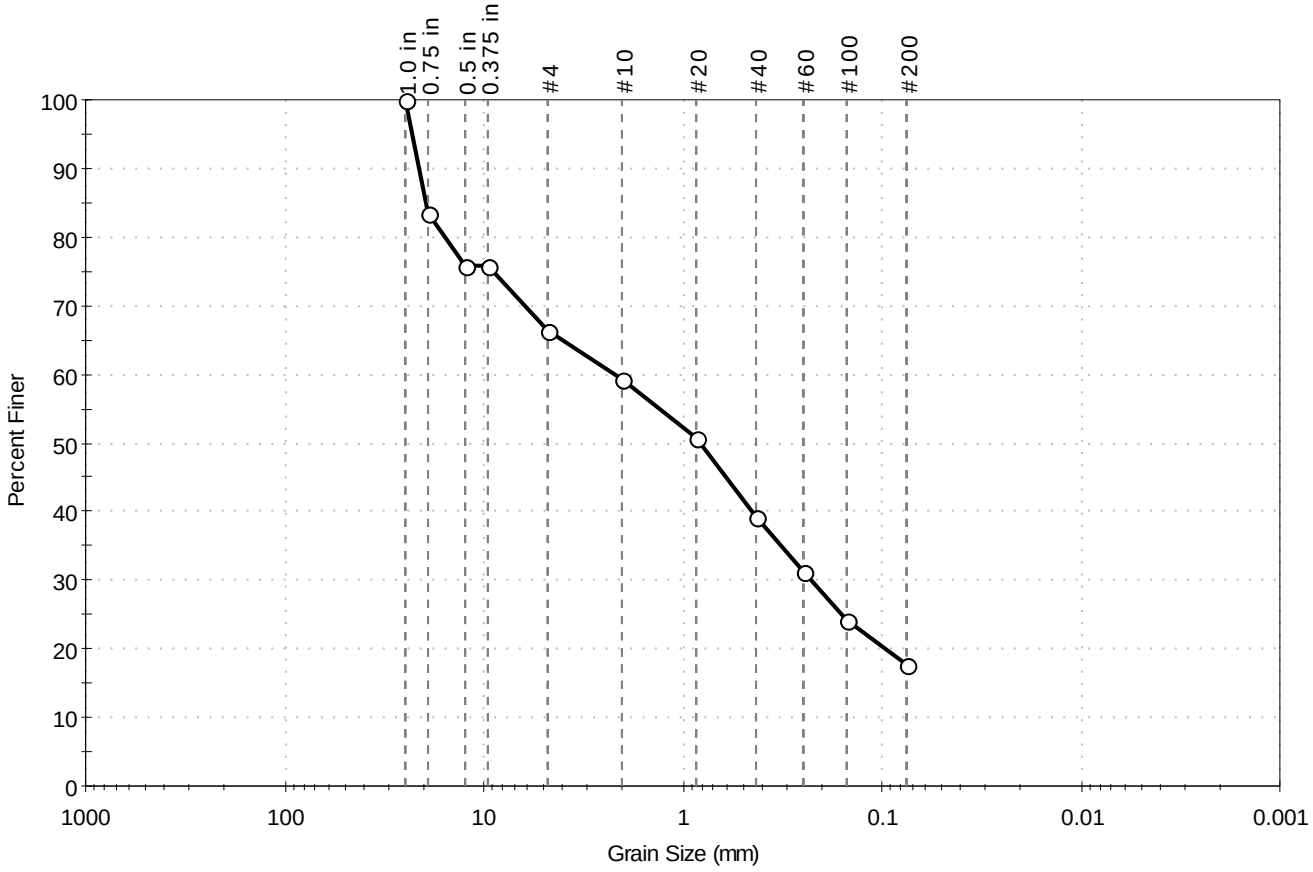
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-10	Sample Type:	jar	Tested By:	GA
Sample ID:	S2 + S3	Test Date:	11/11/16	Checked By:	emm
Depth :	3.0-7.0 ft	Test Id:	397702		
Test Comment:	---				
Visual Description:	Moist, very dark gray clayey sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	33.7	48.5	17.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.0 in	25.00	100		
0.75 in	19.00	84		
0.5 in	12.50	76		
0.375 in	9.50	76		
#4	4.75	66		
#10	2.00	59		
#20	0.85	51		
#40	0.42	39		
#60	0.25	31		
#100	0.15	24		
#200	0.075	18		

Coefficients

D_{85} = 19.4778 mm
D_{30} = 0.2285 mm
D_{60} = 2.1518 mm
D_{15} = N/A
D_{50} = 0.8121 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

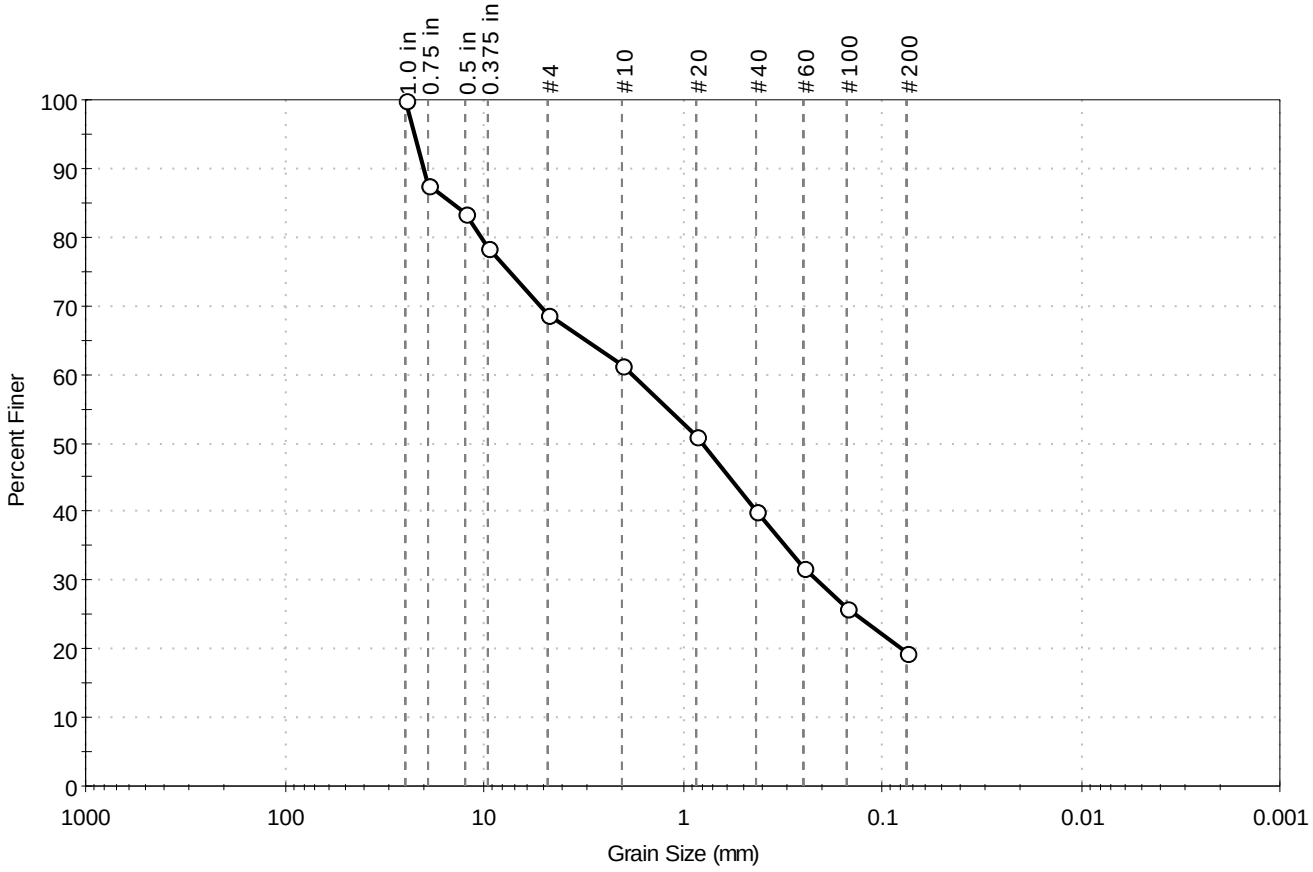
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-11	Sample Type:	jar	Tested By:	GA
Sample ID:	S2	Test Date:	11/11/16	Checked By:	emm
Depth :	3.0-4.9 ft	Test Id:	397705		
Test Comment:	---				
Visual Description:	Moist, brownish gray silty sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



% Cobble	% Gravel	% Sand	% Silt & Clay Size
---	31.1	49.4	19.5

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
1.0 in	25.00	100		
0.75 in	19.00	88		
0.5 in	12.50	83		
0.375 in	9.50	79		
#4	4.75	69		
#10	2.00	61		
#20	0.85	51		
#40	0.42	40		
#60	0.25	32		
#100	0.15	26		
#200	0.075	19		

Coefficients

D_{85} = 14.7198 mm D_{30} = 0.2144 mm

D_{60} = 1.8005 mm D_{15} = N/A

D_{50} = 0.7899 mm D_{10} = N/A

C_u = N/A C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample / Test Description

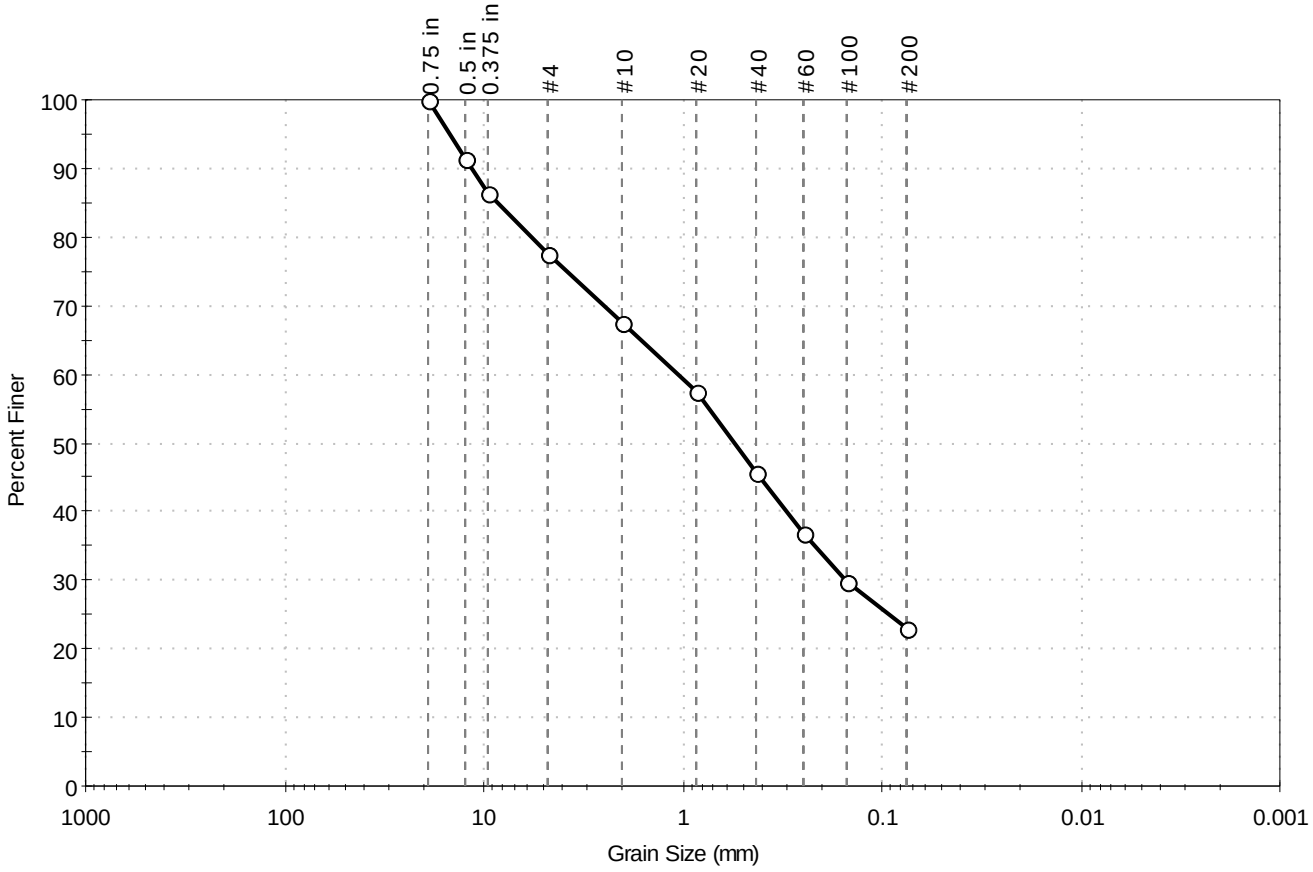
Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

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Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-11	Sample Type:	jar	Tested By:	GA
Sample ID:	S5 + S6	Test Date:	11/11/16	Checked By:	emm
Depth :	10.5-14.5 ft	Test Id:	397703		
Test Comment:	---				
Visual Description:	Moist, very dark gray clayey sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	22.4	54.6	23.0

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	91		
0.375 in	9.50	87		
#4	4.75	78		
#10	2.00	68		
#20	0.85	57		
#40	0.42	46		
#60	0.25	37		
#100	0.15	30		
#200	0.075	23		

Coefficients

D_{85} = 8.4315 mm
D_{30} = 0.1523 mm
D_{60} = 1.0562 mm
D_{15} = N/A
D_{50} = 0.5476 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

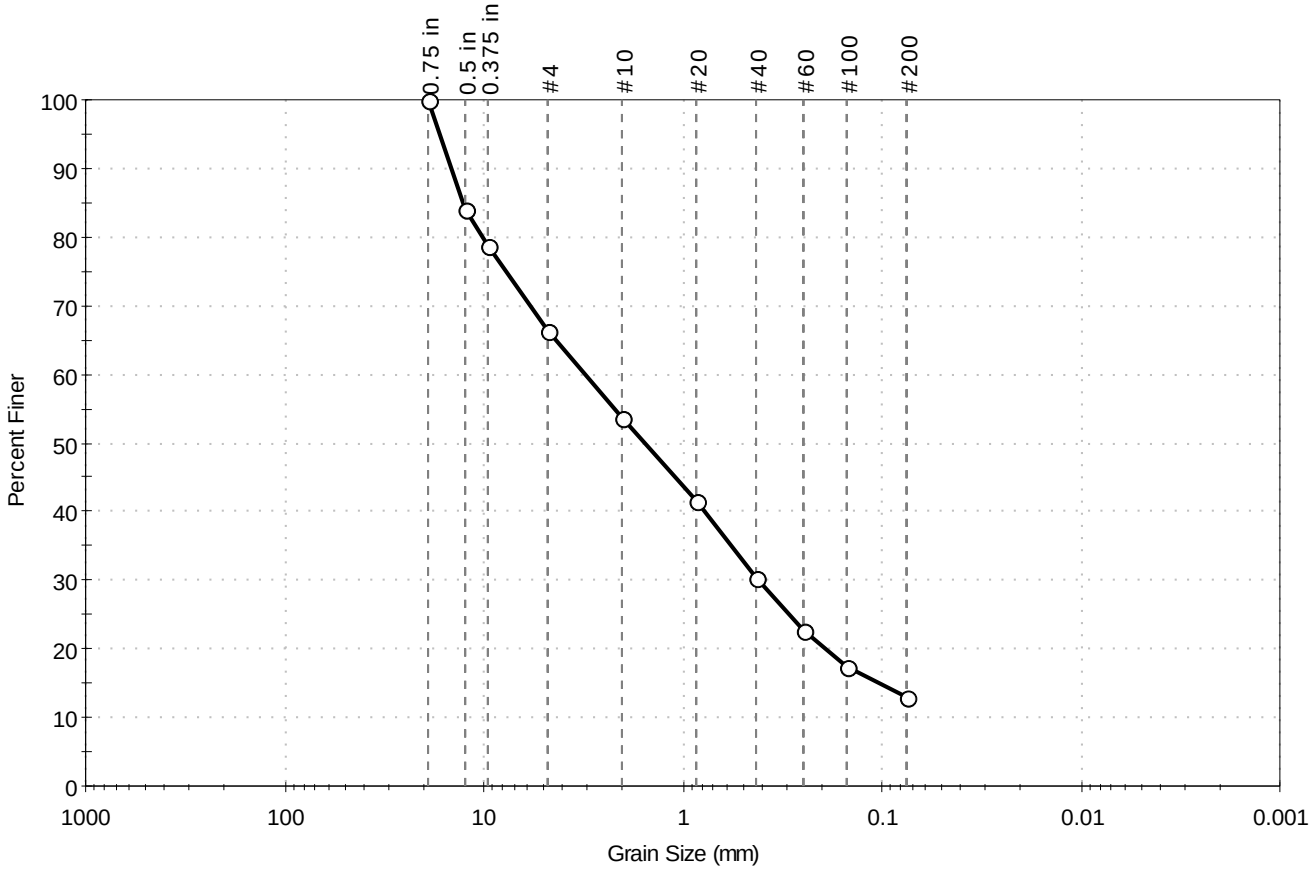
Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

Client:	Haley & Aldrich, Inc.				
Project:	Portland Square Development				
Location:	Portland, ME			Project No:	GTX-305581
Boring ID:	HA16-13	Sample Type:	jar	Tested By:	GA
Sample ID:	S2	Test Date:	11/11/16	Checked By:	emm
Depth :	3.0-5.0 ft	Test Id:	397704		
Test Comment:	---				
Visual Description:	Moist, very dark gray silty sand with gravel				
Sample Comment:	---				

Particle Size Analysis - ASTM D422



%Cobble	%Gravel	%Sand	%Silt & Clay Size
---	33.6	53.6	12.8

Sieve Name	Sieve Size, mm	Percent Finer	Spec. Percent	Complies
0.75 in	19.00	100		
0.5 in	12.50	84		
0.375 in	9.50	79		
#4	4.75	66		
#10	2.00	54		
#20	0.85	42		
#40	0.42	30		
#60	0.25	23		
#100	0.15	17		
#200	0.075	13		

Coefficients

D_{85} = 12.8354 mm
D_{30} = 0.4118 mm
D_{60} = 3.0747 mm
D_{15} = 0.1037 mm
D_{50} = 1.5425 mm
D_{10} = N/A
C_u = N/A
C_c = N/A

Classification

ASTM N/A

AASHTO Stone Fragments, Gravel and Sand (A-1-b (0))

Sample / Test Description

Sand/Gravel Particle Shape : ANGULAR

Sand/Gravel Hardness : HARD

GeoTesting EXPRESS

WARRANTY and LIABILITY

GeoTesting Express (GTX) warrants that all tests it performs are run in general accordance with the specified test procedures and accepted industry practice. GTX will correct or repeat any test that does not comply with this warranty. GTX has no specific knowledge as to conditioning, origin, sampling procedure or intended use of the material.

GTX may report engineering parameters that require us to interpret the test data. Such parameters are determined using accepted engineering procedures. However, GTX does not warrant that these parameters accurately reflect the true engineering properties of the *in situ* material. Responsibility for interpretation and use of the test data and these parameters for engineering and/or construction purposes rests solely with the user and not with GTX or any of its employees.

GTX's liability will be limited to correcting or repeating a test which fails our warranty. GTX's liability for damages to the Purchaser of testing services for any cause whatsoever shall be limited to the amount GTX received for the testing services. GTX will not be liable for any damages, or for any lost benefits or other consequential damages resulting from the use of these test results, even if GTX has been advised of the possibility of such damages. GTX will not be responsible for any liability of the Purchaser to any third party.

Commonly Used Symbols

A	pore pressure parameter for $\Delta\sigma_1 - \Delta\sigma_3$
B	pore pressure parameter for $\Delta\sigma_3$
CAI	CERCHAR Abrasiveness Index
CIU	isotropically consolidated undrained triaxial shear test
CR	compression ratio for one dimensional consolidation
CSR	cyclic stress ratio
C_c	coefficient of curvature, $(D_{30})^2 / (D_{10} \times D_{60})$
C_u	coefficient of uniformity, D_{60}/D_{10}
C_c	compression index for one dimensional consolidation
C_α	coefficient of secondary compression
c_v	coefficient of consolidation
c	cohesion intercept for total stresses
c'	cohesion intercept for effective stresses
D	diameter of specimen
D	damping ratio
D_{10}	diameter at which 10% of soil is finer
D_{15}	diameter at which 15% of soil is finer
D_{30}	diameter at which 30% of soil is finer
D_{50}	diameter at which 50% of soil is finer
D_{60}	diameter at which 60% of soil is finer
D_{85}	diameter at which 85% of soil is finer
d_{50}	displacement for 50% consolidation
d_{90}	displacement for 90% consolidation
d_{100}	displacement for 100% consolidation
E	Young's modulus
e	void ratio
e_c	void ratio after consolidation
e_o	initial void ratio
G	shear modulus
G_s	specific gravity of soil particles
H	height of specimen
H_R	Rebound Hardness number
i	gradient
I_S	Uncorrected point load strength
$I_{S(50)}$	Size corrected point load strength index
H_A	Modified Taber Abrasion
H_T	Total hardness
K_o	lateral stress ratio for one dimensional strain
k	permeability
LI	Liquidity Index
m_v	coefficient of volume change
n	porosity
PI	plasticity index
P_c	preconsolidation pressure
p	$(\sigma_1 + \sigma_3) / 2$, $(\sigma_v + \sigma_h) / 2$
p'	$(\sigma'_1 + \sigma'_3) / 2$, $(\sigma'_v + \sigma'_h) / 2$
p'_c	p' at consolidation
Q	quantity of flow
q	$(\sigma_1 - \sigma_3) / 2$
q_f	q at failure
q_o, q_i	initial q
q_c	q at consolidation
S_r	Post cyclic undrained shear strength
T	temperature
t	time
U, UC	unconfined compression test
UU, Q	unconsolidated undrained triaxial test
u_a	pore gas pressure
u_e	excess pore water pressure
u, u_w	pore water pressure
V	total volume
V_g	volume of gas
V_s	volume of solids
V_s	shear wave velocity
V_v	volume of voids
V_w	volume of water
V_o	initial volume
v	velocity
W	total weight
W_s	weight of solids
W_w	weight of water
w	water content
w_c	water content at consolidation
w_f	final water content
w_l	liquid limit
w_n	natural water content
w_p	plastic limit
w_s	shrinkage limit
w_o, w_i	initial water content
α	slope of q_f versus p_f
α'	slope of q_f versus p_f'
γ_t	total unit weight
γ_d	dry unit weight
γ_s	unit weight of solids
γ_w	unit weight of water
ε	strain
ε_{vol}	volume strain
ε_h, ε_v	horizontal strain, vertical strain
μ	Poisson's ratio, also viscosity
σ	normal stress
σ'	effective normal stress
σ_c, σ'_c	consolidation stress in isotropic stress system
σ_h, σ'_h	horizontal normal stress
σ_v, σ'_v	vertical normal stress
σ'_{vc}	Effective vertical consolidation stress
σ_1	major principal stress
σ_2	intermediate principal stress
σ_3	minor principal stress
τ	shear stress
φ	friction angle based on total stresses
φ'	friction angle based on effective stresses
φ'_r	residual friction angle
φ_{ult}	φ for ultimate strength

APPENDIX C

Observation Well Installation and Groundwater Monitoring Reports

HALEY ALDRICH

GROUNDWATER OBSERVATION WELL INSTALLATION REPORT

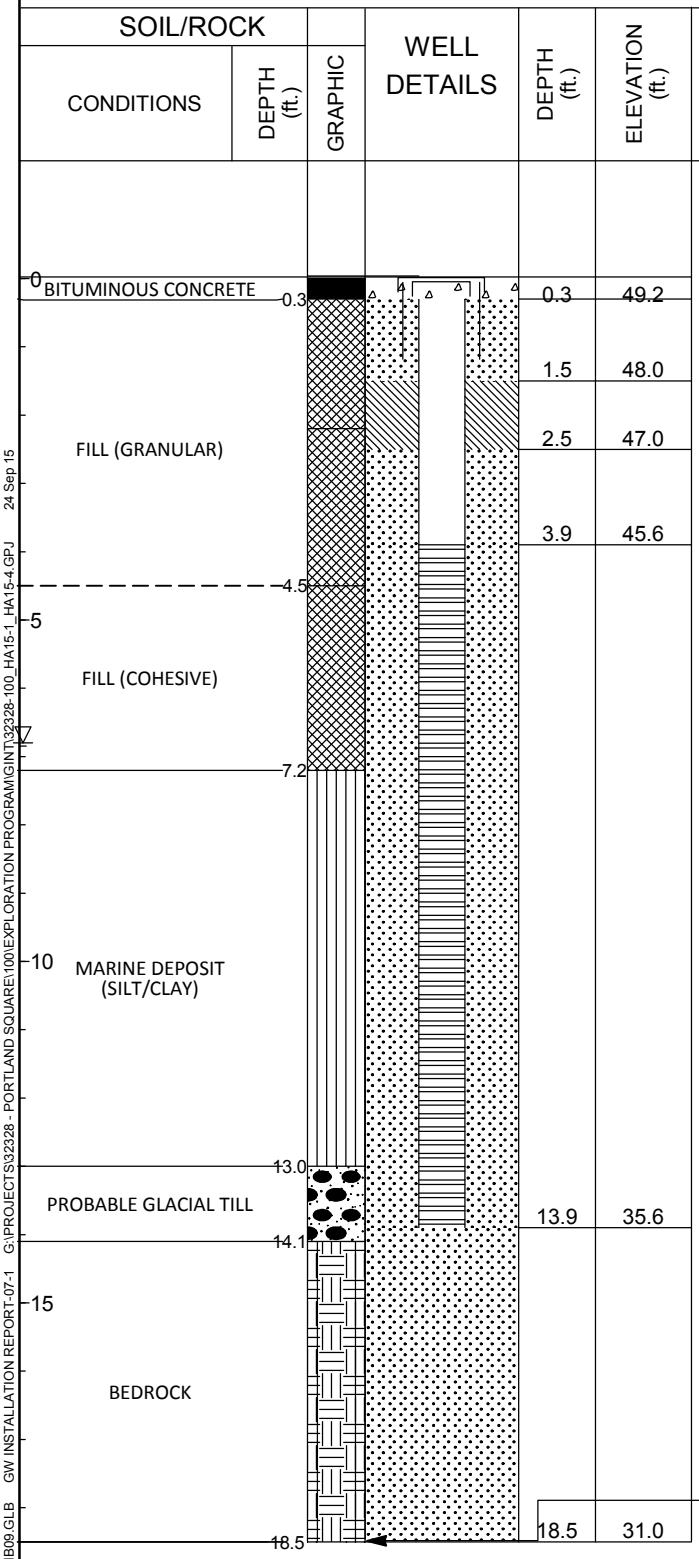
Well No. HA15-1(OW)
Boring No. HA15-1(OW)

Project	Portland Square Development
Location	Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors
Driller	C. Dupuis
Initial Water Level (depth bgs)	6.8 ft

Well Diagram: Riser Pipe; Screen; Filter Sand; Cuttings; Grout; Concrete; Bentonite Seal

File No. 32328-100
Date Installed 11 Aug 2015
H&A Rep. K. Russ
Location See Plan

Ground El. 49.5
Datum Portland City Datum



WELL CONSTRUCTION DETAILS

Type of protective cover	EMCO Hex. Bolt
Depth of Roadway Box below ground surface	0.0 ft
Depth of top of riser below ground surface	0.6 ft
Type of protective casing	Roadway Box
Length	0.8 ft
Inside diameter	6.0 in.
Depth of bottom of Roadway Box	0.8 ft
Type of riser pipe	Schedule 40 PVC
Inside diameter of riser pipe	1.0 in.
Depth of bottom of riser pipe	3.9 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Cold Patch	0.0	0.3
Bentonite	1.5	1.0
	-	-
	-	-

Diameter of borehole	3.0 in.
Depth to top of well screen	3.9 ft
Type of screen	Machine slotted Sch 40 PVC
Screen gauge or size of openings	0.010 in.
Diameter of screen	1.0 in.
Type of Backfill around Screen	Filter Sand
Depth to bottom of well screen	13.9 ft
Bottom of silt trap	0.0 ft
Depth of bottom of borehole	18.5 ft

COMMENTS:

HA-LIB09.GLB GW INSTALLATION REPORT-07-1 G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 24 Sep 15

HALEY ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
HA15-1(OW)

PROJECT	Portland Square Development	**H&A FILE NO.**	32328-100
LOCATION	Portland, Maine	**PROJECT MGR.**	B. Steinert
CLIENT	Winton Scott Architects	**FIELD REP.**	K. Russ
CONTRACTOR	New England Boring Contractors	**DATE**	8/11/2015

ELEVATION OF REFERENCE POINT 49.5 **REFERENCE POINT:** **Ground Surface** ☑ **PVC** ☐ **Other** ☐

Date	Time	Elapsed Time (days)	Depth of Water from Reference Point	Elevation of Water	Remarks	Read By
8/11/2015	13:30	0	6.8	42.7		KAR
8/12/2015	9:29	1	9.3	40.2		KAR
8/12/2015	18:49	1	9.3	40.2		KAR
9/1/2015	7:35	21	9.7	39.8		MLS
9/14/2015	11:44	34	9.8	39.7		KAR
6/17/2016	14:57	311	8.8	40.7		KAR
10/3/2016	15:10	419	10.4	39.2		RAE
10/10/2016	15:20	426	10.5	39.1		RAE
10/17/2016	8:04	433	10.5	39.0		RAE
12/6/2016	13:55	483	8.7	40.8		KAR

GROUNDWATER OBSERVATION WELL INSTALLATION REPORT

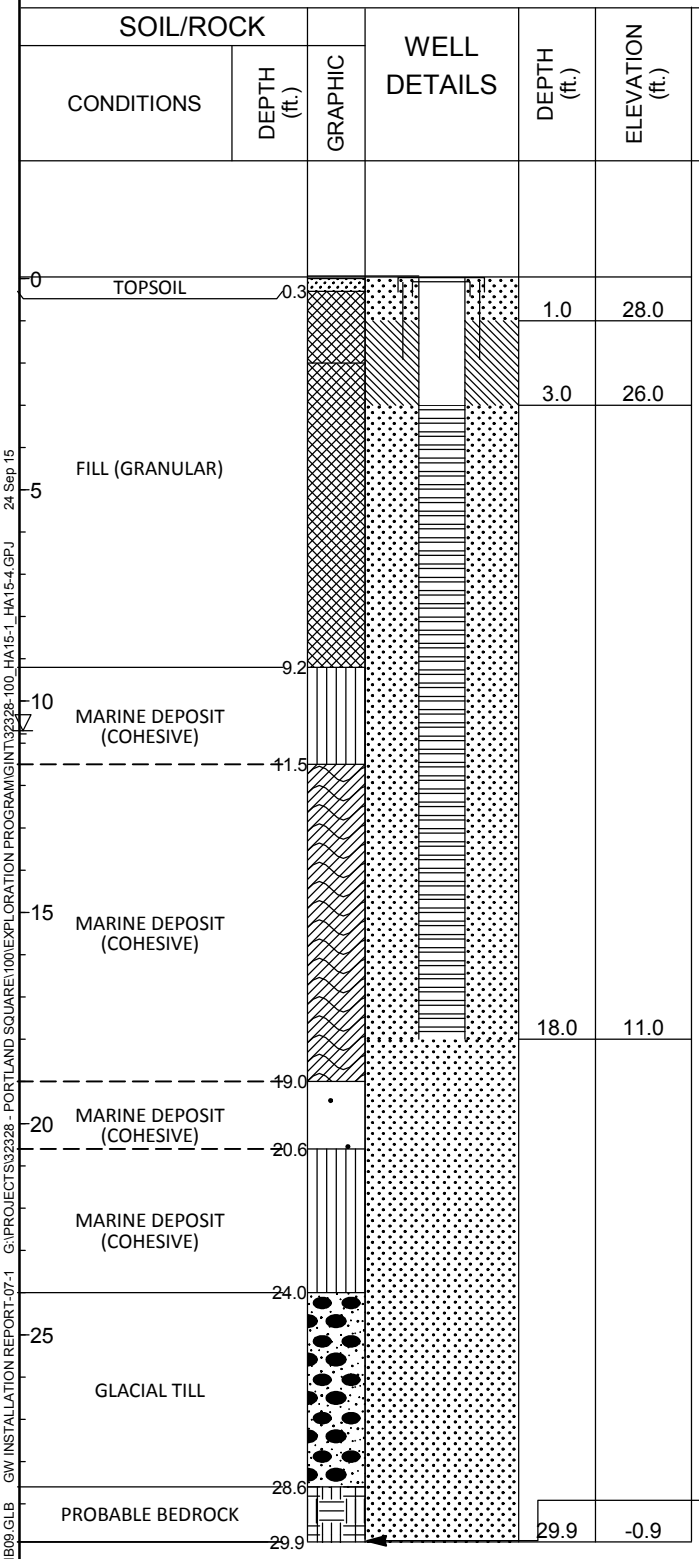
Well No. HA15-2(OW)
Boring No. HA15-2(OW)

Project	Portland Square Development
Location	Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors
Driller	C. Dupuis
Initial Water Level (depth bgs)	10.7 ft

Well Diagram: Riser Pipe, Screen, Filter Sand, Cuttings, Grout, Concrete, Bentonite Seal

File No. 32328-100
Date Installed 12 Aug 2015
H&A Rep. K. Russ
Location See Plan

Ground El. 29.0
Datum Portland City Datum



WELL CONSTRUCTION DETAILS

Type of protective cover	EMCO Hex. Bolt
Depth of Roadway Box below ground surface	0.0 ft
Depth of top of riser below ground surface	0.2 ft
Type of protective casing	Roadway Box
Length	0.8 ft
Inside diameter	6.0 in.
Depth of bottom of Roadway Box	0.8 ft
Type of riser pipe	Schedule 40 PVC
Inside diameter of riser pipe	1.0 in.
Depth of bottom of riser pipe	3.0 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Bentonite	1.0	2.0
	-	-
	-	-
	-	-

Diameter of borehole	3.0 in.
Depth to top of well screen	3.0 ft
Type of screen	Machine slotted Sch 40 PVC
Screen gauge or size of openings	0.010 in.
Diameter of screen	1.0 in.
Type of Backfill around Screen	Filter Sand
Depth to bottom of well screen	18.0 ft
Bottom of silt trap	0.0 ft
Depth of bottom of borehole	29.9 ft

COMMENTS:

HA-LIB09.GLB GW INSTALLATION REPORT-07-1 G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 24 Sep 15

HALEY ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
HA15-2(OW)

PROJECT	Portland Square Development	**H&A FILE NO.**	32328-100
LOCATION	Portland, Maine	**PROJECT MGR.**	B. Steinert
CLIENT	Winton Scott Architects	**FIELD REP.**	K. Russ
CONTRACTOR	New England Boring Contractors	**DATE**	8/12/2015

ELEVATION OF REFERENCE POINT 29.0 **REFERENCE POINT:** **Ground Surface** ☑ **PVC** ☐ **Other** ☐

Date	Time	Elapsed Time (days)	Depth of Water from Reference Point	Elevation of Water	Remarks	Read By
8/12/2015	11:45	0	9.8	19.2	Initial reading after installation	KAR
8/12/2015	16:50	0	10.7	18.3		KAR
9/1/2015	7:20	20	12.2	16.8		MLS
9/14/2015	11:24	33	12.2	16.8		KAR
6/17/2016	14:27	310	10.8	18.2	level logger installed	KAR
10/3/2016	16:22	418	12.7	16.3		RAE
10/10/2016	15:28	425	12.8	16.2		RAE
10/17/2016	8:10	432	12.8	16.2		RAE
12/6/2016	13:40	482	9.4	19.6	level logger removed	KAR

GROUNDWATER OBSERVATION WELL INSTALLATION REPORT

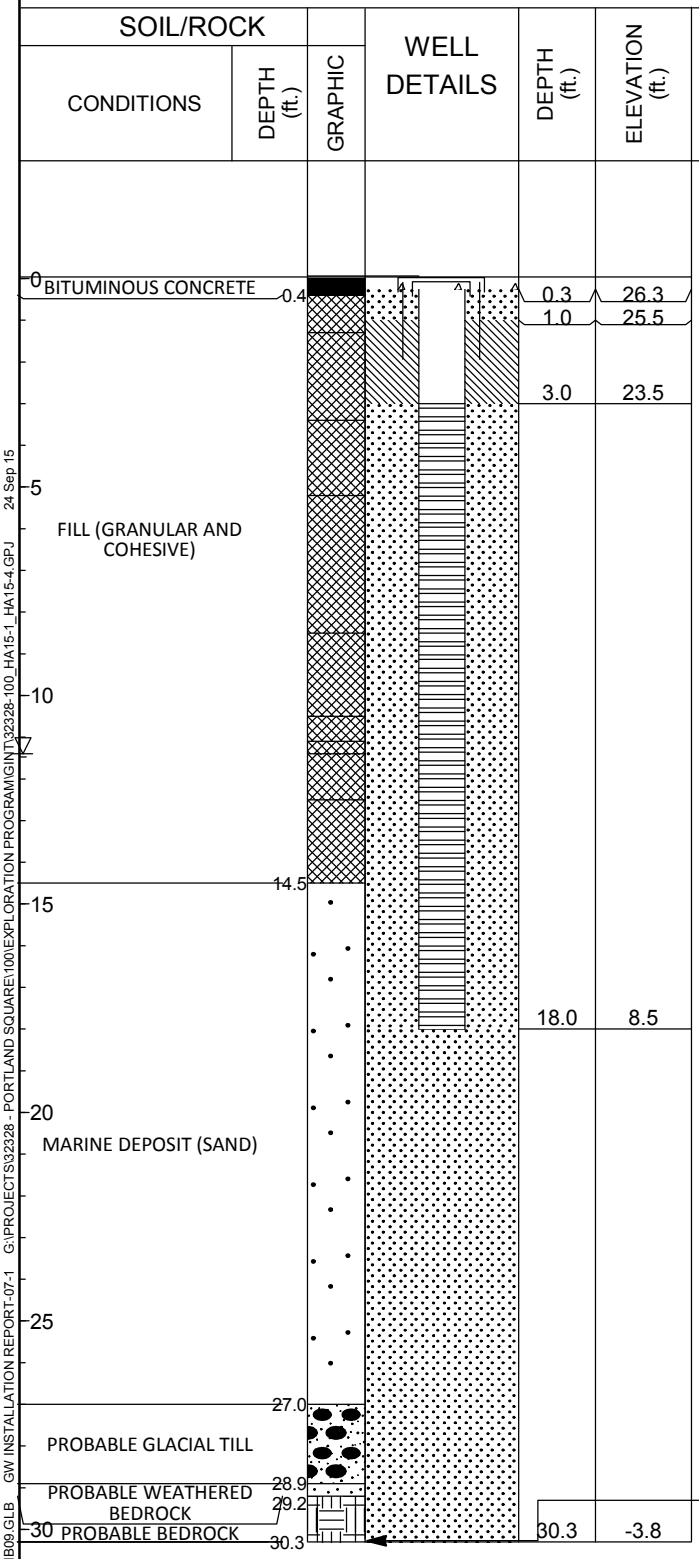
Well No. HA15-3(OW)
Boring No. HA15-3(OW)

Project	Portland Square Development
Location	Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors
Driller	C. Dupuis
Initial Water Level (depth bgs)	11.4 ft

Well Diagram: Riser Pipe, Screen, Filter Sand, Cuttings, Grout, Concrete, Bentonite Seal

File No. 32328-100
Date Installed 12 Aug 2015
H&A Rep. K. Russ
Location See Plan

Ground El. 26.5
Datum Portland City Datum



WELL CONSTRUCTION DETAILS

Type of protective cover	EMCO Hex. Bolt
Depth of Roadway Box below ground surface	0.0 ft
Depth of top of riser below ground surface	0.3 ft
Type of protective casing	Roadway Box
Length	0.8 ft
Inside diameter	6.0 in.
Depth of bottom of Roadway Box	0.8 ft
Type of riser pipe	Schedule 40 PVC
Inside diameter of riser pipe	1.0 in.
Depth of bottom of riser pipe	3.0 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Cold Patch	0.0	0.3
Bentonite	1.0	2.0
	-	-
	-	-

Diameter of borehole	3.0 in.
Depth to top of well screen	3.0 ft
Type of screen	Machine slotted Sch 40 PVC
Screen gauge or size of openings	0.010 in.
Diameter of screen	1.0 in.
Type of Backfill around Screen	Filter Sand
Depth to bottom of well screen	18.0 ft
Bottom of silt trap	0.0 ft
Depth of bottom of borehole	30.3 ft

COMMENTS:

HA-LIB09.GLB GW INSTALLATION REPORT-07-1 G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 24 Sep 15

HALEY ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
HA15-3(OW)

PROJECT	Portland Square Development	**H&A FILE NO.**	32328-100
LOCATION	Portland, Maine	**PROJECT MGR.**	B. Steinert
CLIENT	Winton Scott Architects	**FIELD REP.**	K. Russ
CONTRACTOR	New England Boring Contractors	**DATE**	8/12/2015

ELEVATION OF REFERENCE POINT 26.5 **REFERENCE POINT:** **Ground Surface** ☑ **PVC** ☐ **Other** ☐

Date	Time	Elapsed Time (days)	Depth of Water from Reference Point	Elevation of Water	Remarks	Read By
8/12/2015	17:50	0	11.4	15.1	Initial reading after installation	KAR
9/1/2015	7:15	20	13.8	12.7		MLS
9/14/2015	11:32	33	14.0	12.5		KAR
6/17/2016	14:22	310	13.0	13.6		KAR
10/3/2016	15:51	418	14.3	12.2		RAE
10/10/2016	15:39	425	14.0	12.5		RAE
10/17/2016	8:14	432	14.1	12.4		RAE
12/6/2016	13:45	482	13.1	13.4		KAR

GROUNDWATER OBSERVATION WELL INSTALLATION REPORT

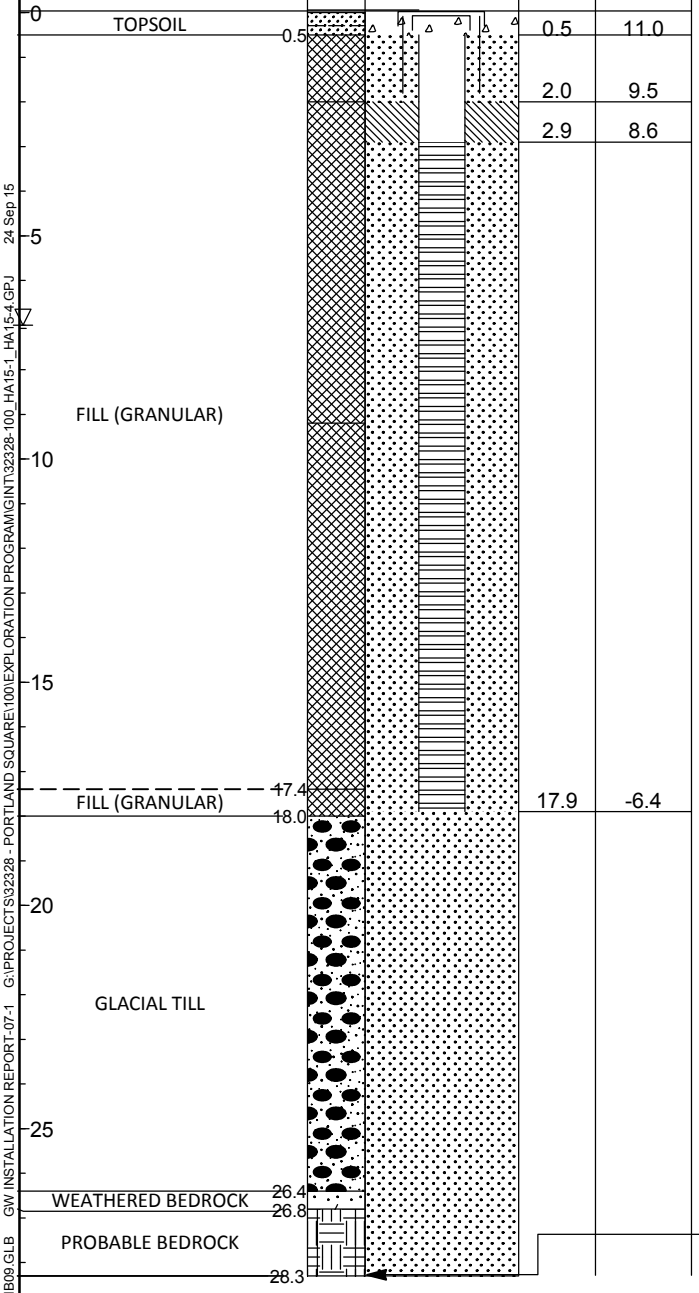
Well No. HA15-4(OW)
Boring No. HA15-4(OW)

Project	Portland Square Development
Location	Portland, Maine
Client	Winton Scott Architects
Contractor	New England Boring Contractors
Driller	C. Dupuis
Initial Water Level (depth bgs)	11.5 ft

Well Diagram: Riser Pipe, Screen, Filter Sand, Cuttings, Grout, Concrete, Bentonite Seal

File No. 32328-100
Date Installed 10 Aug 2015
H&A Rep. K. Russ
Location See Plan

Ground El. 11.5
Datum Portland City Datum



WELL CONSTRUCTION DETAILS

Type of protective cover	EMCO Hex. Bolt
Depth of Roadway Box below ground surface	0.0 ft
Depth of top of riser below ground surface	0.2 ft
Type of protective casing	Roadway Box
Length	0.8 ft
Inside diameter	6.0 in.
Depth of bottom of Roadway Box	0.8 ft
Type of riser pipe	Schedule 40 PVC
Inside diameter of riser pipe	1.0 in.
Depth of bottom of riser pipe	2.9 ft

Type of Seals	Top of Seal (ft)	Thickness (ft)
Concrete	0.0	0.5
Bentonite	2.0	1.0
	-	-
	-	-

Diameter of borehole	3.0 in.
Depth to top of well screen	2.9 ft
Type of screen	Machine slotted Sch 40 PVC
Screen gauge or size of openings	0.010 in.
Diameter of screen	1.0 in.
Type of Backfill around Screen	Filter Sand
Depth to bottom of well screen	17.9 ft
Bottom of silt trap	0.0 ft
Depth of bottom of borehole	28.3 ft

COMMENTS:

HA-LIB09.GLB GW INSTALLATION REPORT-07-1 G:\PROJECTS\32328 - PORTLAND SQUARE\100\EXPLORATION PROGRAM\GINT\32328-100_HA15-1_HA15-4.GPJ 24 Sep 15

HALEY ALDRICH

GROUNDWATER MONITORING REPORT

OW/PZ NUMBER
HA15-4(OW)

PROJECT	Portland Square Development	**H&A FILE NO.**	32328-100
LOCATION	Portland, Maine	**PROJECT MGR.**	B. Steinert
CLIENT	Winton Scott Architects	**FIELD REP.**	K. Russ
CONTRACTOR	New England Boring Contractors	**DATE**	8/11/2015

ELEVATION OF REFERENCE POINT 11.5 **REFERENCE POINT:** **Ground Surface** ☑ **PVC** ☐ **Other** ☐

Date	Time	Elapsed Time (days)	Depth of Water from Reference Point	Elevation of Water	Remarks	Read By
8/11/2015	7:50	0	7.2	4.3		KAR
8/11/2015	13:40	0	7.1	4.4		KAR
8/11/2015	15:45	0	7.1	4.4	Rainy day	KAR
8/12/2015	9:12	1	7.1	4.4	Rainy day	KAR
8/12/2015	18:32	1	7.1	4.4		KAR
9/1/2015	7:45	21	7.4	4.1		MLS
9/14/2015	11:15	34	7.4	4.2		KAR
6/17/2016	14:02	311	6.81	4.7	level logger installed	KAR
10/3/2016	16:05	419	7.3	4.2		RAE
10/10/2016	15:49	426	7.4	4.1		RAE
10/17/2016	8:17	433	7.4	4.1		RAE
12/6/2016	13:30	483	7.0	4.5	level logger removed	KAR

APPENDIX D

Historic Sanborn Maps

Portland Square Development
Center Street-Cross Street Block
Portland, ME 04101

Inquiry Number: 4348218.1
July 08, 2015

Certified Sanborn® Map Report

6 Armstrong Road, 4th Floor
Shelton, Connecticut 06484
Toll Free: 800.352.0050
www.edrnet.com

Certified Sanborn® Map Report

7/08/15

Site Name:
Portland Square Development
Center Street-Cross Street
Portland, ME 04101

Client Name:
Haley & Aldrich, Inc.
75 Washington Ave.
Portland, ME 04101-2617

EDR Inquiry # 4348218.1

Contact: Dave Dearden

The Sanborn Library has been searched by EDR and maps covering the target property location as provided by Haley & Aldrich, Inc. were identified for the years listed below. The Sanborn Library is the largest, most complete collection of fire insurance maps. The collection includes maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow, and others. Only Environmental Data Resources Inc. (EDR) is authorized to grant rights for commercial reproduction of maps by the Sanborn Library LLC, the copyright holder for the collection. Results can be authenticated by visiting www.edrnet.com/sanborn.

The Sanborn Library is continually enhanced with newly identified map archives. This report accesses all maps in the collection as of the day this report was generated.

Certified Sanborn Results:

Site Name: Portland Square Development
Address: Center Street-Cross Street Block
City, State, Zip: Portland, ME 04101
Cross Street:
P.O. # 32328-970
Project: Portland Square Development
Certification # 0A61-488A-B3E4

Maps Provided:

1988	1896
1986	1886
1980	
1954	
1949	
1909	

Sanborn® Library search results
Certification # 0A61-488A-B3E4

The Sanborn Library includes more than 1.2 million fire insurance maps from Sanborn, Bromley, Perris & Browne, Hopkins, Barlow and others which track historical property usage in approximately 12,000 American cities and towns. Collections searched:

- ☑ Library of Congress
- ☑ University Publications of America
- ☑ EDR Private Collection

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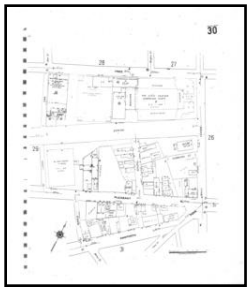
Sanborn Sheet Thumbnails

This Certified Sanborn Map Report is based upon the following Sanborn Fire Insurance map sheets.

1988 Source Sheets



Volume 1, Sheet 26



Volume 1, Sheet 30



Volume 1, Sheet 31

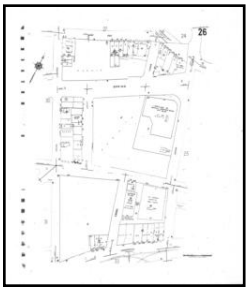
1986 Source Sheets



Volume 1, Sheet 30

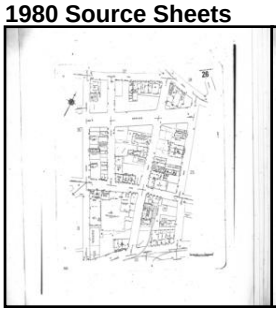


Volume 1, Sheet 31



Volume 1, Sheet 26

1980 Source Sheets



Volume 1, Sheet 26



Volume 1, Sheet 30



Volume 1, Sheet 31

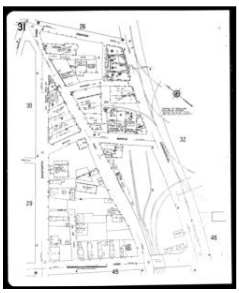
1954 Source Sheets



Volume 1, Sheet 26



Volume 1, Sheet 30



Volume 1, Sheet 31

1949 Source Sheets



Volume 1, Sheet 26



Volume 1, Sheet 30



Volume 1, Sheet 31

1909 Source Sheets



Volume 1, Sheet 26



Volume 1, Sheet 30



Volume 1, Sheet 31

1896 Source Sheets



Volume 1, Sheet 22



Volume 1, Sheet 23



Volume 1, Sheet 24

1886 Source Sheets



Volume 1, Sheet 8

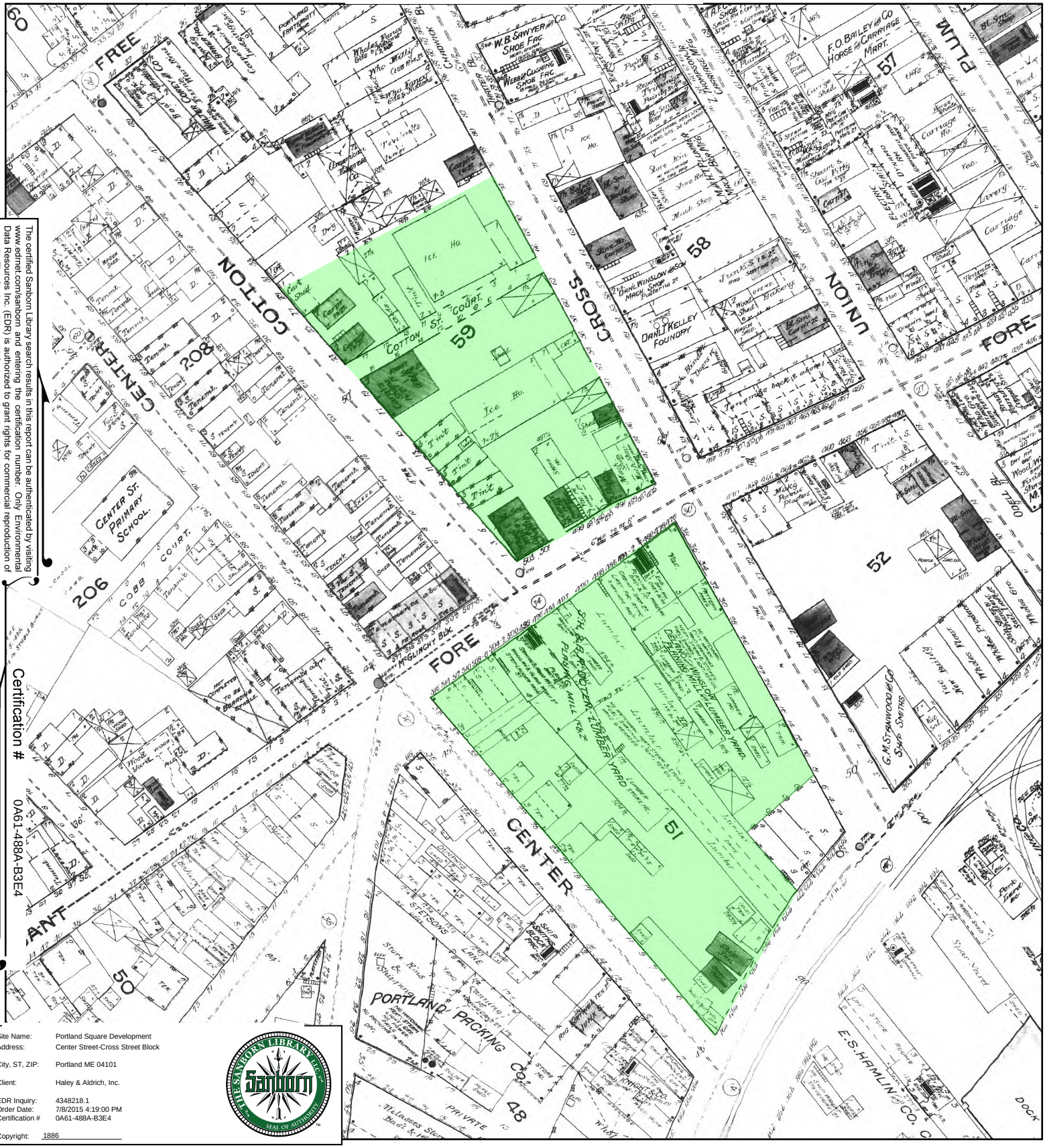


Volume 1, Sheet 9



Volume 1, Sheet 23

1886 Certified Sanborn Map



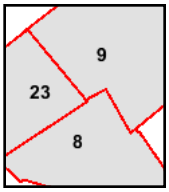
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Site Name:	Portland Square Development
Address:	Center Street-Cross Street Block
City, ST, ZIP:	Portland ME 04101
Client:	Haley & Aldrich, Inc.
EDR Inquiry:	4348218.1
Order Date:	7/8/2015 4:19:00 PM
Certification #	0A61-488A-B3E4
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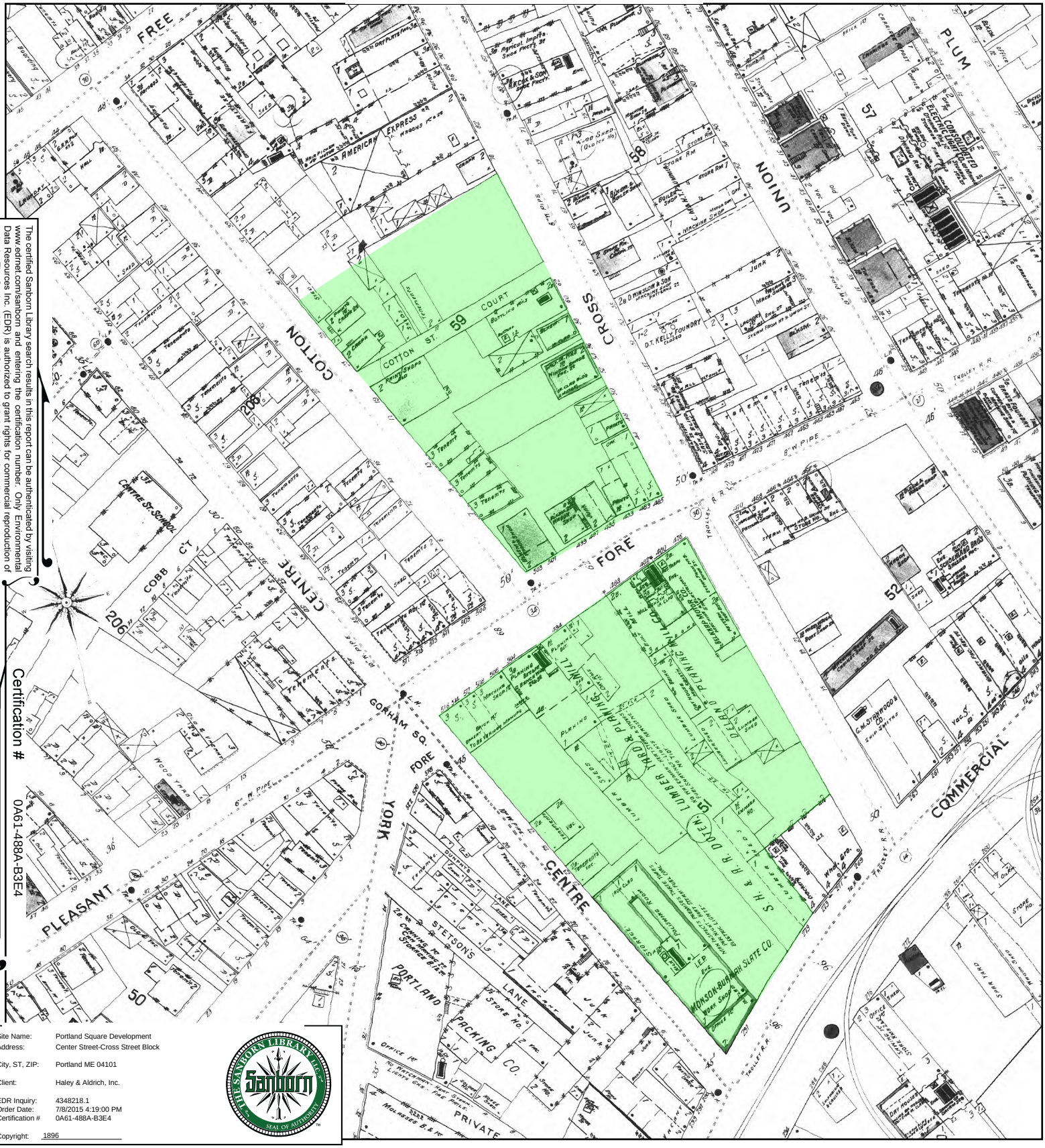


Volume 1, Sheet 8
Volume 1, Sheet 9
Volume 1, Sheet 23

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1896 Certified Sanborn Map



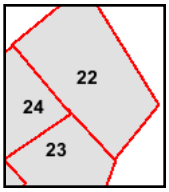
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Address:	Center Street-Cross Street Block
City, ST, ZIP:	Portland ME 04101
Client:	Haley & Aldrich, Inc.
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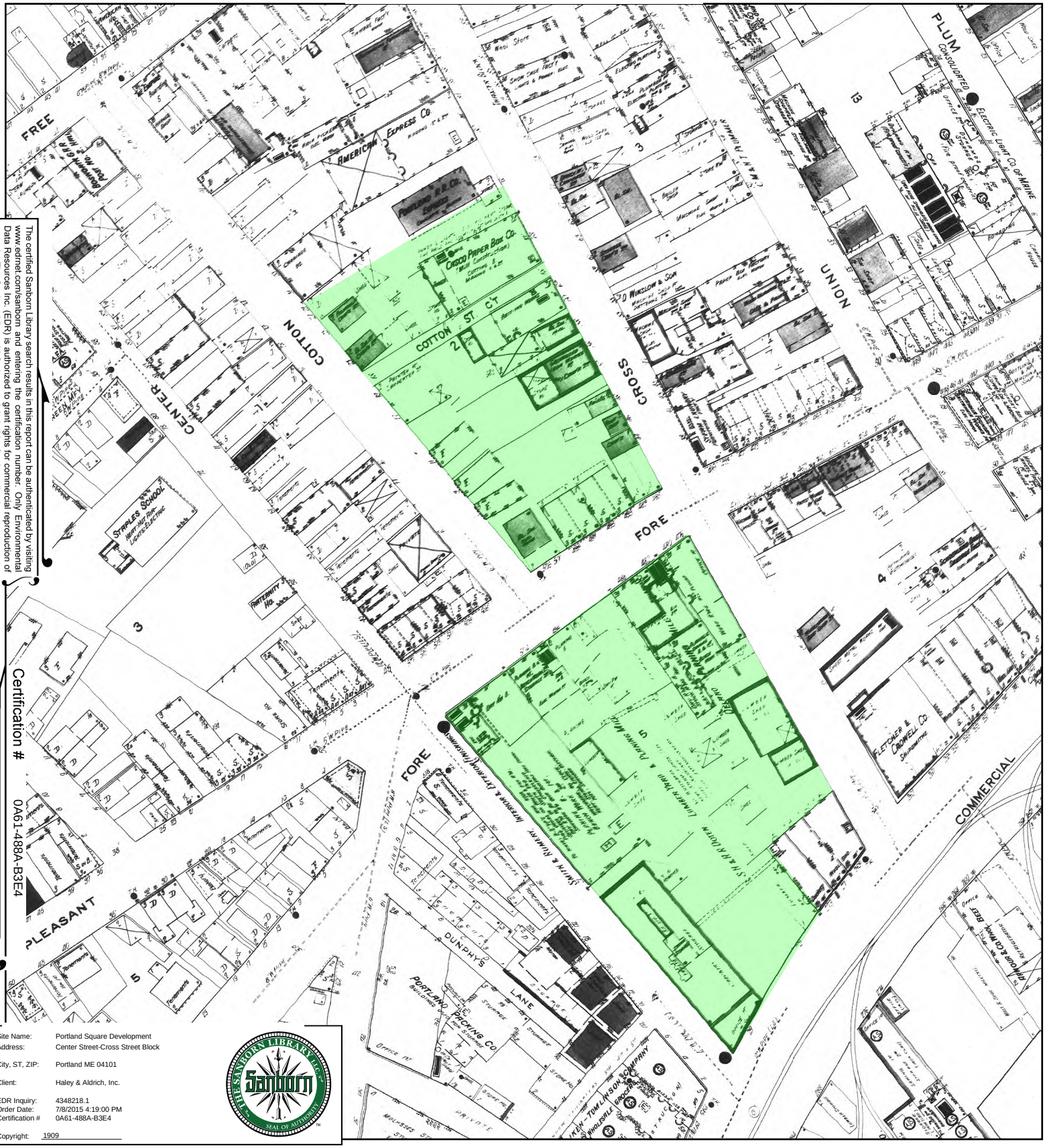


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Volume 1, Sheet 23
Volume 1, Sheet 24

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1909 Certified Sanborn Map



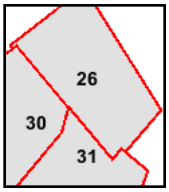
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Address:	Center Street-Cross Street Block
City, ST, ZIP:	Portland ME 04101
Client:	Haley & Aldrich, Inc.
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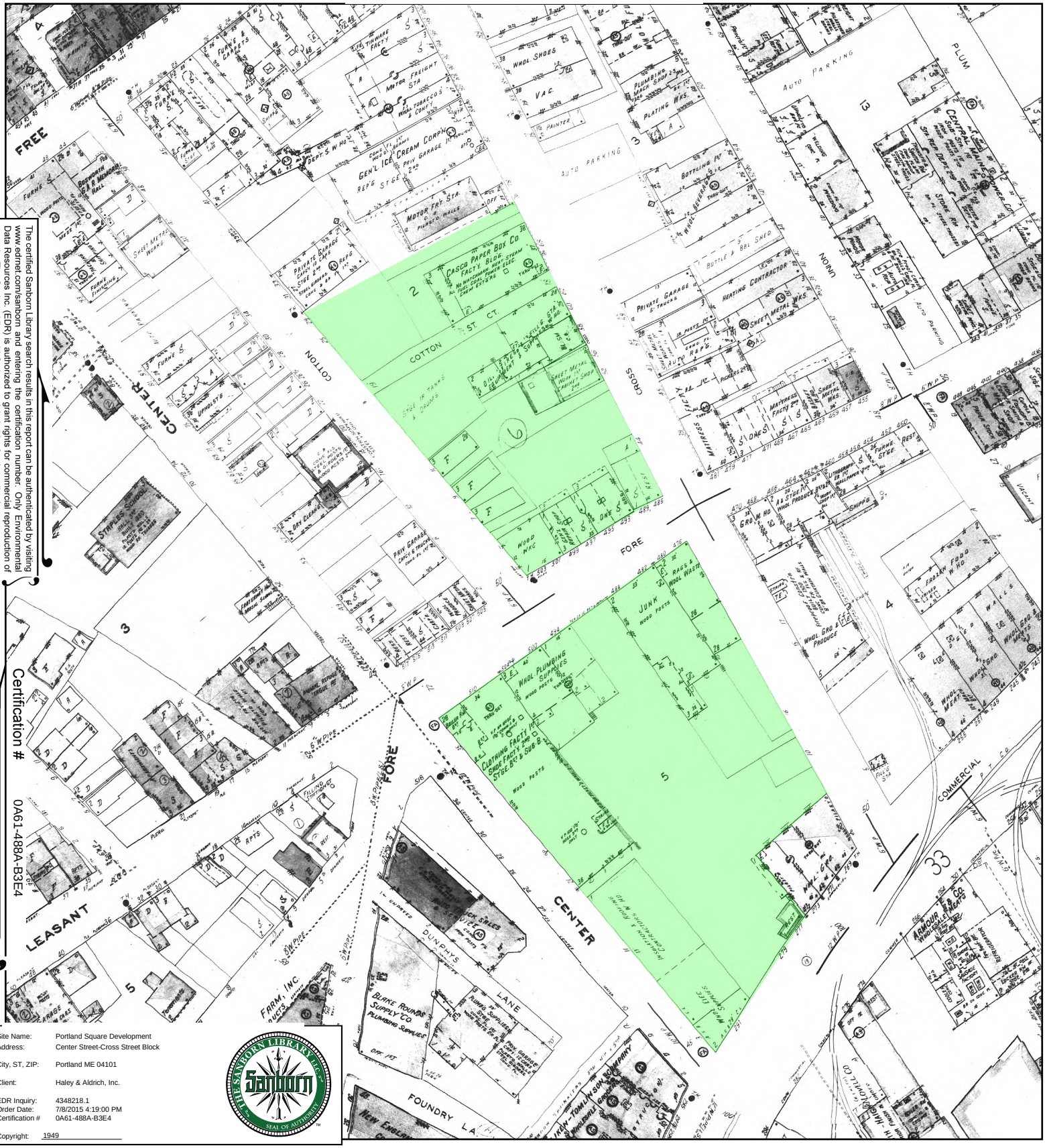


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Volume 1, Sheet 30
Volume 1, Sheet 31

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1949 Certified Sanborn Map



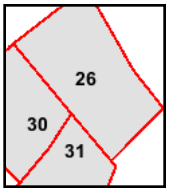
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Certification # 0A61-488A-B3E4

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City, ST, ZIP:	Portland ME 04101
Client:	Haley & Aldrich, Inc.
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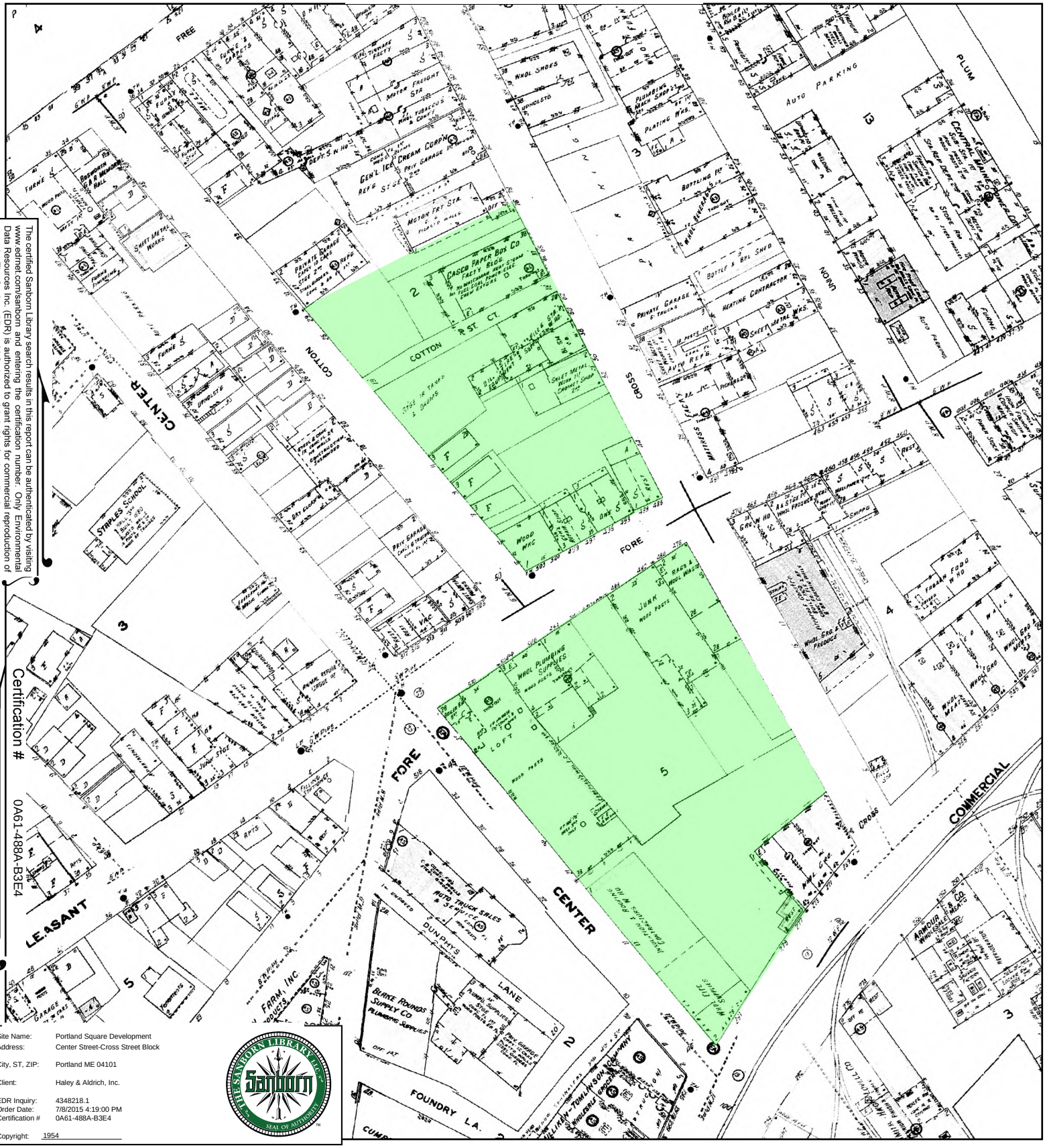


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Volume 1, Sheet 31

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1954 Certified Sanborn Map



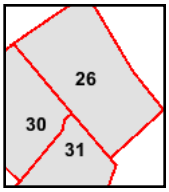
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Address:	Center Street-Cross Street Block
City, ST, ZIP:	Portland ME 04101
Client:	Haley & Aldrich, Inc.
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Volume 1, Sheet 30
Volume 1, Sheet 31

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1980 Certified Sanborn Map



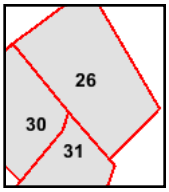
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Certification # 0A61-488A-B3E4

Site Name:	Portland Square Development
Address:	Center Street-Cross Street Block
City, ST, ZIP:	Portland ME 04101
Client:	Haley & Aldrich, Inc.
EDR Inquiry:	4348218.1
Order Date:	7/8/2015 4:19:00 PM
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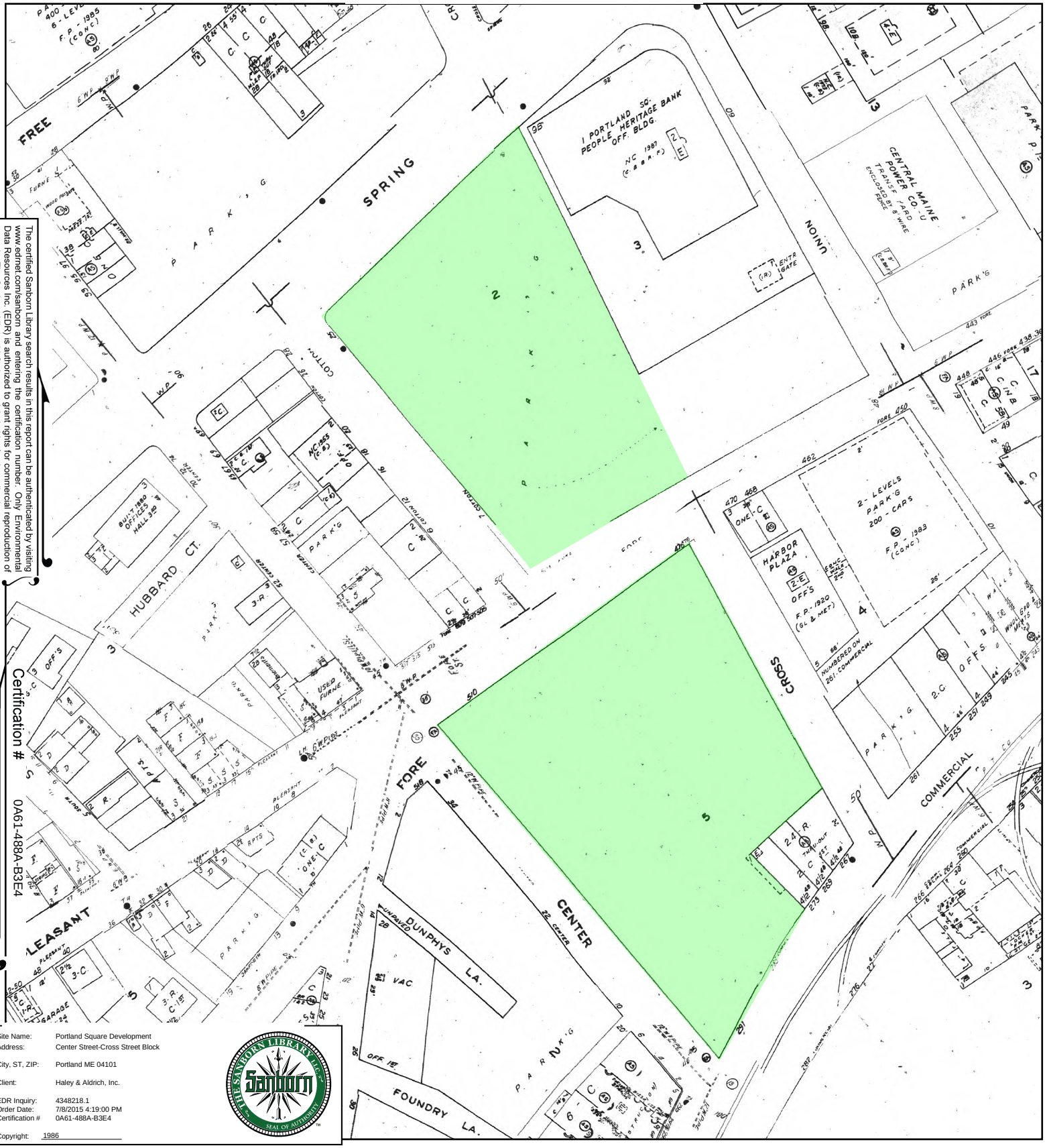


Volume 1, Sheet 26
Volume 1, Sheet 30
Volume 1, Sheet 31

0 Feet 150 300 600

N

1986 Certified Sanborn Map



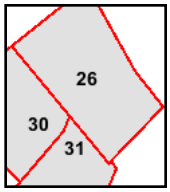
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Certification # 0A61-488A-B3E4

Site Name:	Portland Square Development
Address:	Center Street-Cross Street Block
City, ST, ZIP:	Portland ME 04101
Client:	Haley & Aldrich, Inc.
EDR Inquiry:	4348218.1
Order Date:	7/8/2015 4:19:00 PM
Certification #	0A61-488A-B3E4
Copyright:	1986

This Certified Sanborn Map combines the following sheets.
Outlined areas indicate map sheets within the collection.



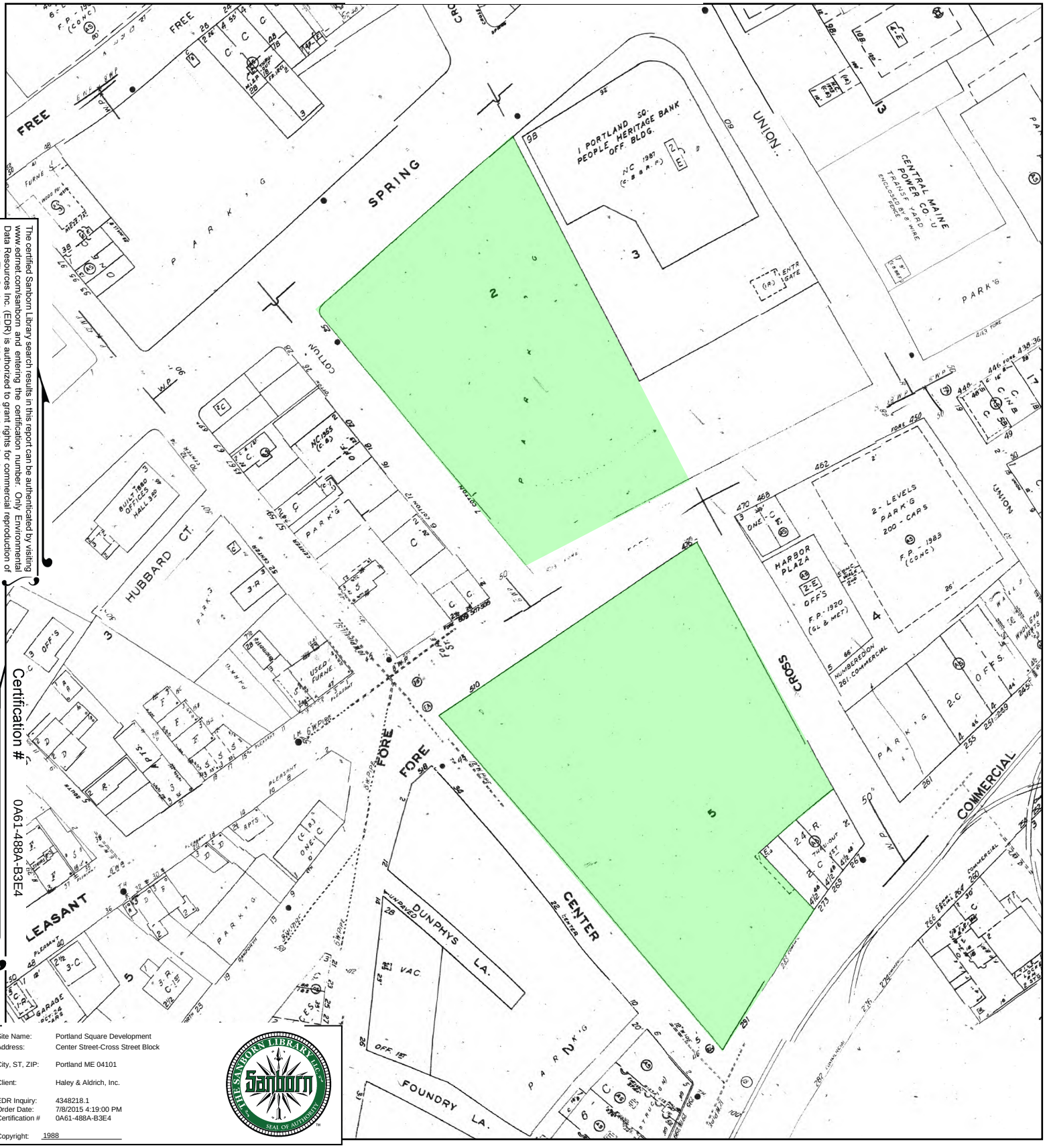


Volume 1, Sheet 30
Volume 1, Sheet 31
Volume 1, Sheet 26

0 Feet 150 300 600

N

1988 Certified Sanborn Map



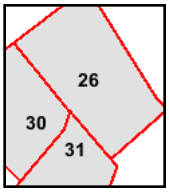
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Order Date:	7/8/2015 4:19:00 PM
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Copyright:	1988

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Outlined areas indicate map sheets within the collection.





Volume 1, Sheet 26
Volume 1, Sheet 30
Volume 1, Sheet 31

0 Feet 150 300 600

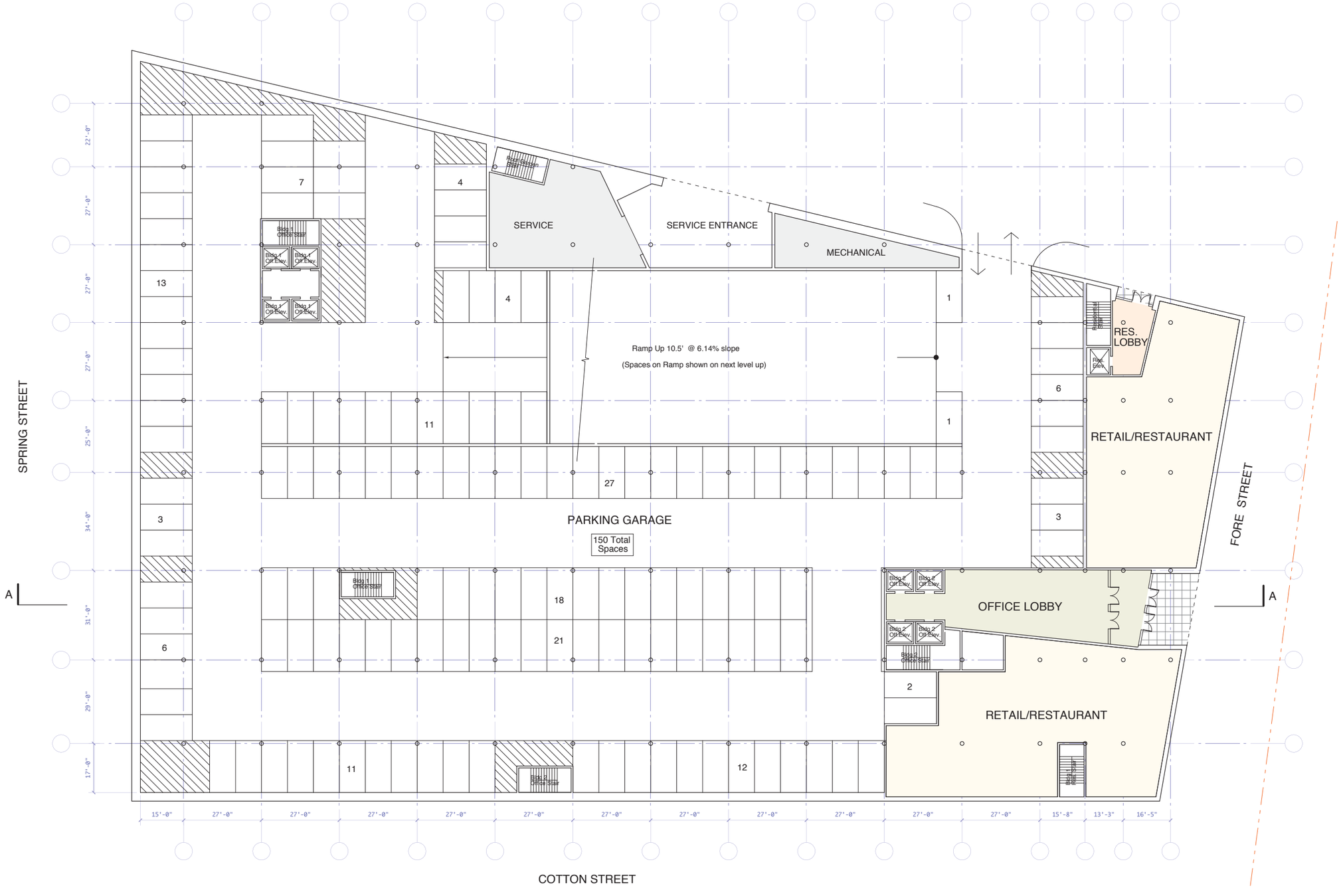
N

APPENDIX E

Preliminary Conceptual Master Plans, Upper and Lower Lots

HALEY ALDRICH

Upper Lot



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Portland Square

Portland, Maine

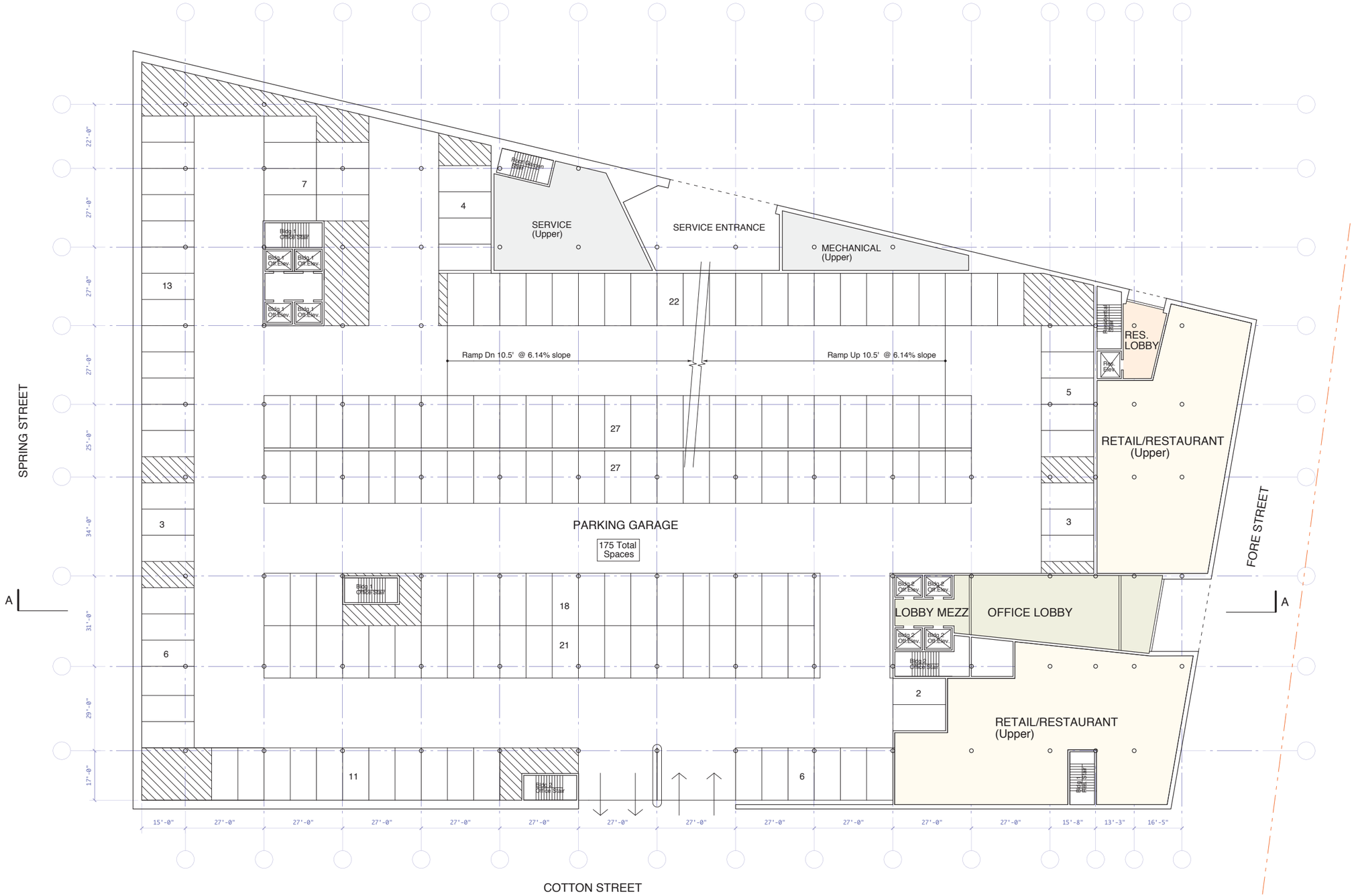
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL G PARKING
Floor El. 29.0'

A1.0

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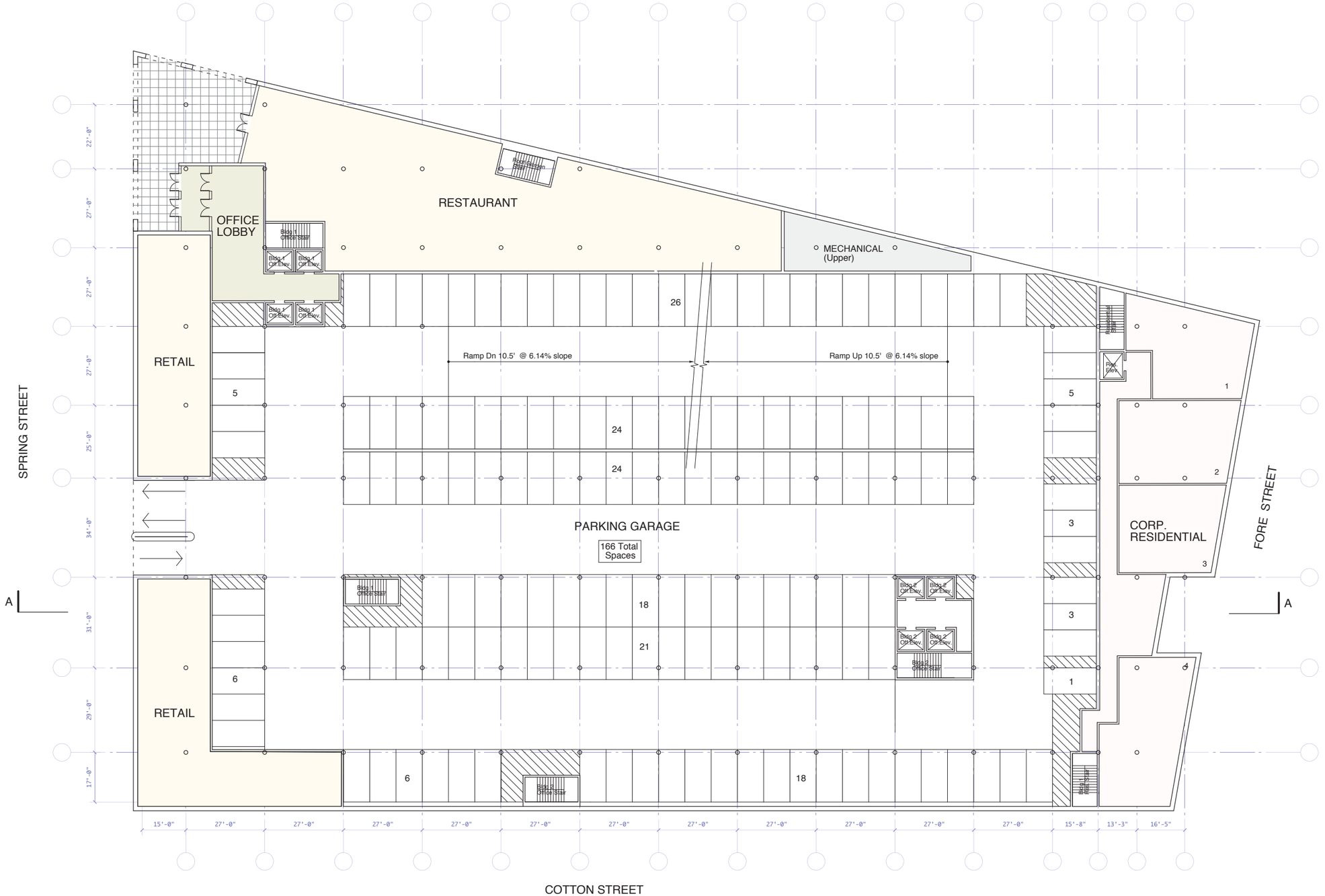
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 1 PARKING
Floor El. 39.5'

A1.1

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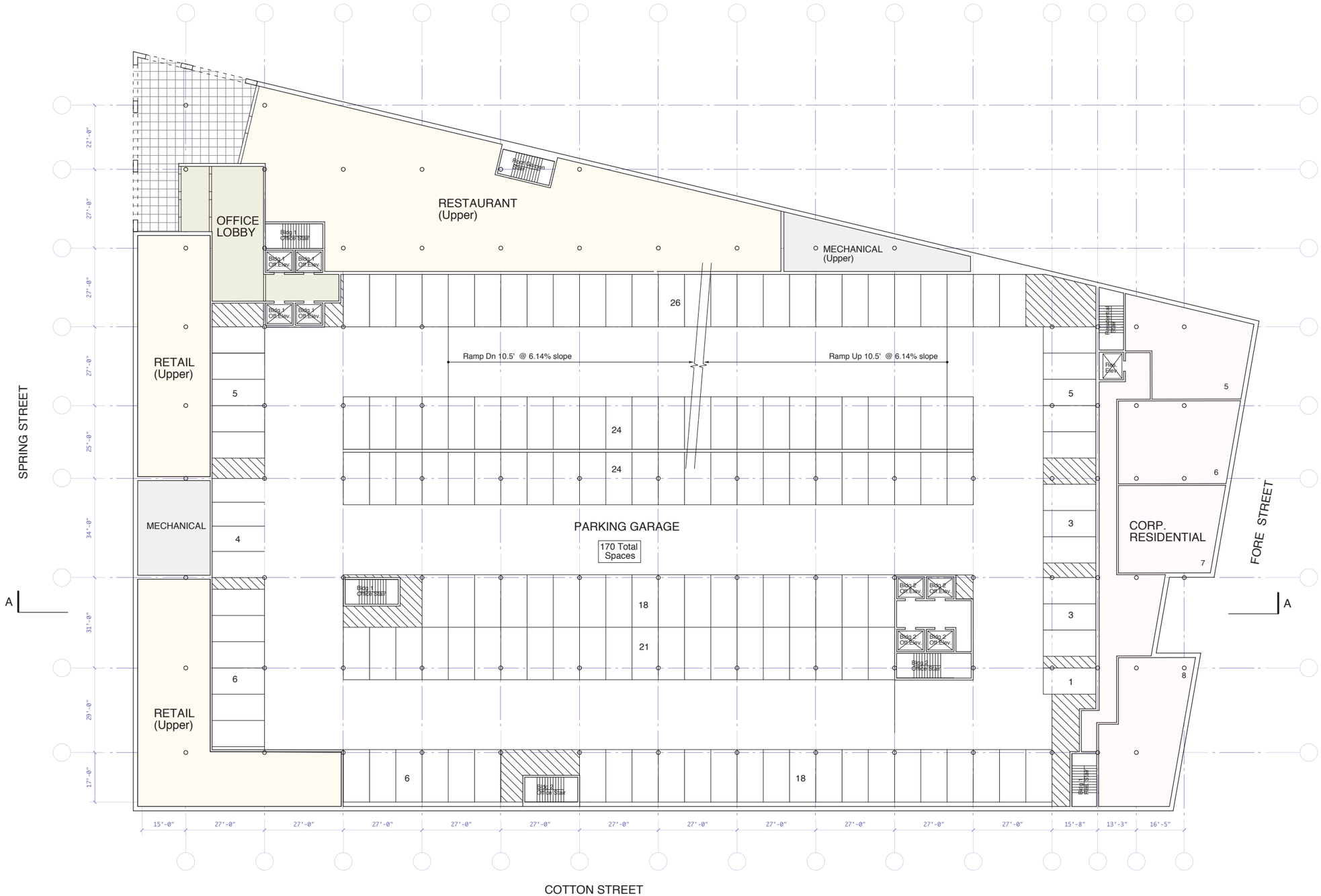
Owner / Developers
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New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 2 PARKING
Floor El. 50.0'

A1.2

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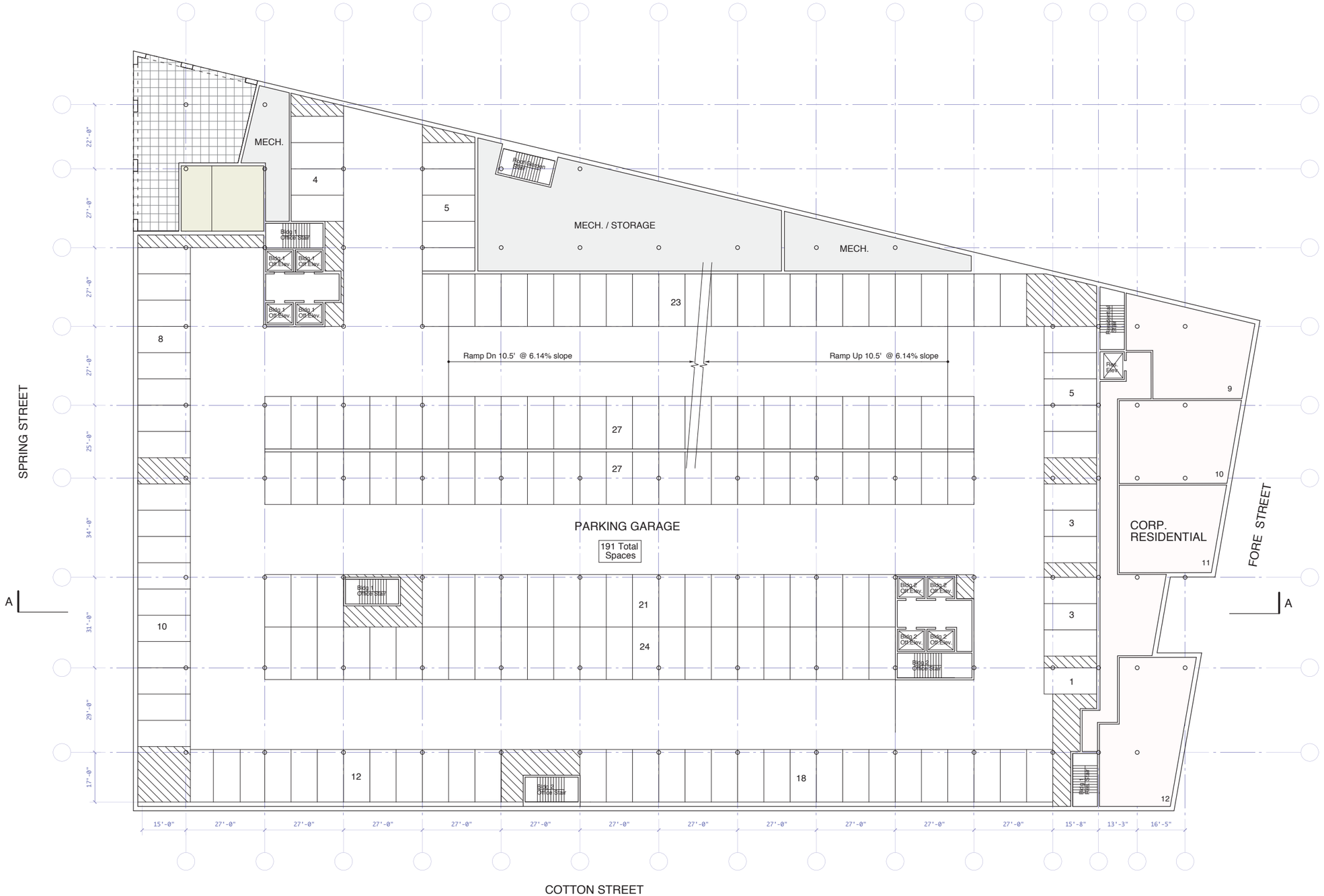
Owner / Developers
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New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 3 PARKING
Floor El. 61.5'

A1.3

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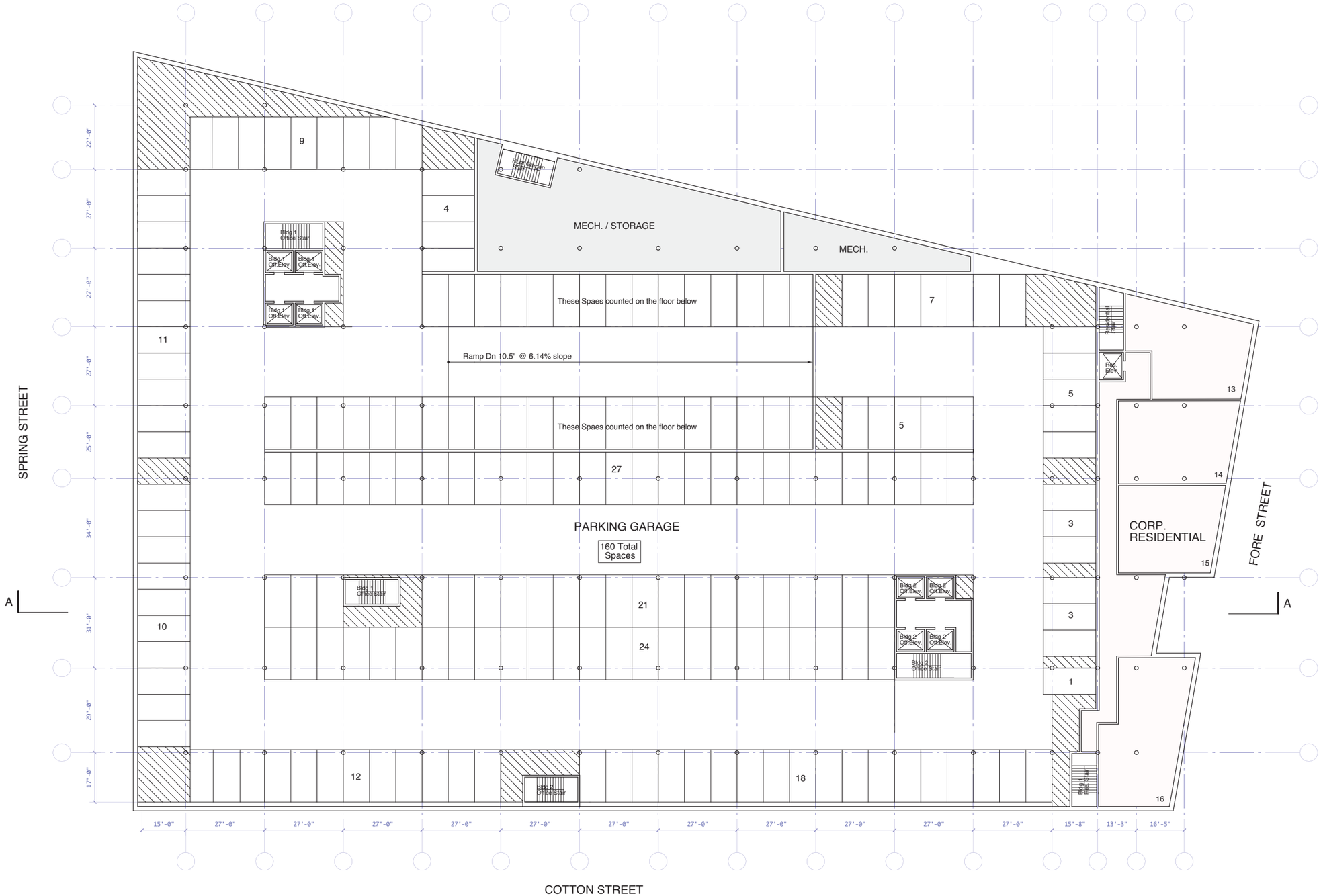
Owner / Developers
NORTH RIVER, LLC
New York, NY

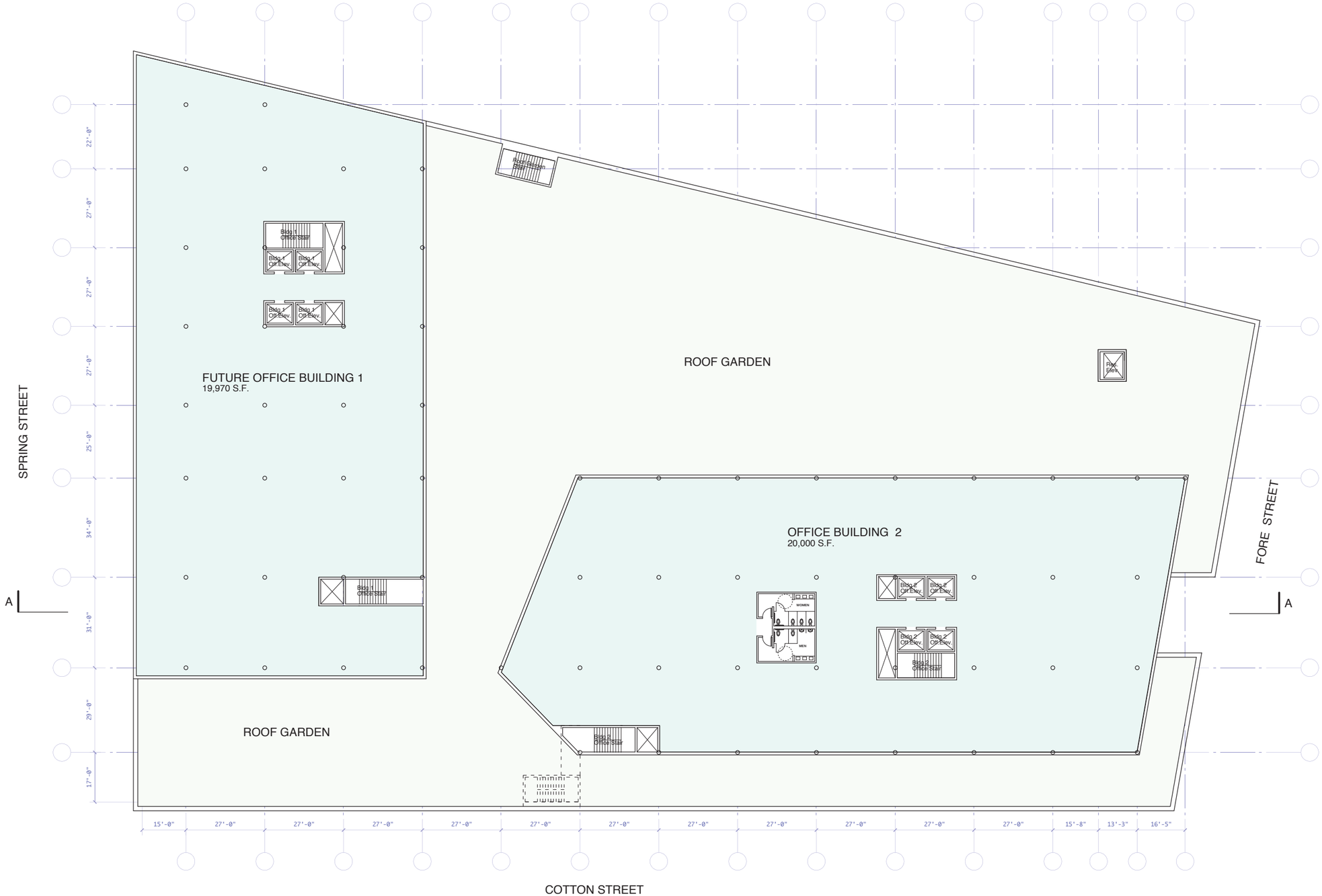
SCALE: 1/16" = 1'-0"

LEVEL 4 PARKING
Floor El. 71.0'

A1.4

AUGUST 21, 2016


SPRING STREET
FORE STREET
COTTON STREET
A
A
MECH. / STORAGE
MECH.
These Spaes counted on the floor below
Ramp Dn 10.5' @ 6.14% slope
These Spaes counted on the floor below
PARKING GARAGE
160 Total Spaces
CORP. RESIDENTIAL
Bldg 1 Office Stair
Bldg 1 Off Elev
Bldg 1 Off Elev
Bldg 1 Off Elev
Bldg 1 Off Elev
Bldg 2 Office Stair
Bldg 2 Off Elev
Bldg 2 Off Elev
Bldg 2 Off Elev
Bldg 2 Off Elev
Bldg 2 Office Stair
Bldg 3 Office Stair
Bldg 3 Office Stair
Bldg 4 Office Stair
Bldg 4 Office Stair
Bldg 4



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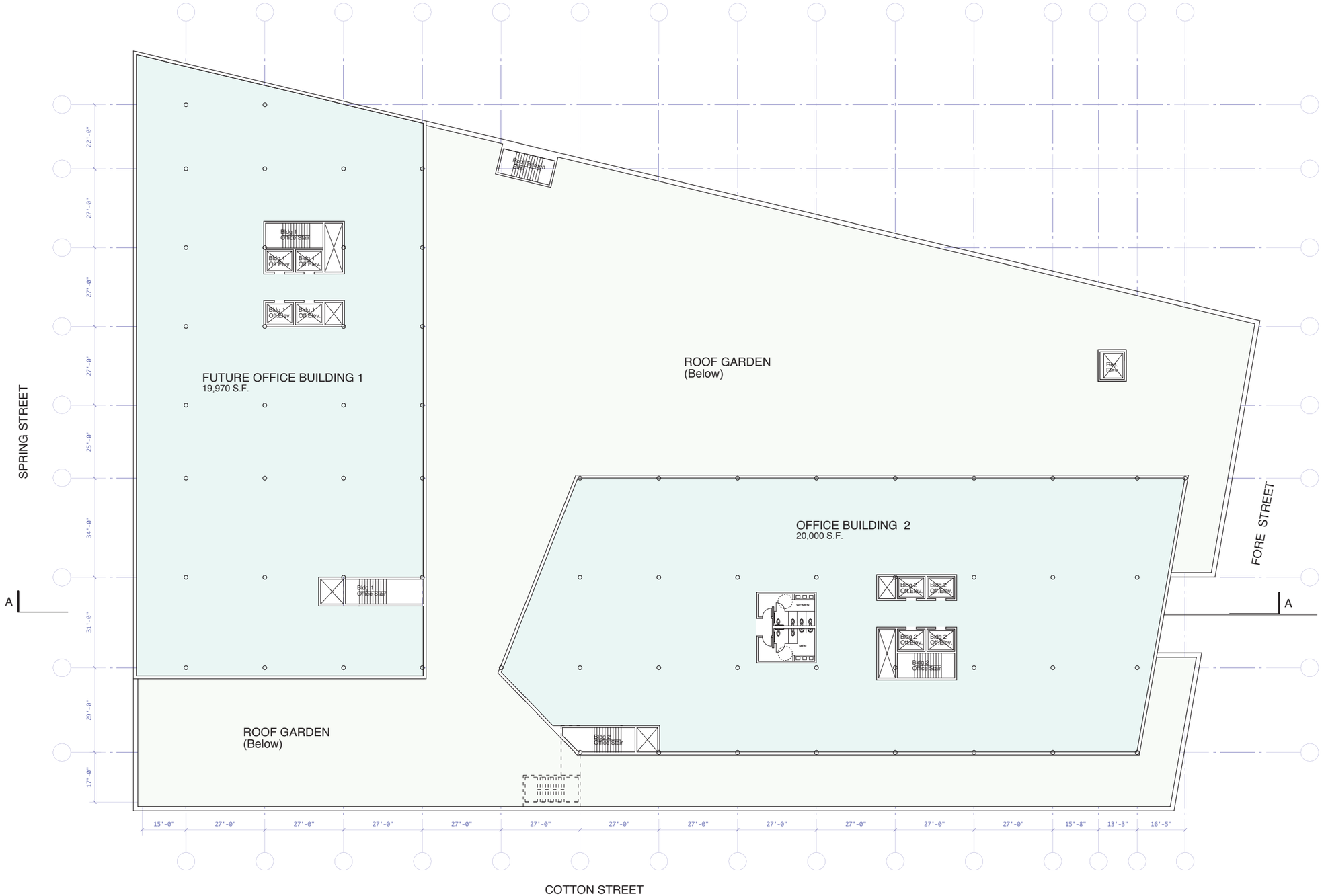
Owner / Developers
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New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 6 OFFICE
Floor El. 93.0'

A1.6

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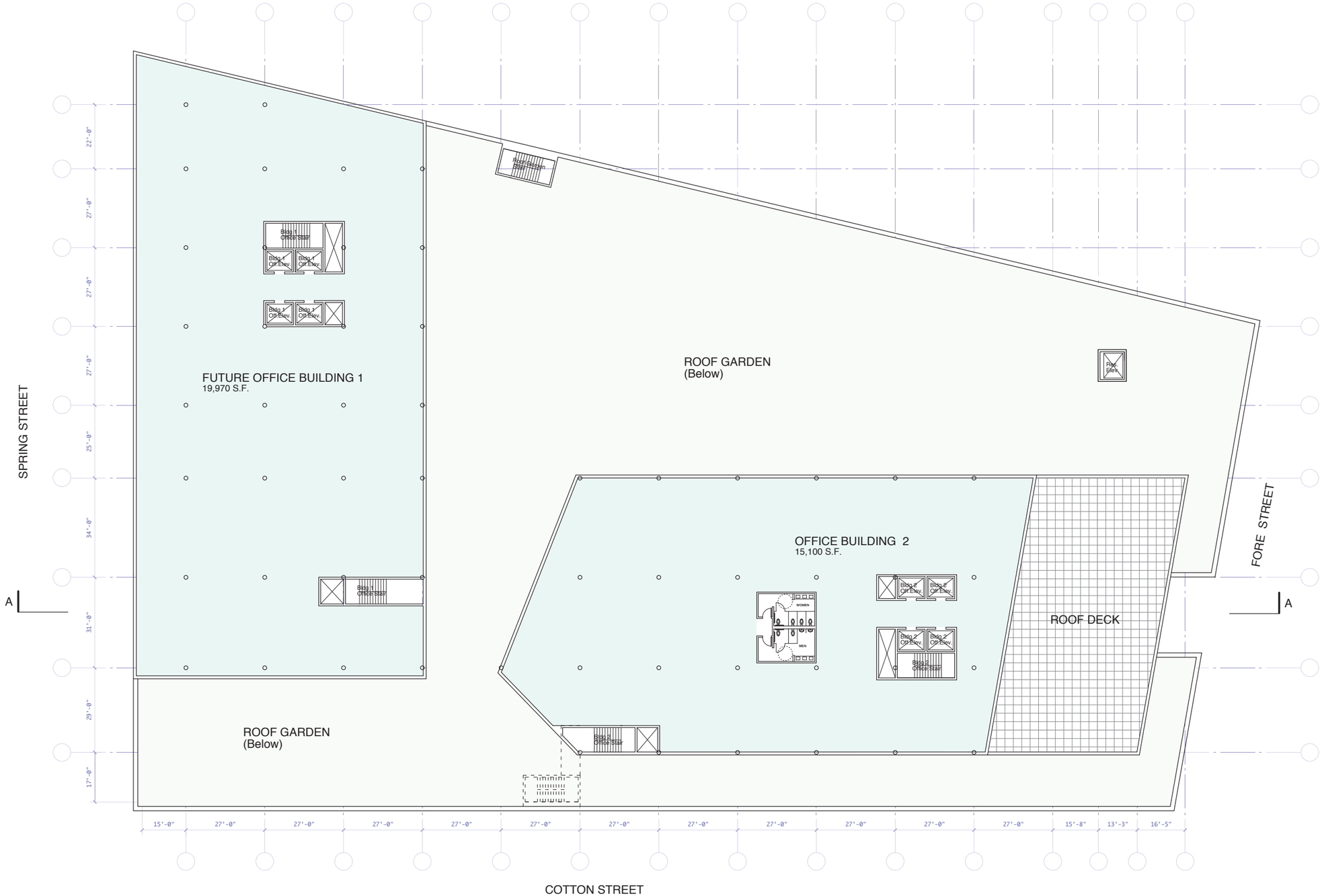
Owner / Developers
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New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 7 OFFICE
Floor El. 105.5'

A1.7

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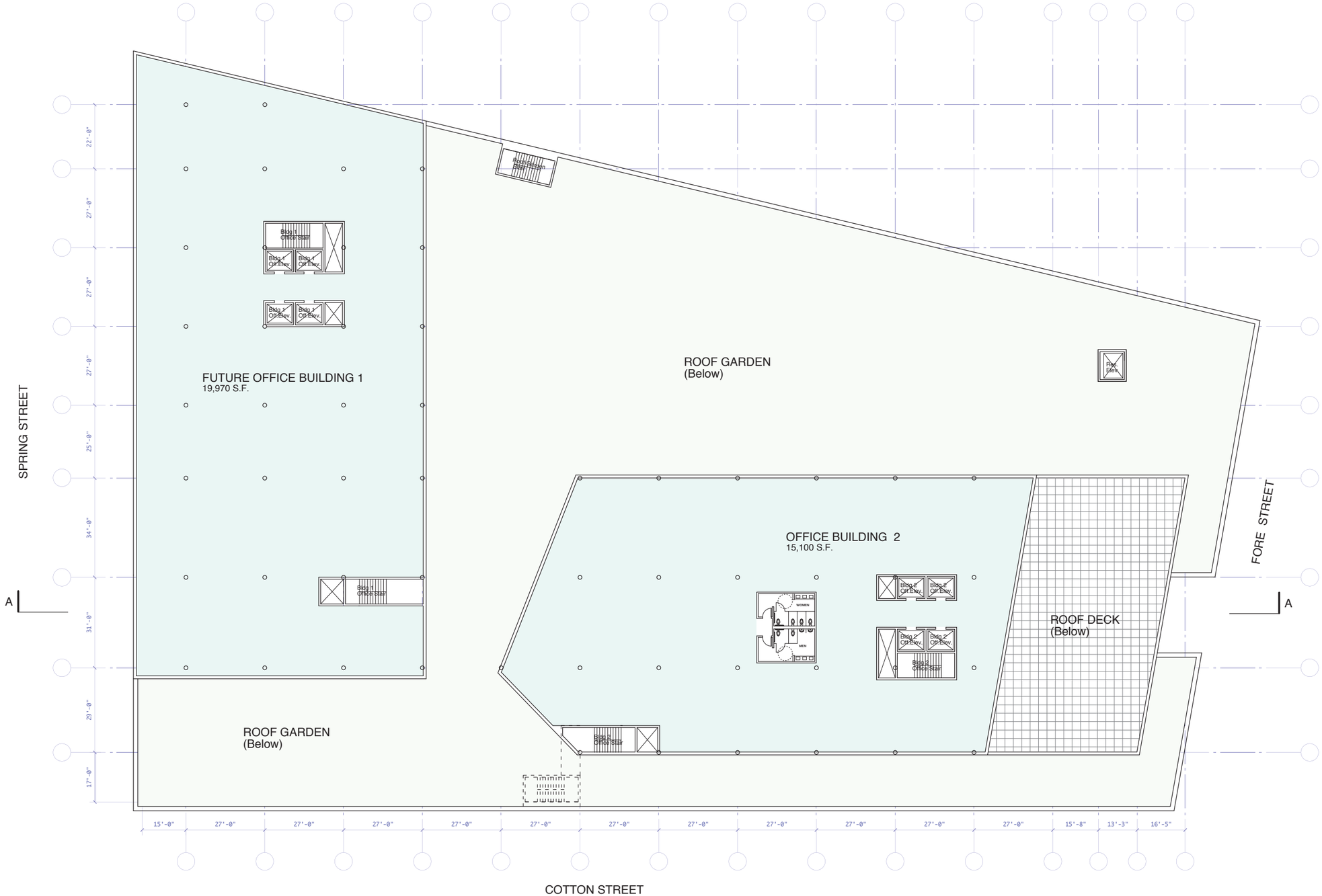
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 8 OFFICE
Floor El. 117.5'

A1.8

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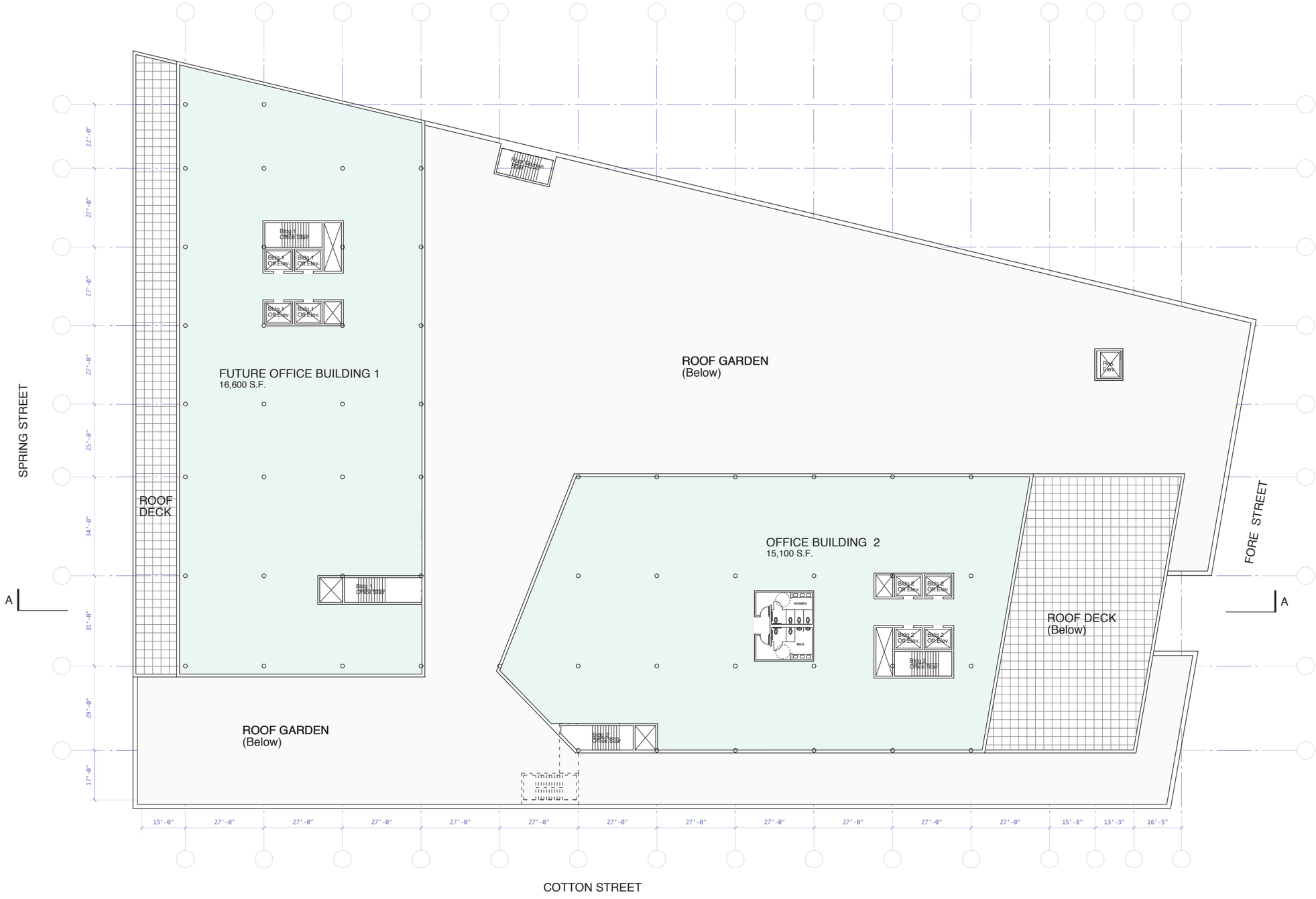
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 9 OFFICE
Floor El. 129.5'

A1.9

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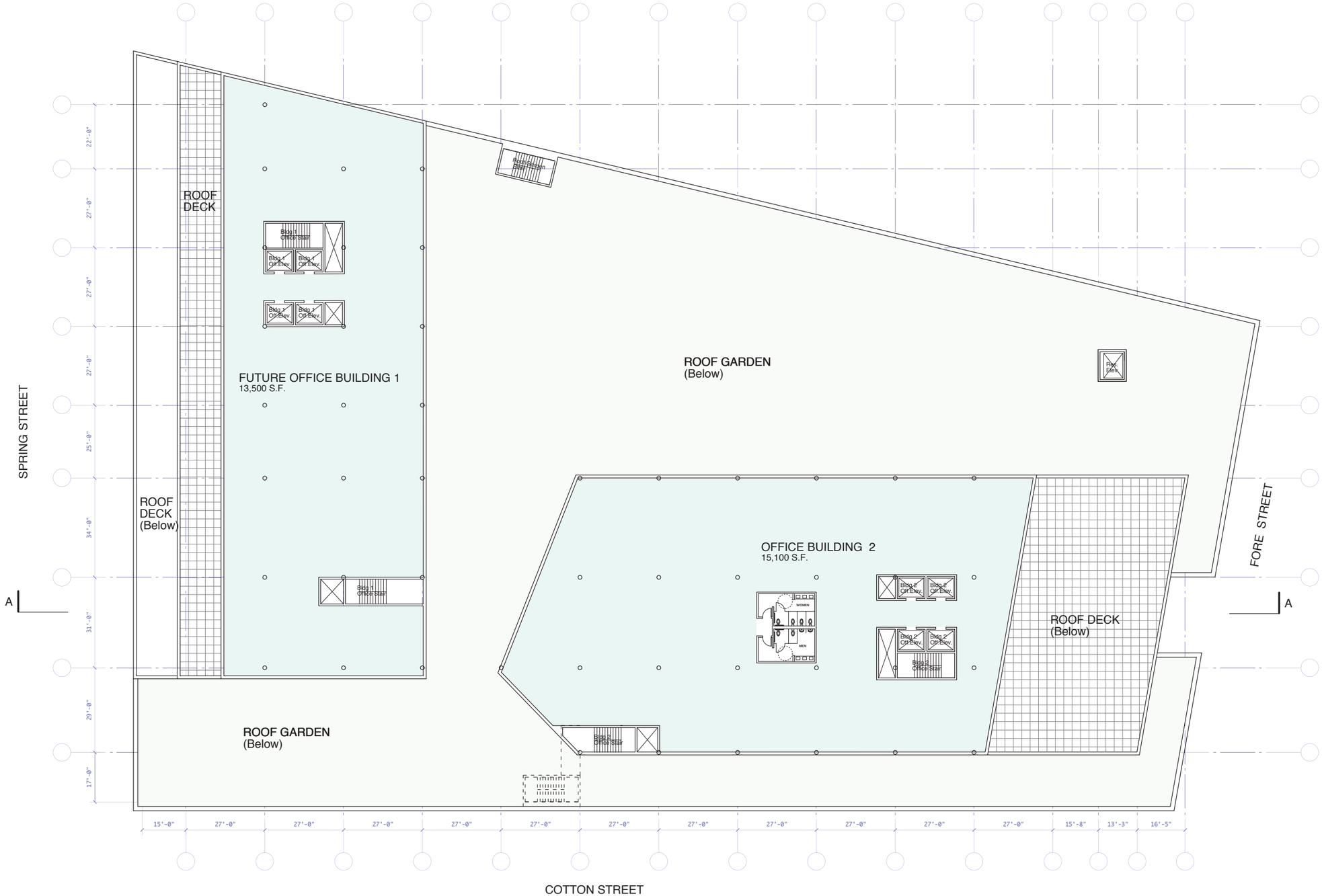
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 10 OFFICE
Floor El. 141.5'

A1.10

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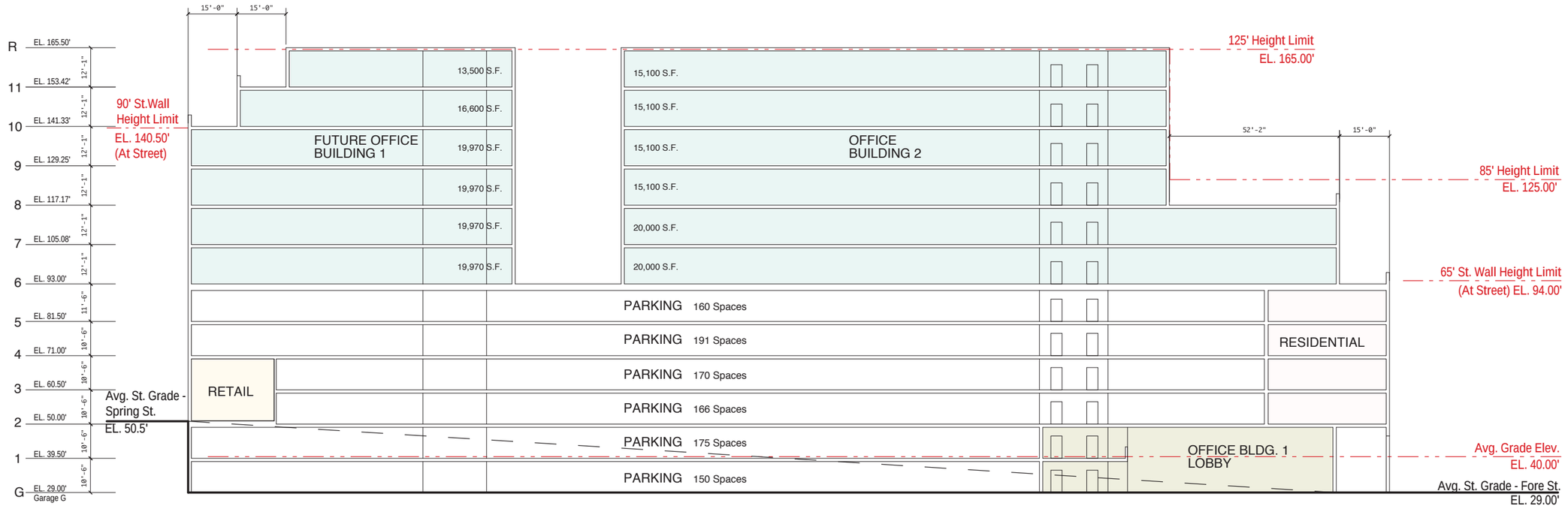
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 11 OFFICE
Floor El. 153.5'

A1.11

AUGUST 21, 2016



SECTION A-A BUILDINGS 1 & 2

SUMMARY OF USE AREAS:

Office Building 1:	109,980 S.F. 6 Stories
Office Building 2:	100,400 S.F. 6 Stories
Roof Garden:	38,400 S.F. 1 Story
Retail/Restaurant:	19,690 S.F. 1 Story
Residential:	26,080 S.F. 4 Stories
Parking:	380,540 S.F. 6 Stories 1,000 Spaces

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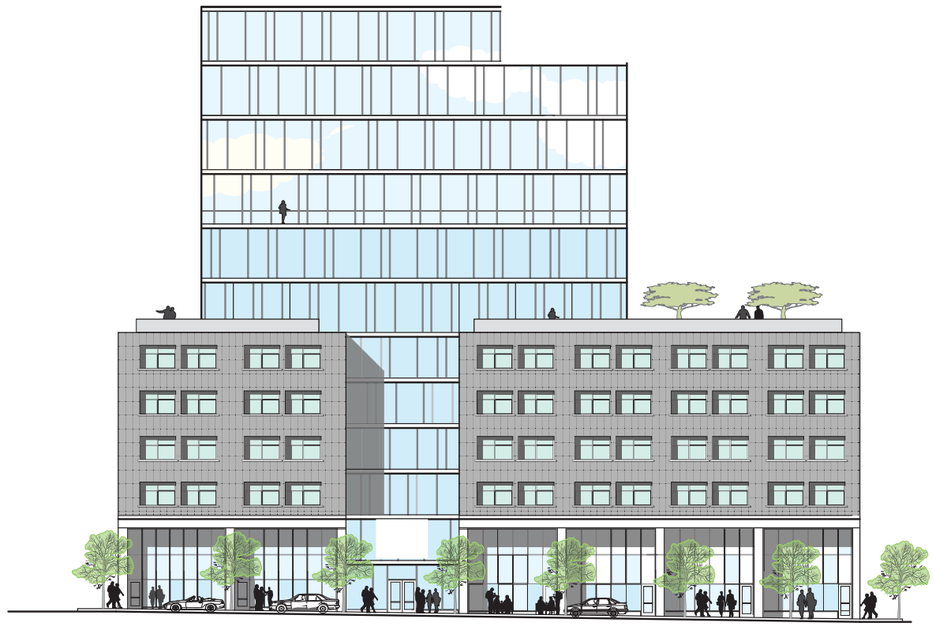
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

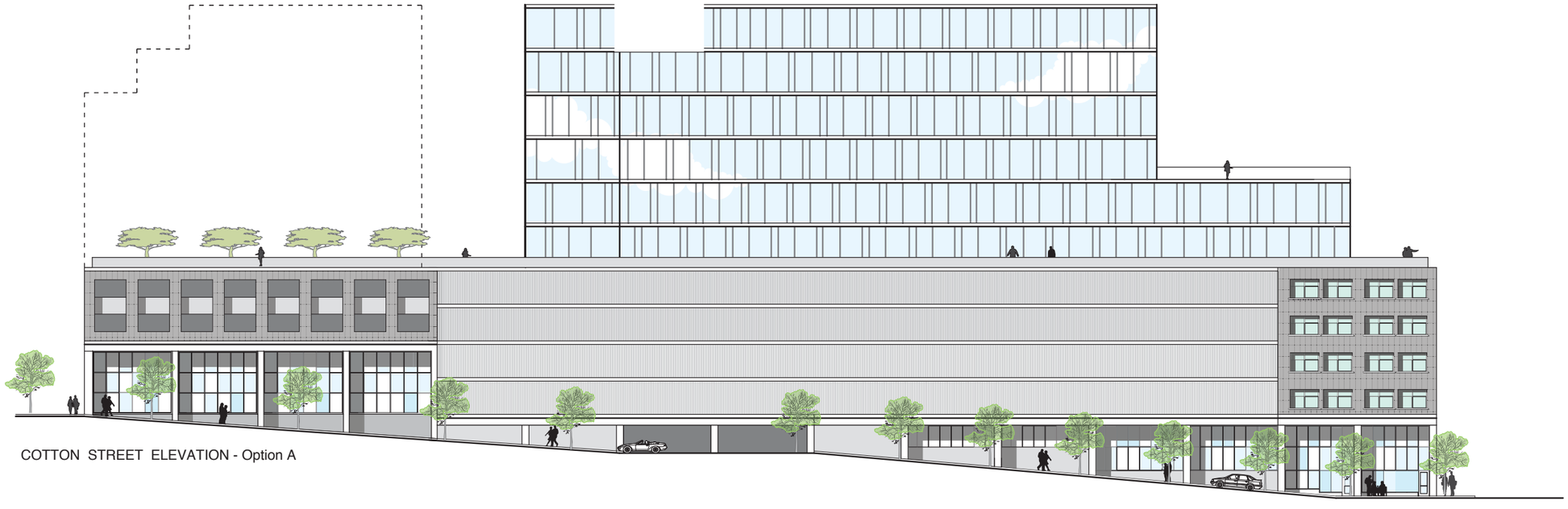
BUILDING SECTION

A2.1

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FORE STREET ELEVATION - Option A



COTTON STREET ELEVATION - Option A

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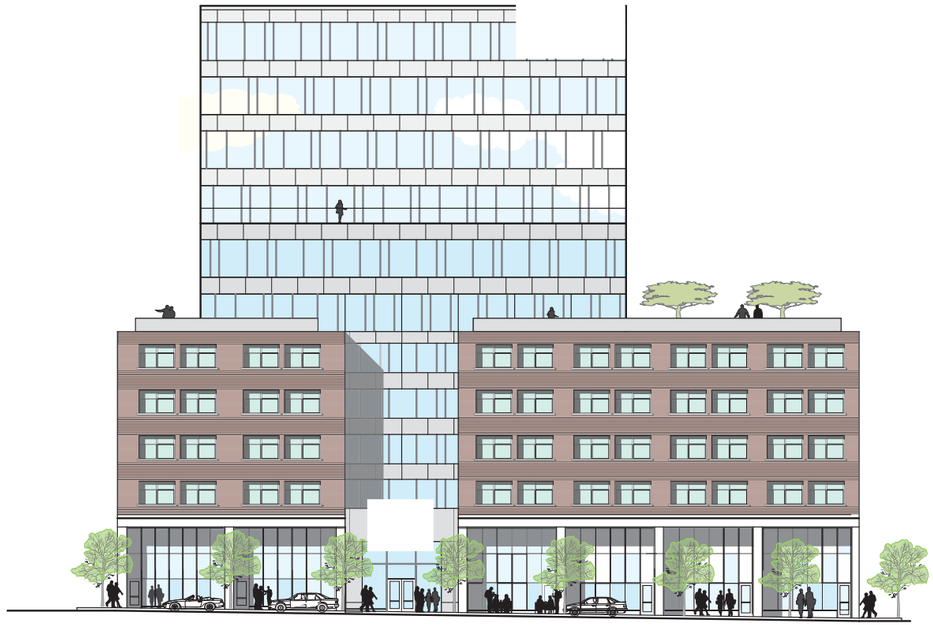
Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

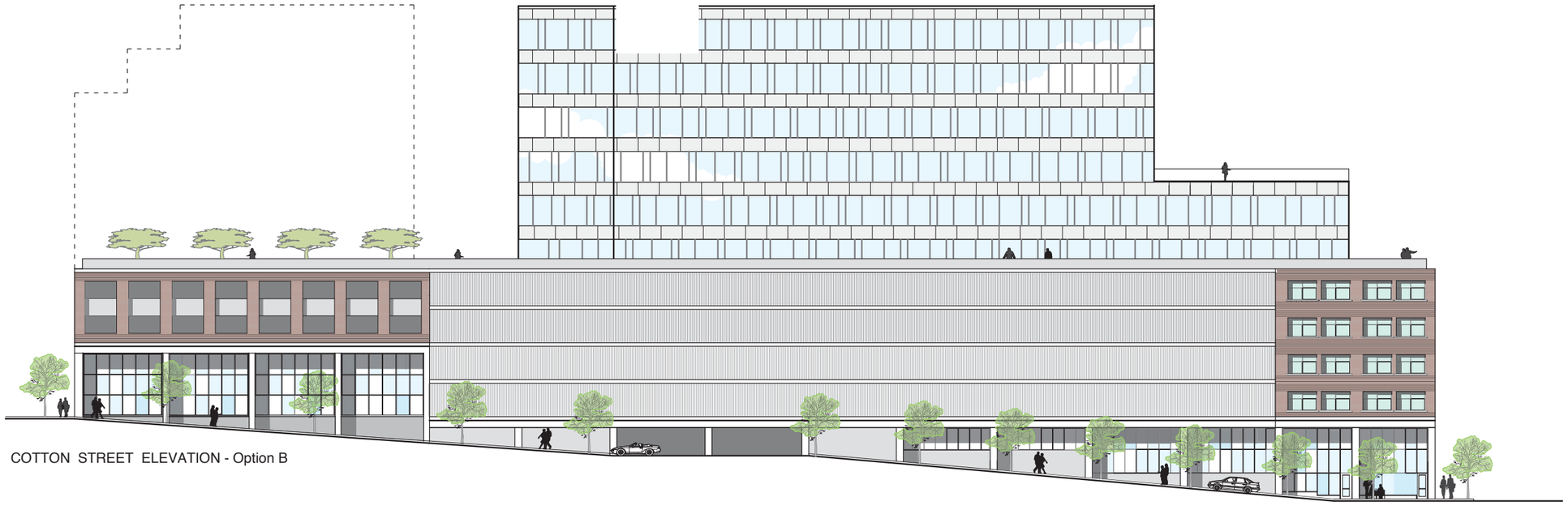
SCALE: 1/16" = 1'-0"

A3.1

AUGUST 21, 2016



FORE STREET ELEVATION - Option B



COTTON STREET ELEVATION - Option B

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South Portland, ME 04106
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www.gorrillpalmer.com

Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

A3.2

AUGUST 21, 2016



FORE STREET ELEVATION - Option C



COTTON STREET ELEVATION - Option C

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Portland Square

Portland, Maine

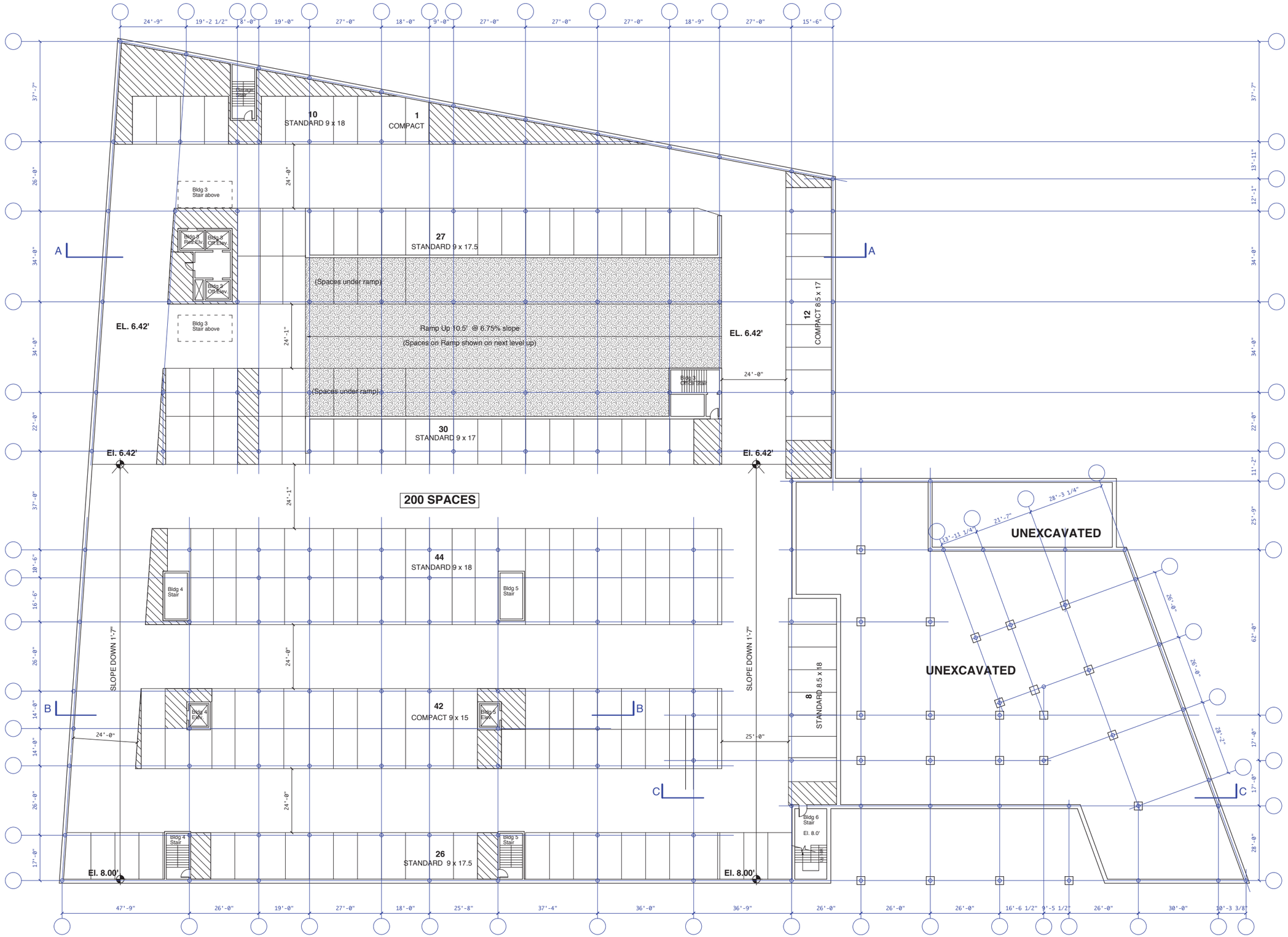
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

A3.3

AUGUST 21, 2016

Lower Lot



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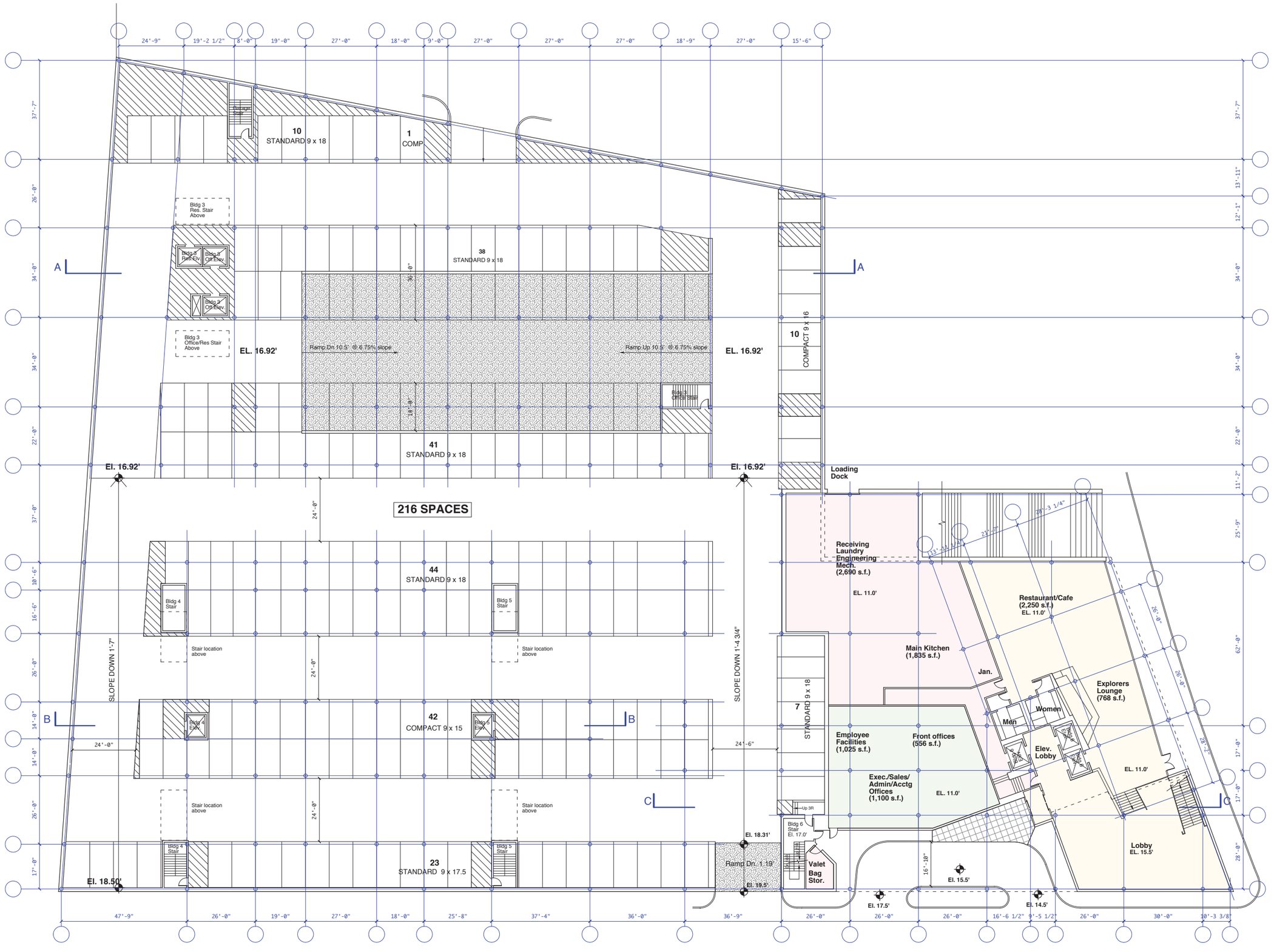
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

GROUND LEVEL PLAN
Floor El. 6.42' & 8.00'

A1.0

JUNE 1, 2016



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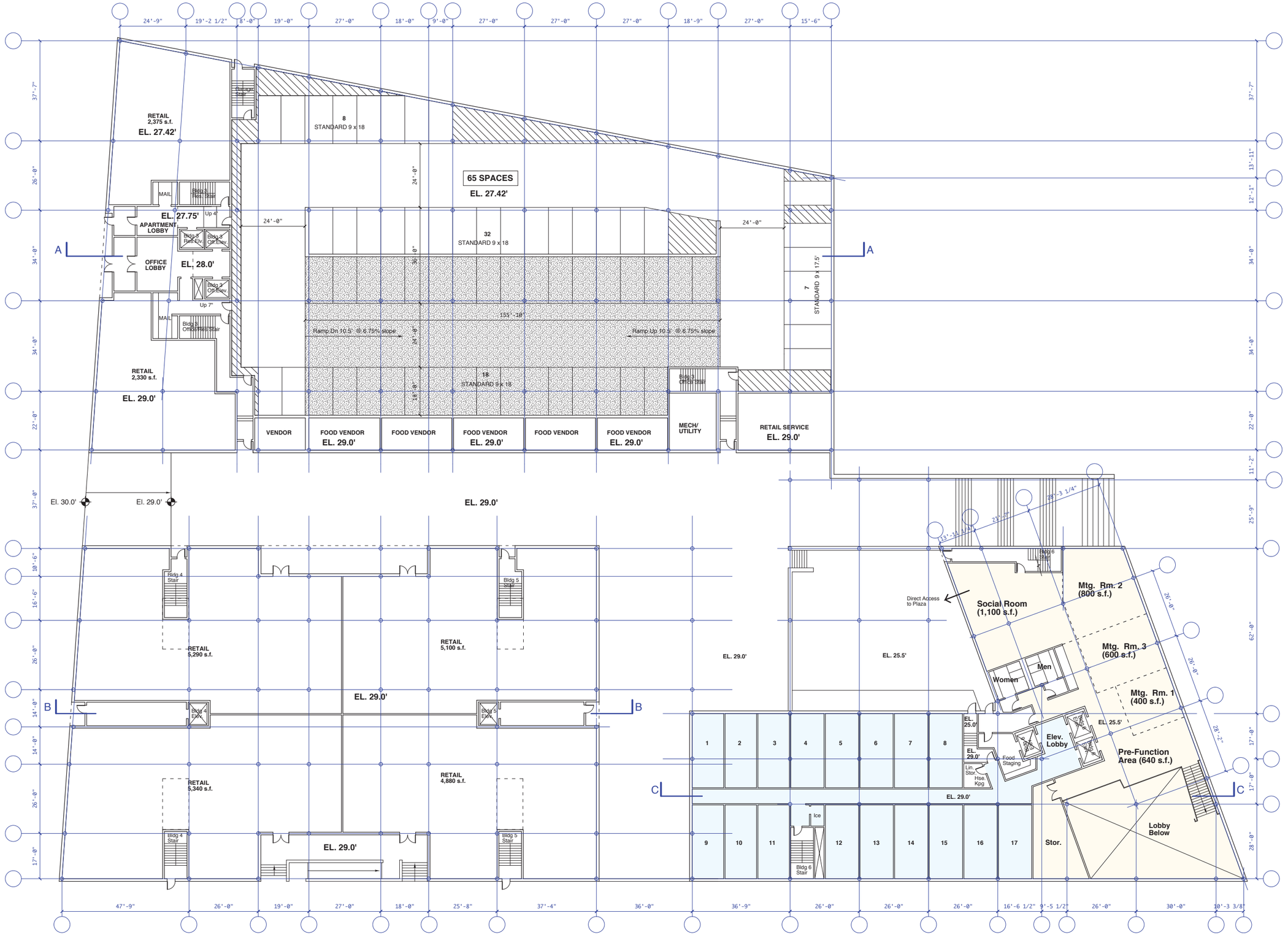
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 1 PLAN
Floor El. 11.0', El. 15.5', El. 16.92' & El. 18.5'

A1.1

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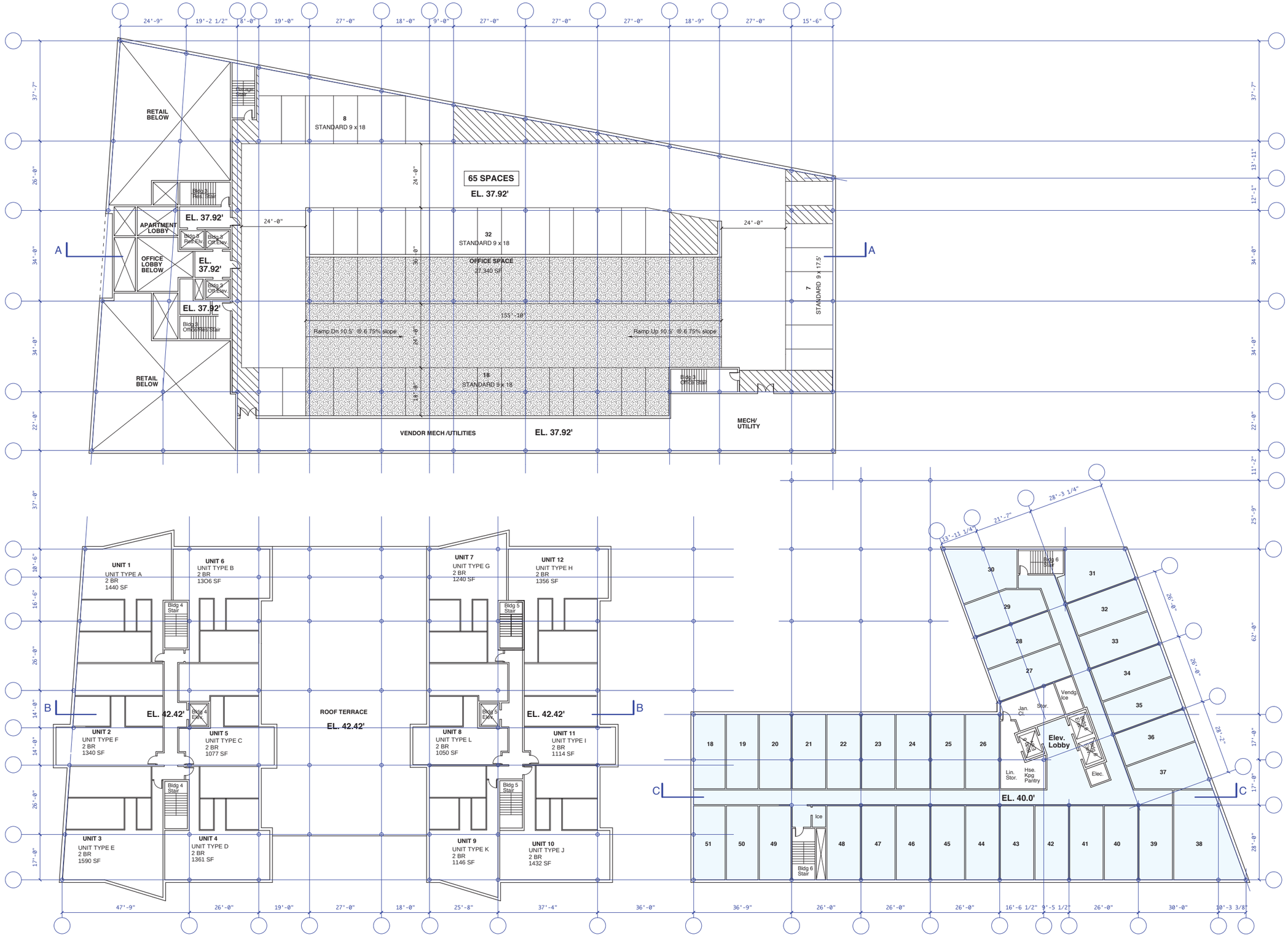
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

PLAZA LEVEL PLAN
Floor El. 25.0', El. 27.42', El. 27.75', El. 28.0' & El. 29.0'

A1.2

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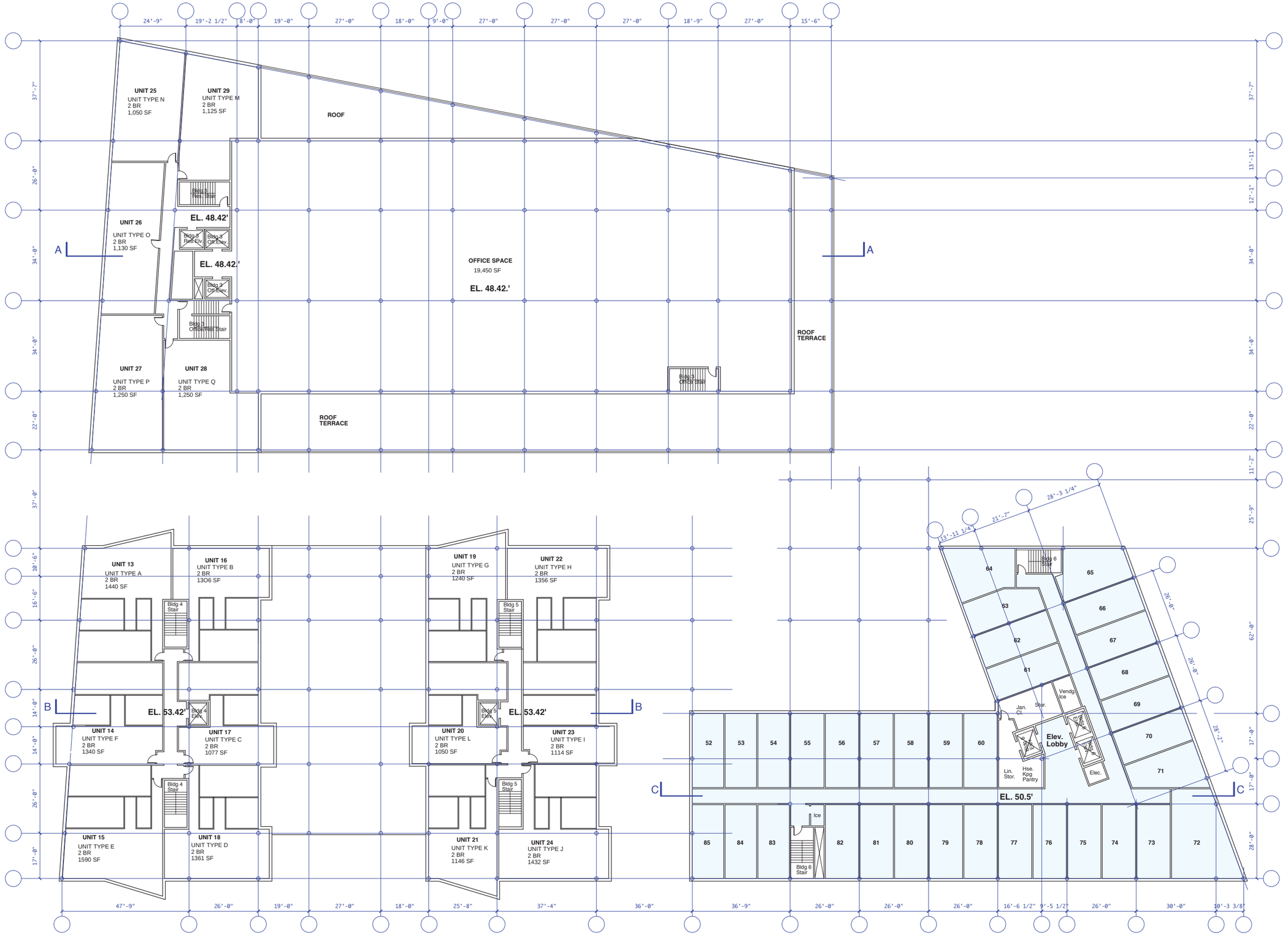
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 3 PLAN
Floor El 39.5', EL 40.0', El. 44.0'

A1.3

JUNE 1, 2016



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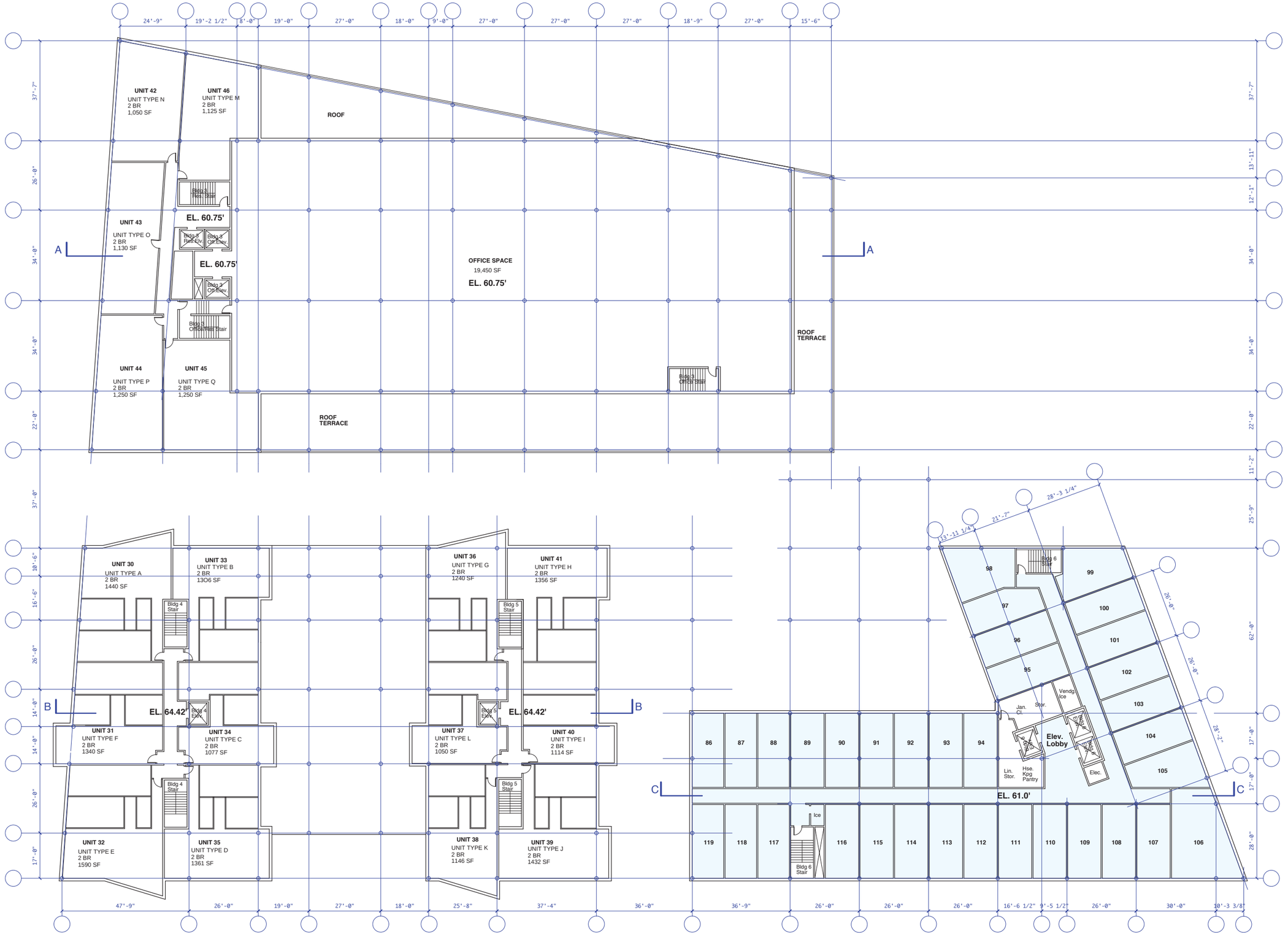
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 4 PLAN
Floor El. 48.42', El. 50.5', El. 53.42'

A1.4

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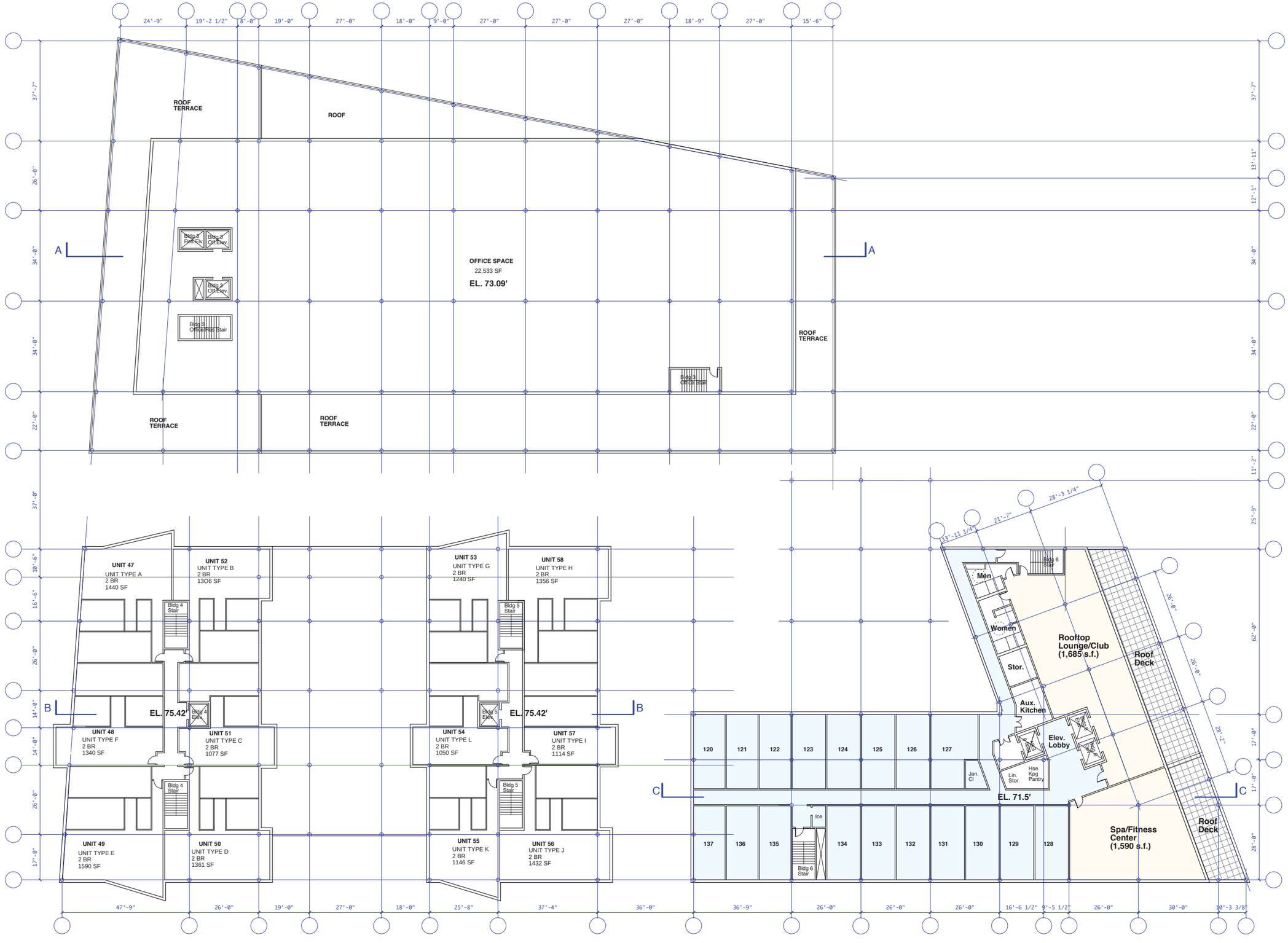
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

LEVEL 5 PLAN
Floor El. 60.75', El. 61.0', El. 64.42'

A1.5

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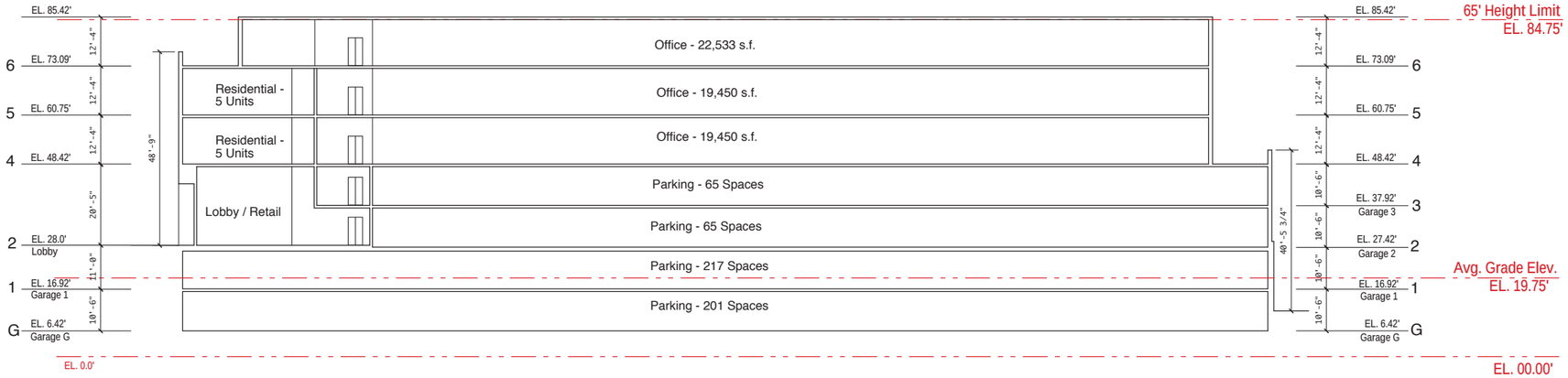
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

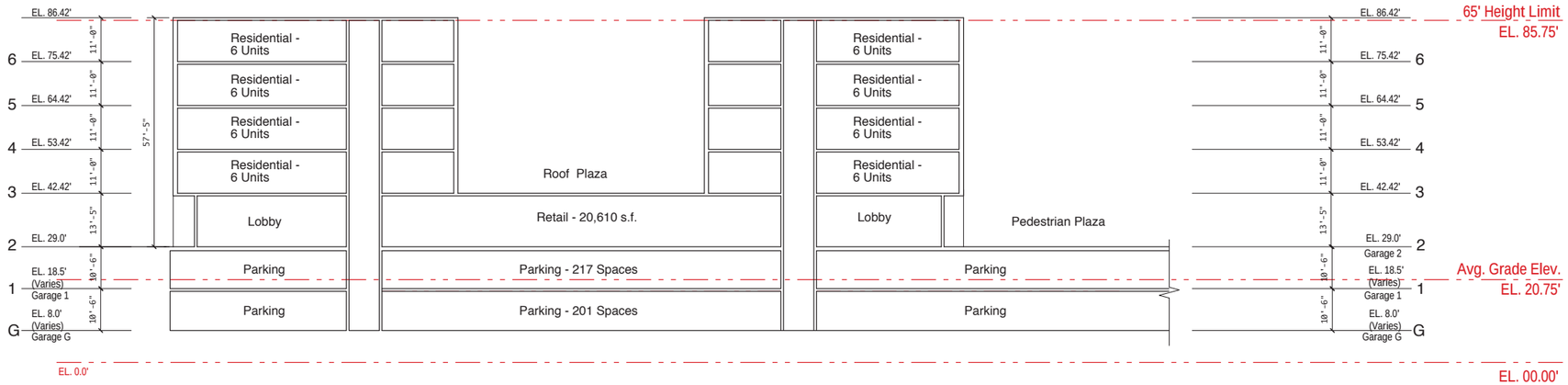
LEVEL 6 PLAN
Floor El. 71.5', El. 73.09', El. 75.42'

A1.6

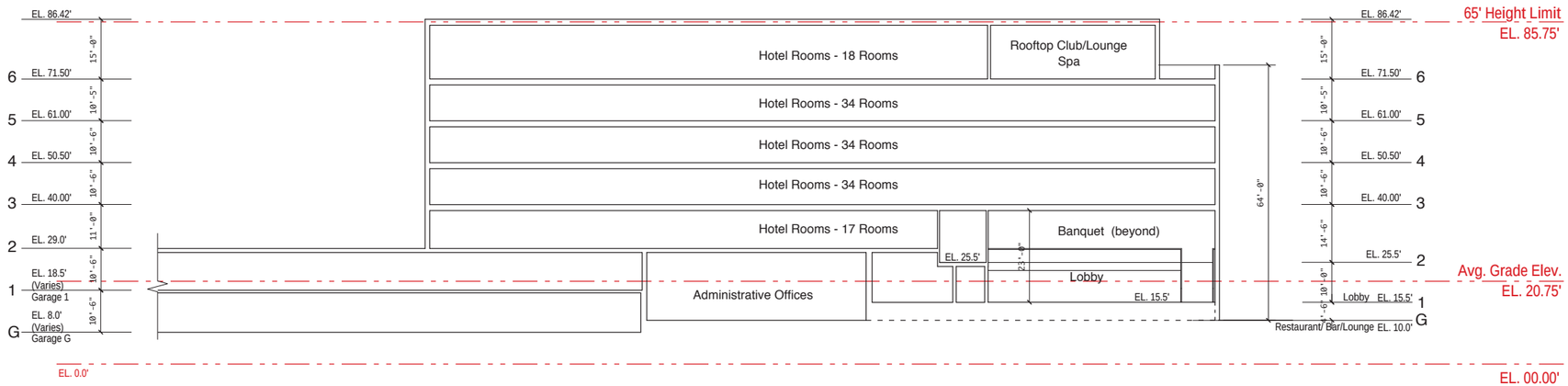
JUNE 1, 2016



SECTION A-A BUILDING 3



SECTION B-B BUILDINGS 4 & 5



SECTION C-C BUILDING 6

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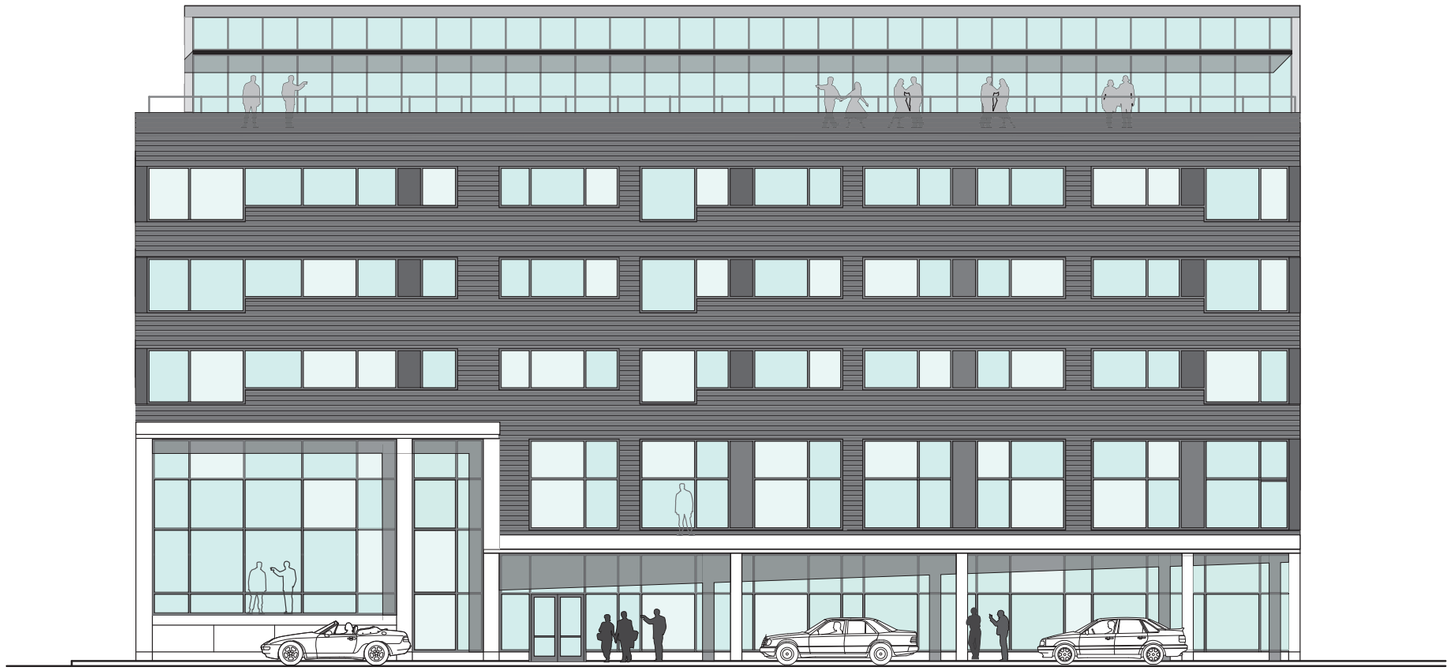
Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

BUILDING SECTIONS

A2.1

JUNE 1, 2016



BUILDING 6 - COMMERCIAL STREET ELEVATION

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Portland Square

PHASE 1- PRELIMINARY SCHEMATICS

Owner / Developers
NORTH RIVER, LLC
New York, NY

SCALE: 1/16" = 1'-0"

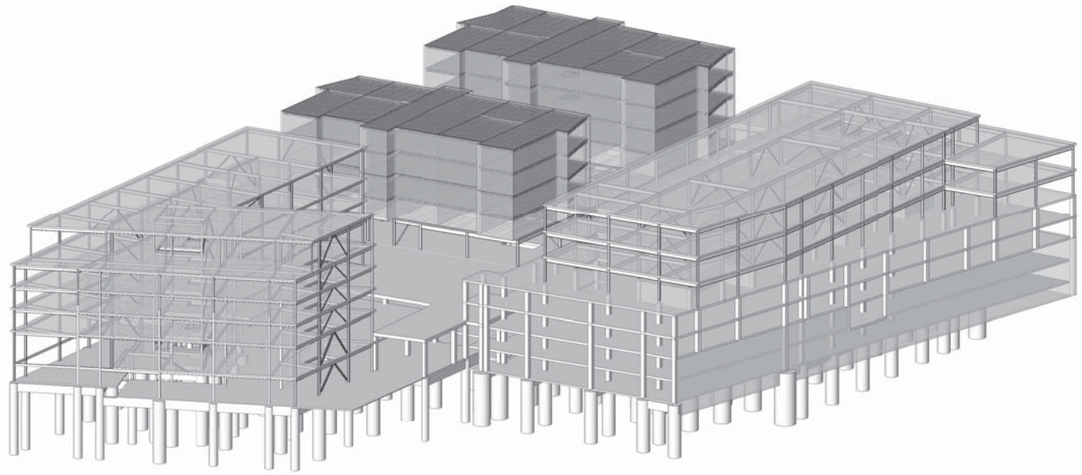
BUILDING SECTIONS

A3.1

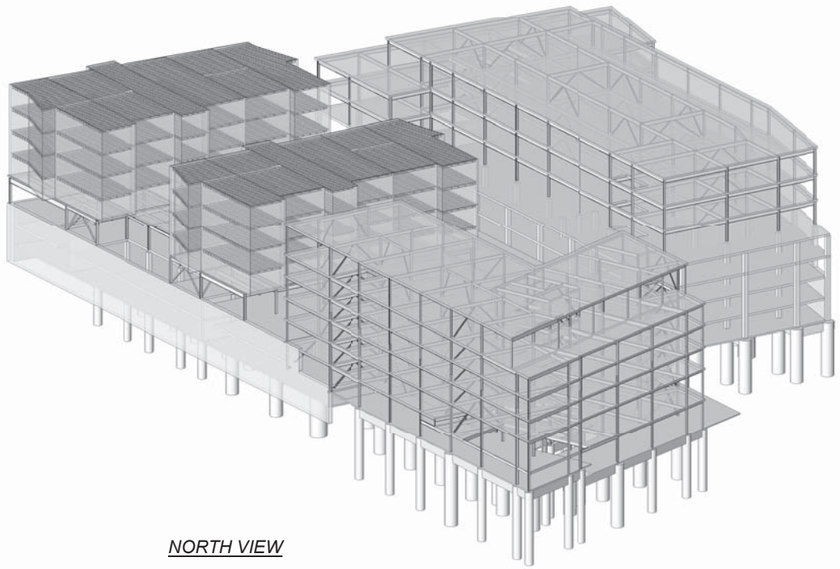
JUNE 1, 2016

NOT FOR CONSTRUCTION
ISSUED FOR 50% SD 06/30/16

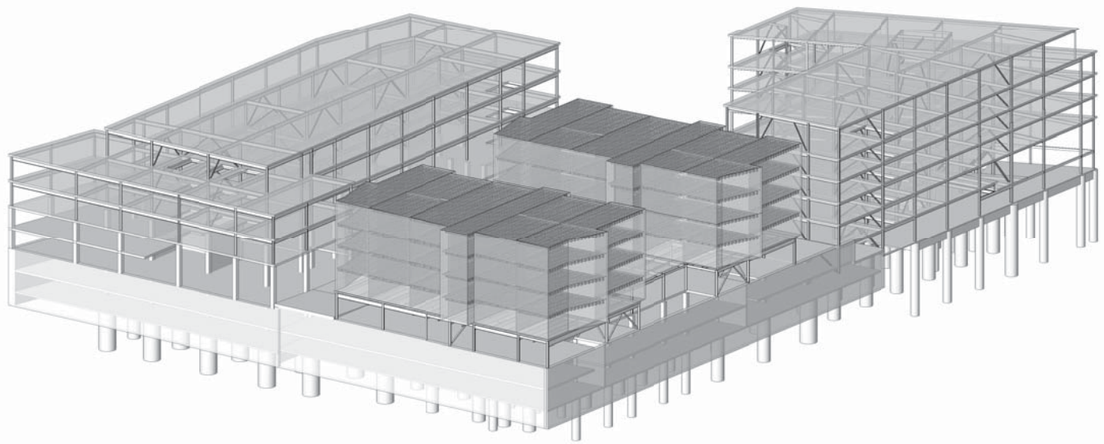
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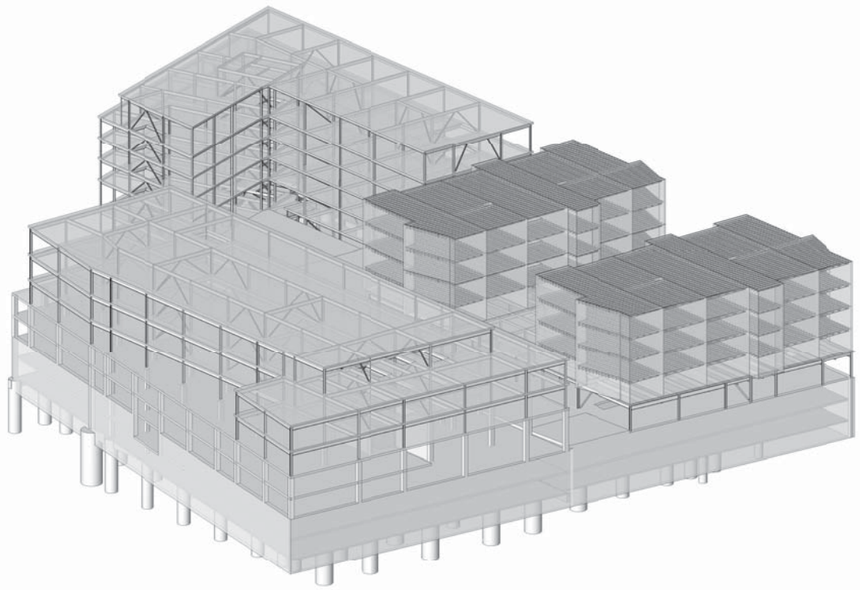
WEST VIEW



NORTH VIEW



EAST VIEW



SOUTH VIEW

WSA
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Portland Square

PHASE 1- PRELIMINARY SCHEMATICS

Owner /Developers
NORTH RIVER, LLC
New York, NY

1/8" = 1'-0"

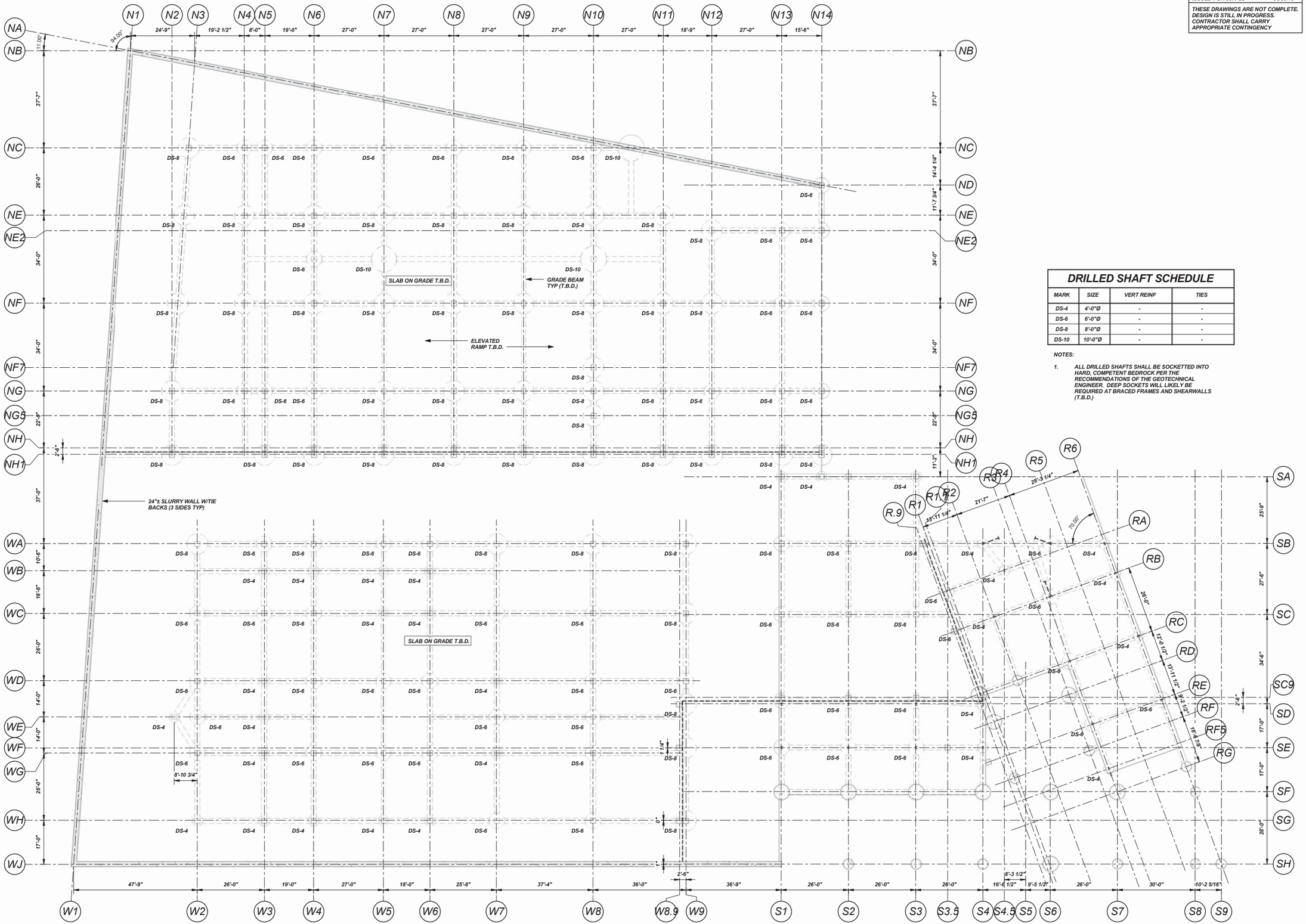
AXONOMETRIC VIEW

S1.0

JUNE 30, 2016

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ISSUED FOR 50% SD 06/30/16

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DRILLED SHAFT SCHEDULE

MARK	SIZE	VERT REINF	TIES
DS-4	4'-0"Ø	-	-
DS-6	6'-0"Ø	-	-
DS-8	8'-0"Ø	-	-
DS-10	10'-0"Ø	-	-

NOTES:

1. ALL DRILLED SHAFTS SHALL BE SOCKETTED INTO HARD, COMPETENT BEDROCK PER THE RECOMMENDATIONS OF THE GEOTECHNICAL ENGINEER. DEEP SOCKETS WILL LIKELY BE REQUIRED AT BRACED FRAMES AND SHEARWALLS (T.B.D.)

WSA
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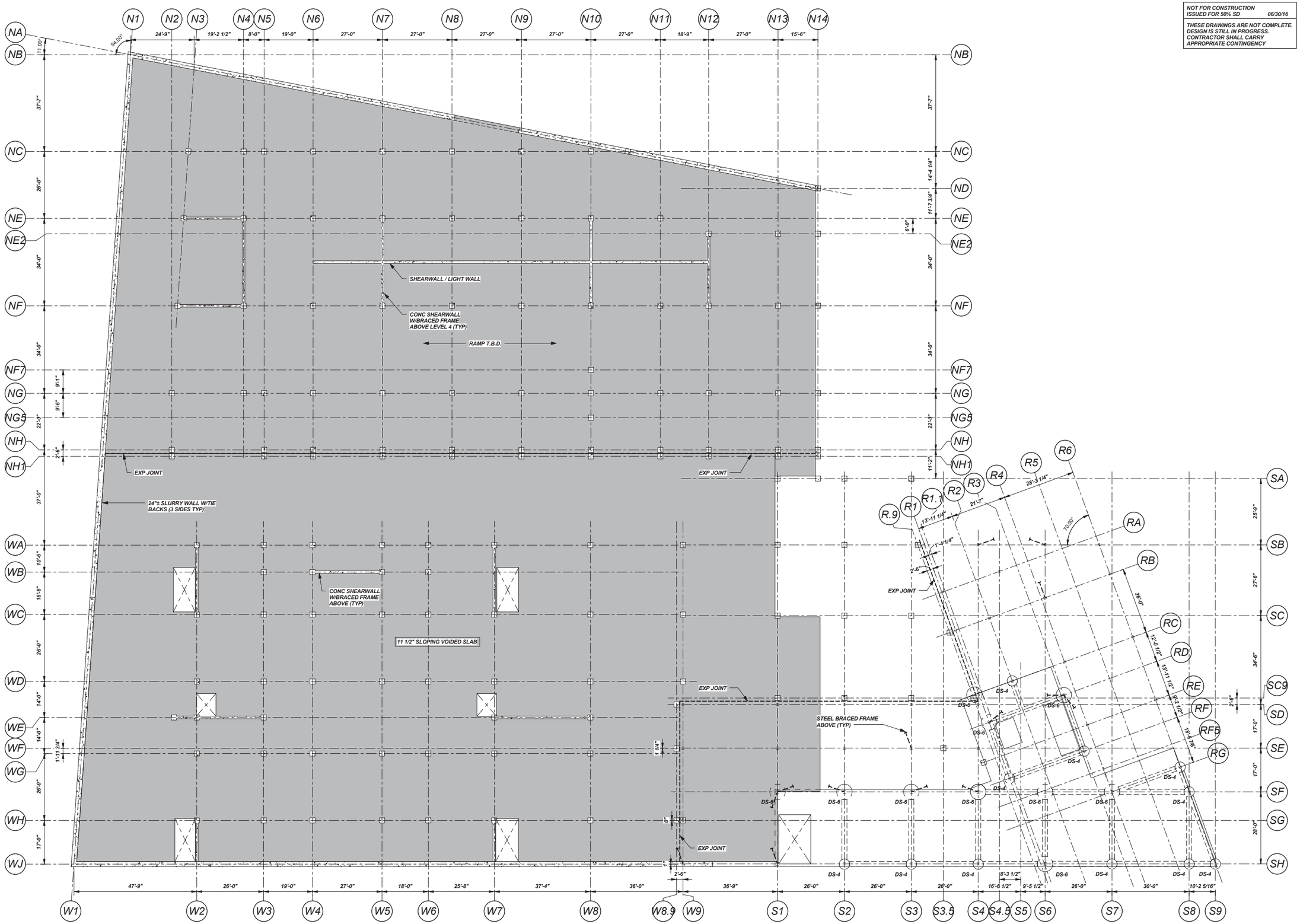
Owner /Developers
NORTH RIVER, LLC
New York, NY

As indicated

FOUNDAITON PLAN

S1.1

JUNE 30, 2016



NOT FOR CONSTRUCTION
ISSUED FOR 50% SD 06/30/16

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www.gorrillpalmer.com

Portland Square

PHASE 1- PRELIMINARY SCHEMATICS

Owner /Developers
NORTH RIVER, LLC
New York, NY

As indicated

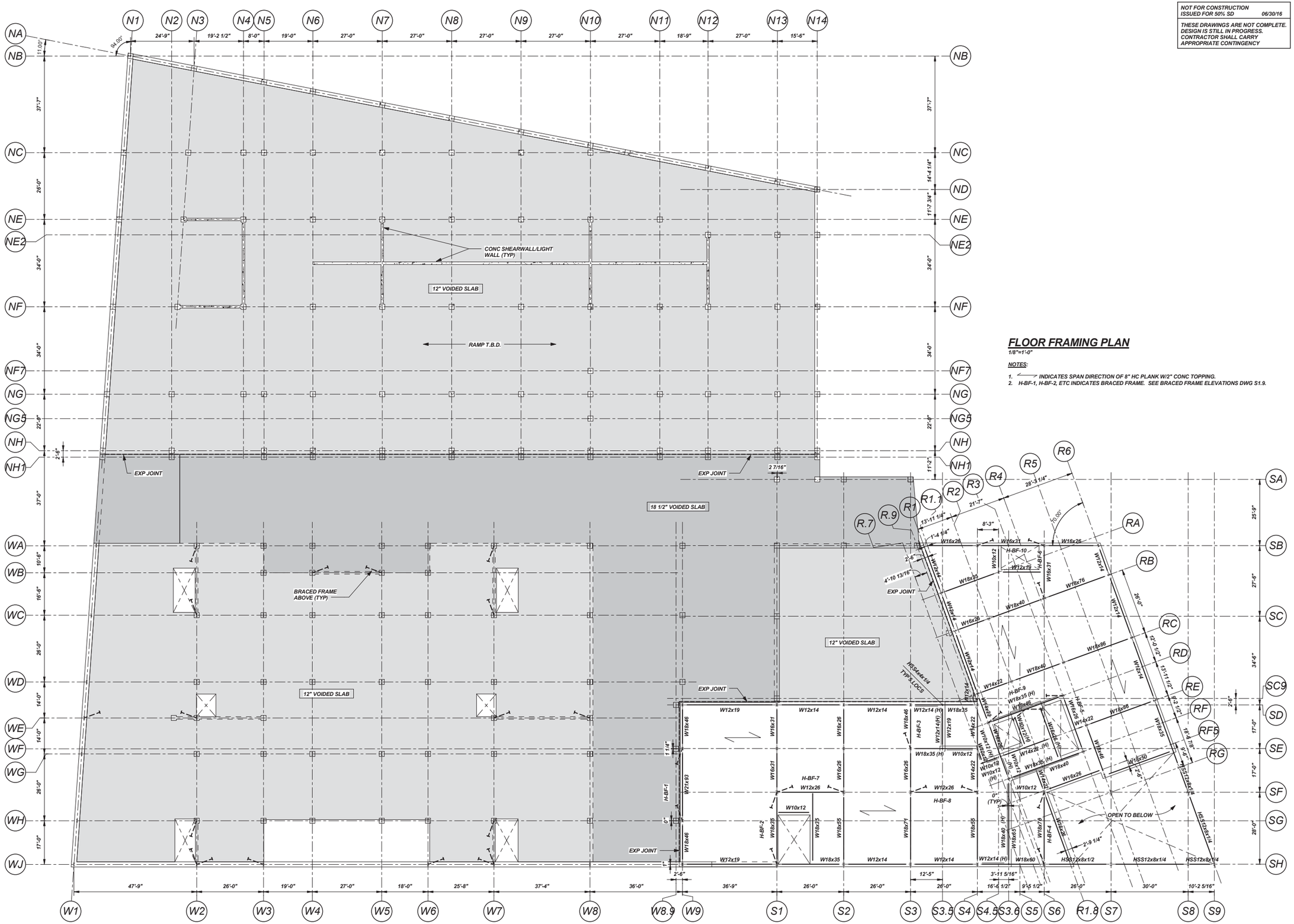
LEVEL 2 DECK PLAN

S1.2

JUNE 30, 2016

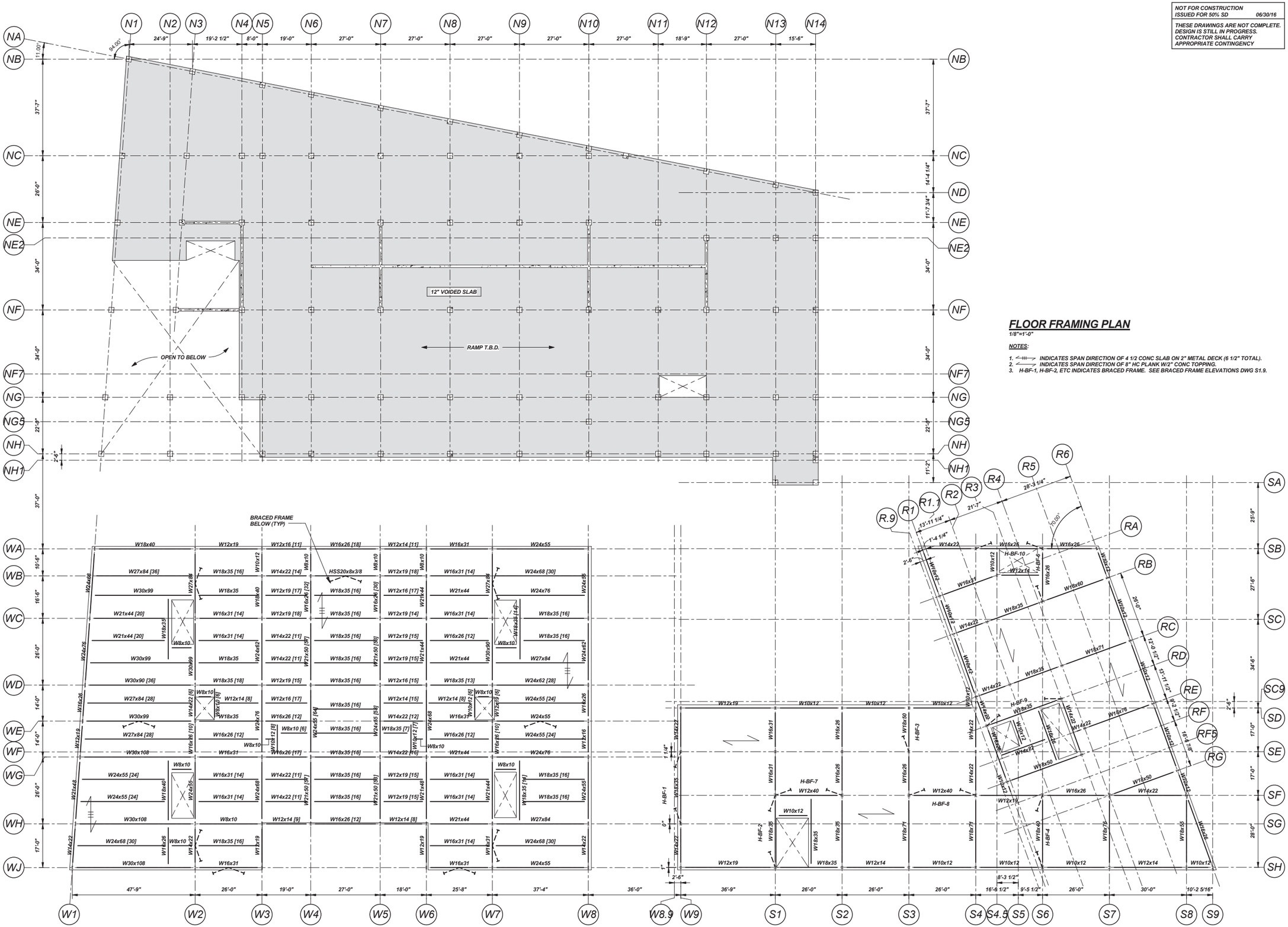
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N1 N2 N3 N4 N5 N6 N7 N8 N9 N10 N11 N12 N13 N14
NA NB NC NE NE2 NF NF7 NG NG5 NH NH1 WA WB WC WD WE WF WG WH WJ
24'-9" 19'-2 1/2" 8'-0" 19'-0" 27'-0" 27'-0" 27'-0" 27'-0" 27'-0" 18'-9" 27'-0" 15'-6"
94.00°
111.00'
37'-7" 26'-0" 34'-0" 34'-0" 22'-0" 2'-6" 37'-0" 10'-6" 16'-6" 26'-0" 14'-0" 14'-0" 26'-0" 17'-0"
CONC SHEARWALL/LIGHT WALL (TYP)
12" VOIDED SLAB
RAMP T.B.D.
EXP JOINT
2 7/16"
18 1/2" VOIDED SLAB
BRACED FRAME ABOVE (TYP)
12" VOIDED SLAB
12" VOIDED SLAB
EXP JOINT
EXP JOINT
EXP JOINT
R.7 R.9 R1 R1.1 R2 R3 R4 R5 R6 SA RA RB RC RD RE RF RF5 RG
43'-11 1/4" 21'-7" 28'-3 1/4" 10.00°
8'-3"
1'-4 1/4"
2'-6"
4'-10 13/16"
14'-4 1/4" 11'-3 3/4" 34'-0" 22'-0" 11'-2" 25'-9" 27'-9" 28'-4" 34'-6" 2'-9" 17'-0" 17'-0" 28'-0"
SC SC9 SD SE SF SG SH
12'-0 1/2" 13'-11 1/2" 9'-2 1/2" 18'-1 7/8" 9'-5"
2'-6"
0" (TYP)
1'-4"
OPEN TO BELOW
2'-9 1/4"
3'-11 5/16"
W1 W2 W3 W4 W5 W6 W7 W8 W8.9 W9 S1 S2 S3 S3.5 S4 S4.5 S3.6 S5 S6 R1.8 S7 S8 S9
47'-9" 26'-0" 19'-0" 27'-0" 18'-0" 25'-8" 37'-4" 36'-0" 36'-9" 26'-0" 26'-0" 12'-5" 26'-0" 16'-6 1/2" 9'-5 1/2" 26'-0" 30'-0" 10'-2 5/16"
W12x19 W12x14 W12x14 W12x14 (H) W18x35 W18x35 (H) W12x14 W18x86 W18x40 W18x60 W16x26 W16x31 W16x46 W16x26 W16x31 W16x26 W16x31 W16x26 W16x31

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FLOOR FRAMING PLAN

1/8"=1'-0"

NOTES:

1. ⟵ INDICATES SPAN DIRECTION OF 4 1/2 CONC SLAB ON 2" METAL DECK (6 1/2" TOTAL).
2. ⟵ INDICATES SPAN DIRECTION OF 8" HC PLANK W/2" CONC TOPPING.
3. H-BF-1, H-BF-2, ETC INDICATES BRACED FRAME. SEE BRACED FRAME ELEVATIONS DWG S1.9.

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Portland Square

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Owner /Developers
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New York, NY

As indicated

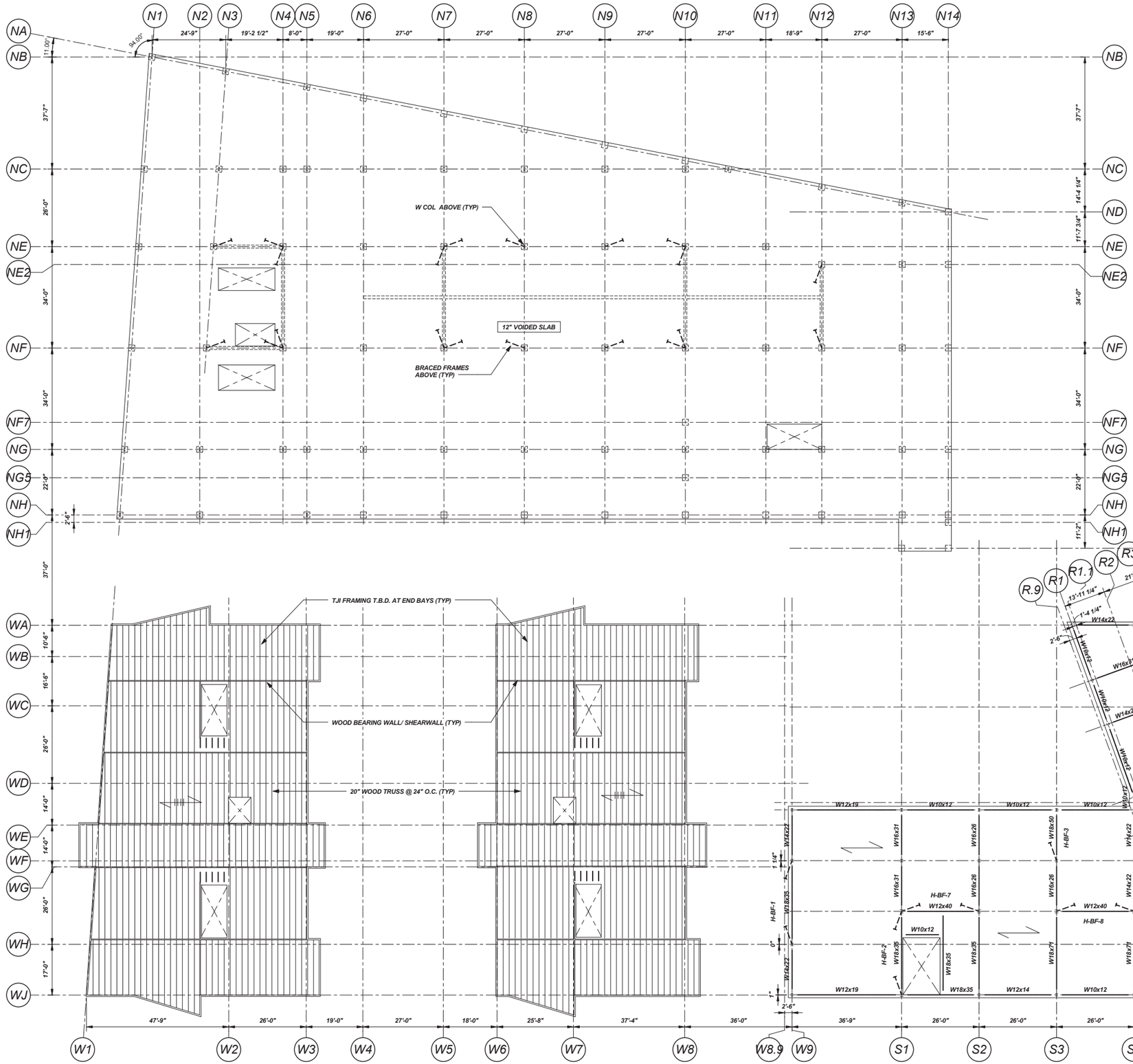
LEVEL 4 FRAMING PLAN

S1.4

JUNE 30, 2016

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FLOOR FRAMING PLAN

1/8"=1'-0"

NOTES:

1. <---> INDICATES SPAN DIRECTION OF 3/4" PLY SHTG.
2. <---> INDICATES SPAN DIRECTION OF 8" HC PLANK W/2" CONC TOPPING.
3. H-BF-1, H-BF-2, ETC INDICATES BRACED FRAME. SEE BRACED FRAME ELEVATIONS DWG S1.9.

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Portland Square

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Owner /Developers
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New York, NY

As indicated

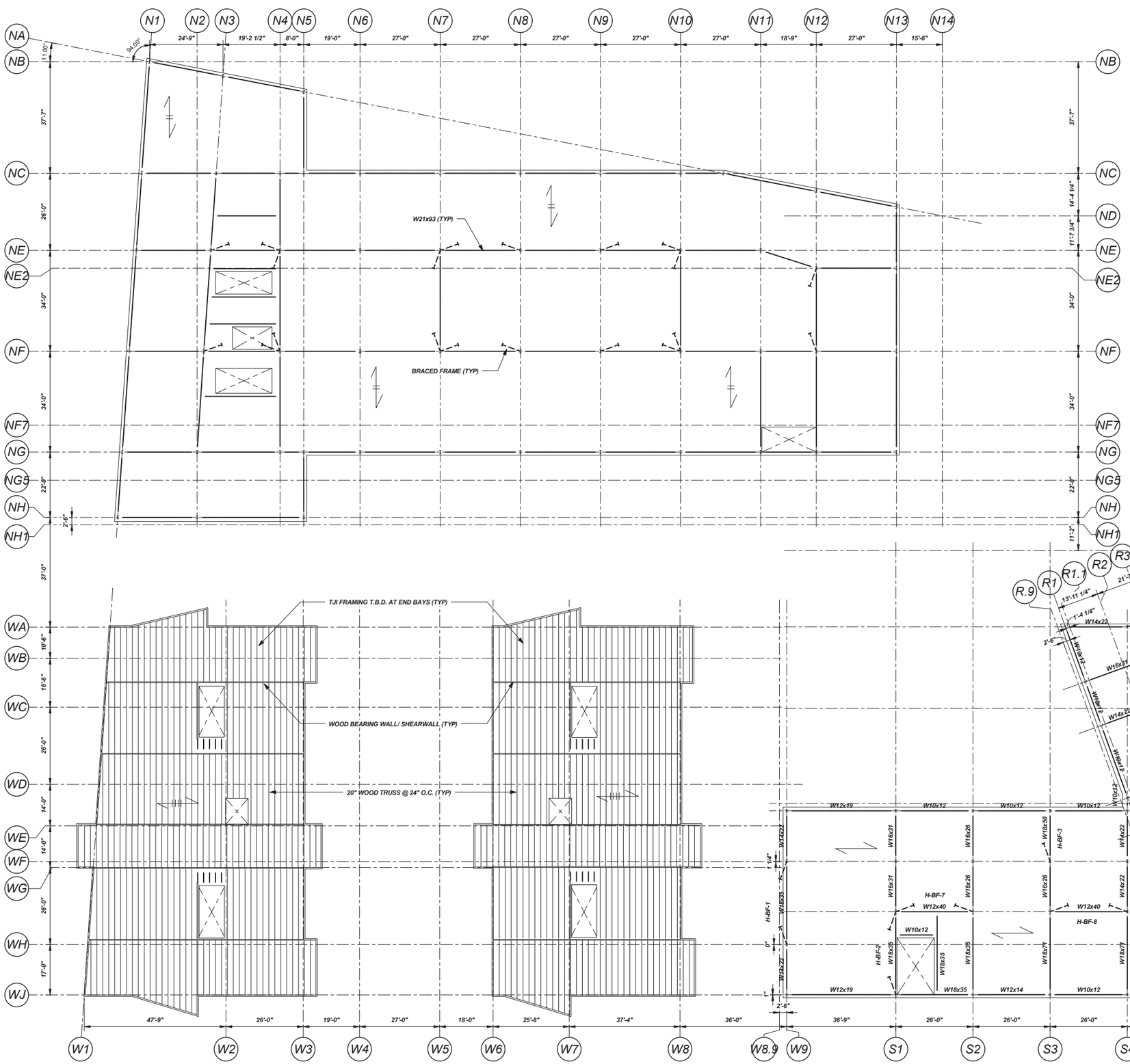
LEVEL 5 FRAMING PLAN

S1.5

JUNE 30, 2016

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FLOOR FRAMING PLAN

1/8"=1'-0"

NOTES:

1. INDICATES SPAN DIRECTION OF 10" HC PLANK W/2" CONC TOPPING.
2. INDICATES SPAN DIRECTION OF 8" HC PLANK W/2" CONC TOPPING.
3. INDICATES SPAN DIRECTION OF 3/4" PLY SHTG.
4. H-BF-1, H-BF-2, ETC INDICATES BRACED FRAME. SEE BRACED FRAME ELEVATIONS DWG S1.9.

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Portland Square

PHASE 1- PRELIMINARY SCHEMATICS

Owner /Developers
NORTH RIVER, LLC
New York, NY

As indicated

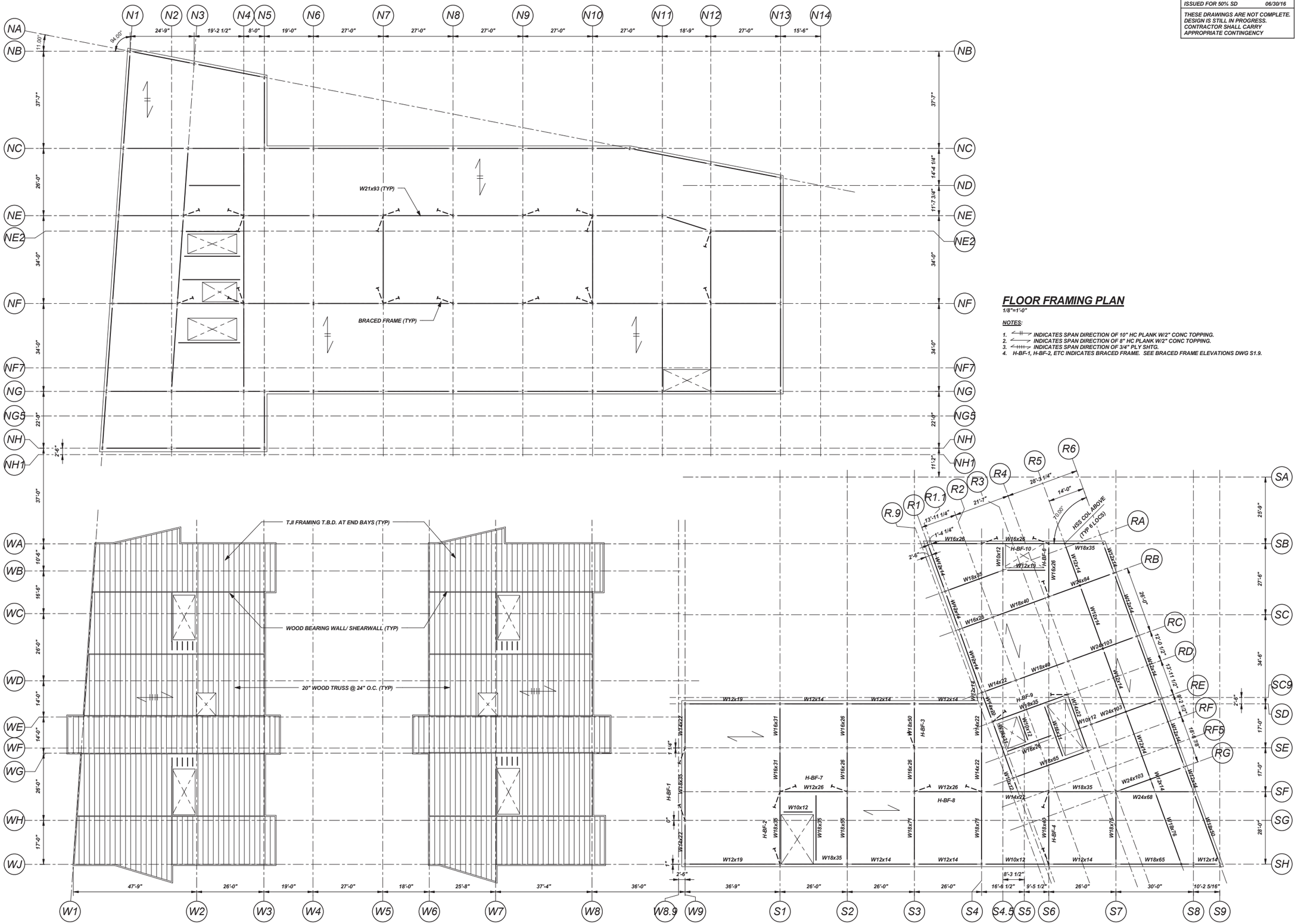
LEVEL 6 FRAMING PLAN

S1.6

JUNE 30, 2016

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FLOOR FRAMING PLAN

1/8"=1'-0"

NOTES:

1. INDICATES SPAN DIRECTION OF 10" HC PLANK W/2" CONC TOPPING.
2. INDICATES SPAN DIRECTION OF 8" HC PLANK W/2" CONC TOPPING.
3. INDICATES SPAN DIRECTION OF 3/4" PLY SHTG.
4. H-BF-1, H-BF-2, ETC INDICATES BRACED FRAME. SEE BRACED FRAME ELEVATIONS DWG S1.9.

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Portland Square

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Owner /Developers
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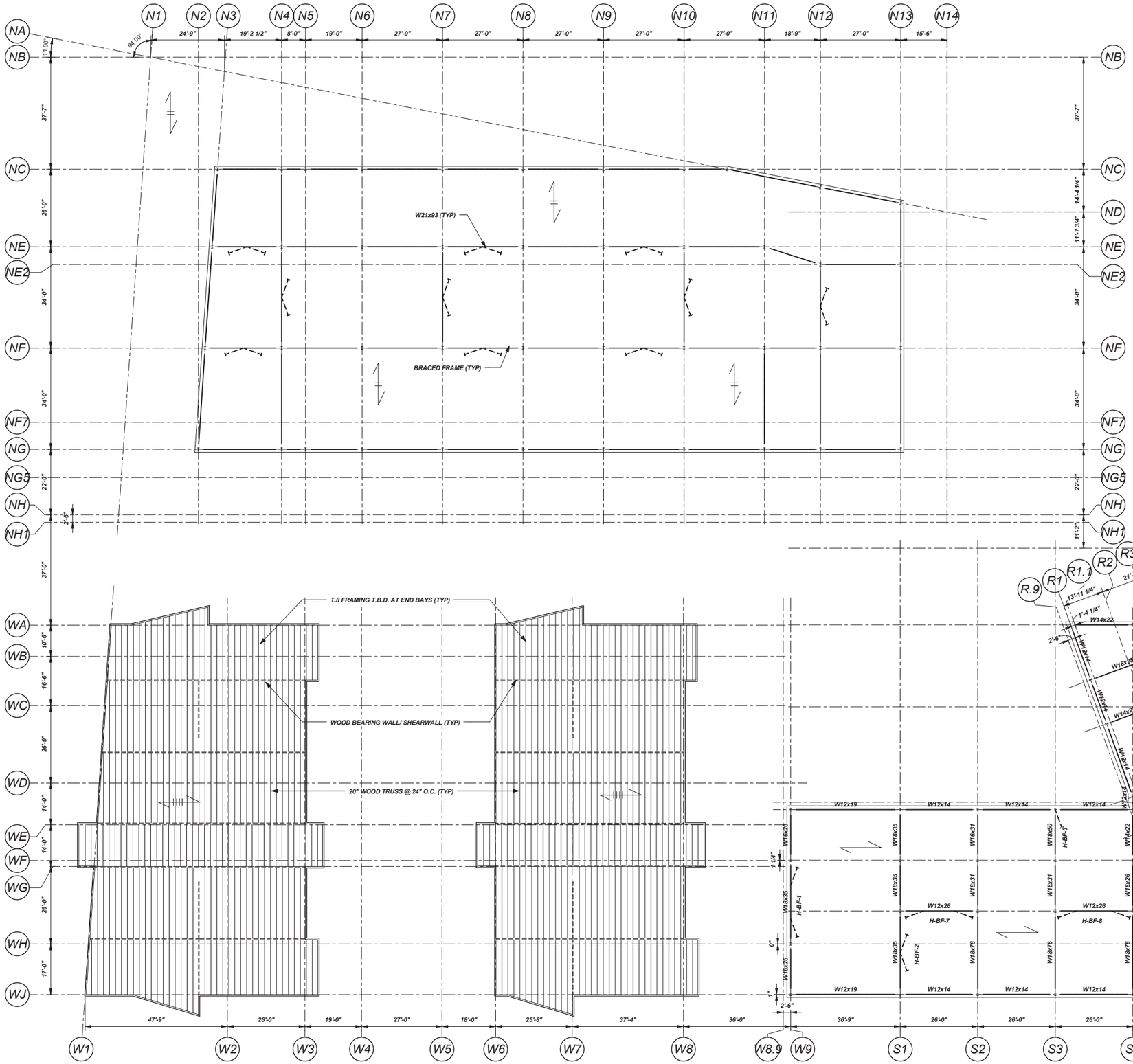
LEVEL 7 FRAMING PLAN

S1.7

JUNE 30, 2016

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ROOF FRAMING PLAN

1/8"=1'-0"

NOTES:

1. INDICATES SPAN DIRECTION OF 10" HC PLANK W/2" CONC TOPPING.
2. INDICATES SPAN DIRECTION OF 8" HC PLANK W/2" CONC TOPPING.
3. INDICATES SPAN DIRECTION OF 3/4" PLY SHTG.
4. H-BF-1, H-BF-2, ETC INDICATES BRACE FRAME. SEE BRACED FRAME ELEVATIONS DWG S1.9.

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Portland Square

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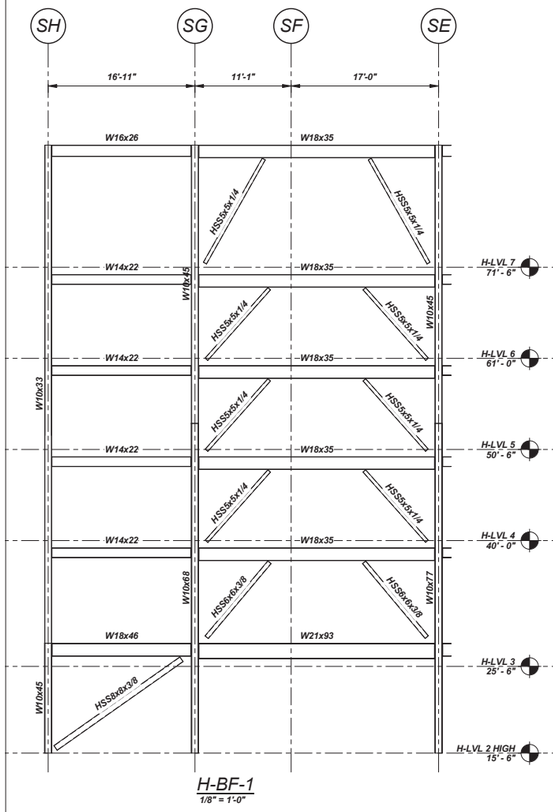
Owner /Developers
NORTH RIVER, LLC
New York, NY

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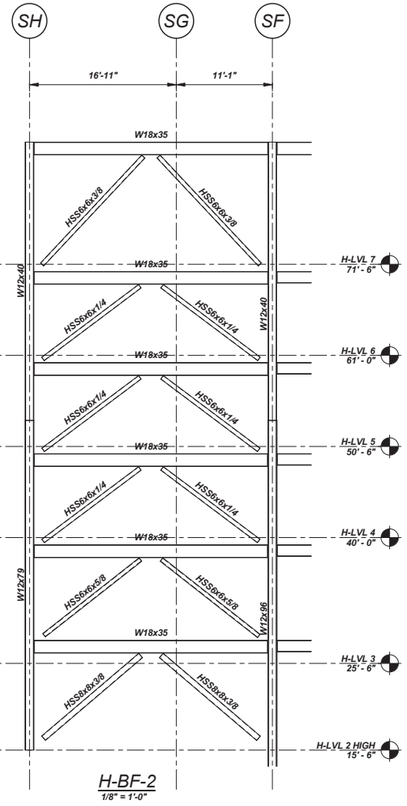
ROOF FRAMING PLAN

S1.8

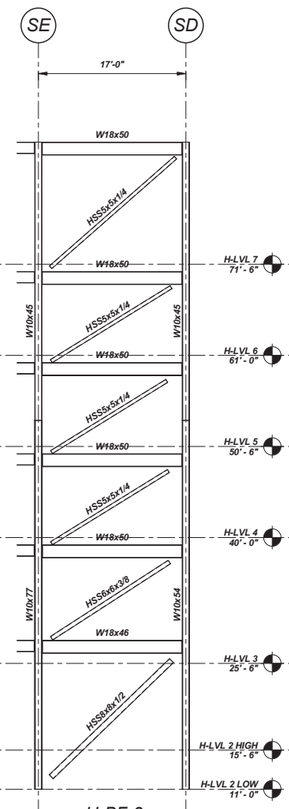
JUNE 30, 2016



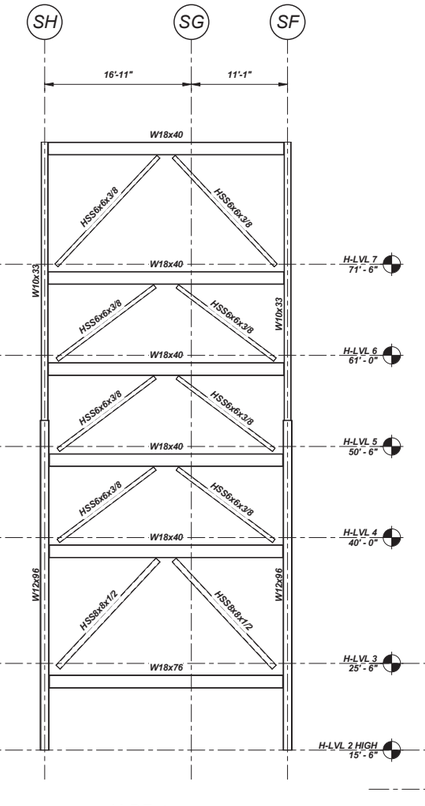
H-BF-1
1/8" = 1'-0"



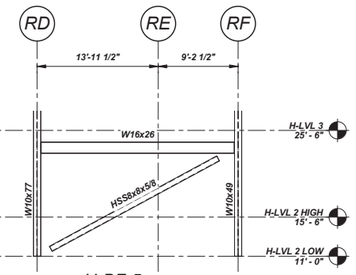
H-BF-2
1/8" = 1'-0"



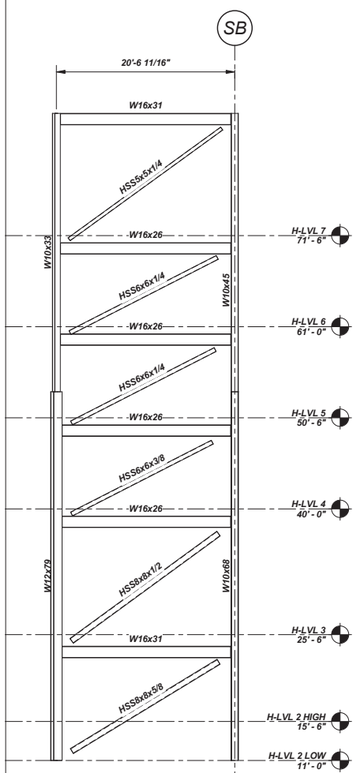
H-BF-3
1/8" = 1'-0"



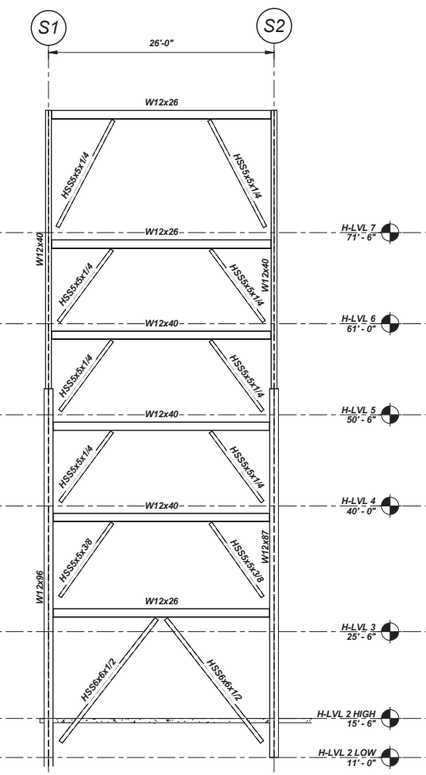
H-BF-4
1/8" = 1'-0"



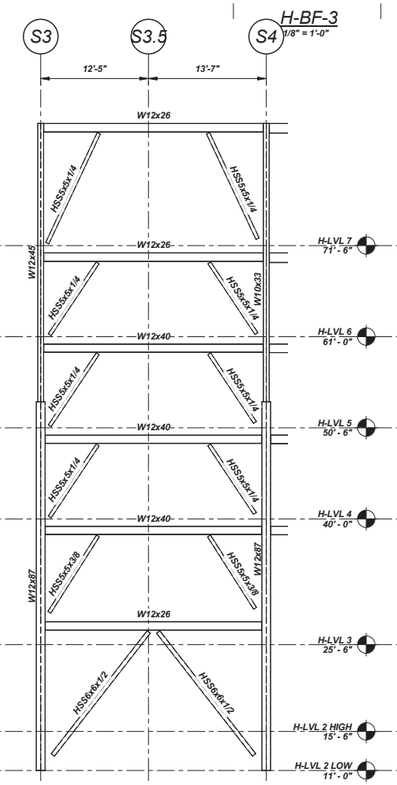
H-BF-5
1/8" = 1'-0"



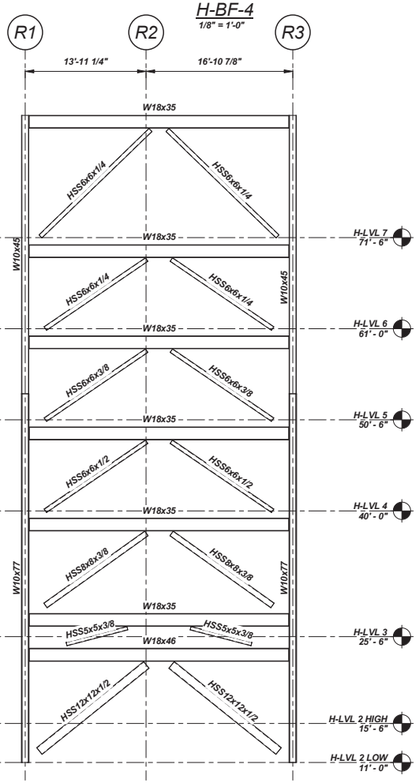
H-BF-6
1/8" = 1'-0"



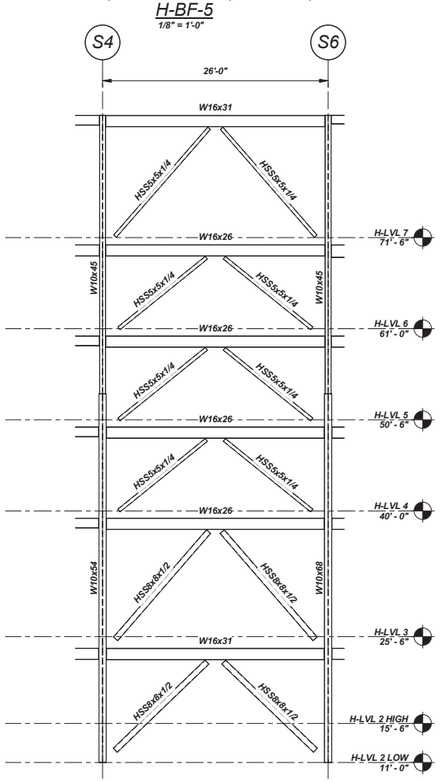
H-BF-7
1/8" = 1'-0"



H-BF-8
1/8" = 1'-0"



H-BF-9
1/8" = 1'-0"



H-BF-10
1/8" = 1'-0"

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Owner /Developers
NORTH RIVER, LLC
New York, NY

1/8" = 1'-0"

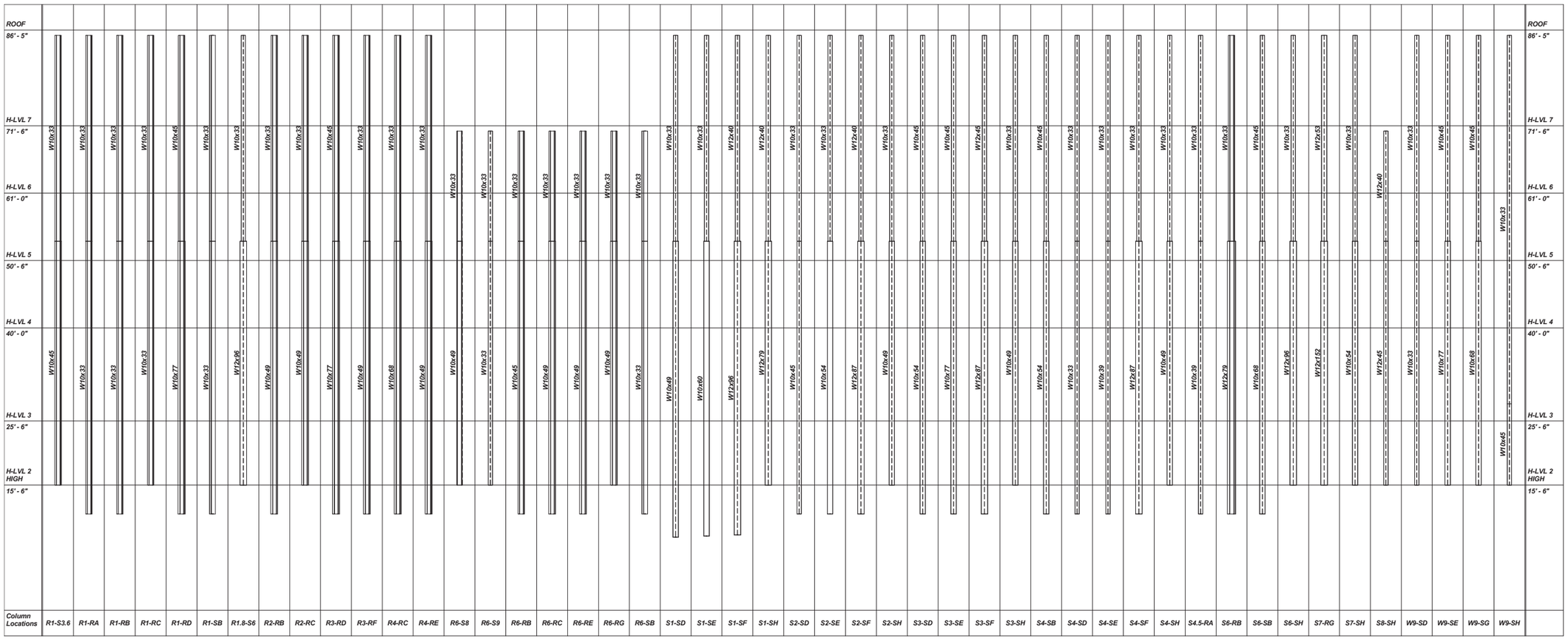
HOTEL BRACED FRAME ELEVATIONS

S1.9

JUNE 30, 2016

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HOTEL GRAPHICAL COLUMN SCHEDULE

1/8" = 1'-0"

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Owner /Developers
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New York, NY

1/8" = 1'-0"

COLUMN SCHEDULE

S1.10

JUNE 30, 2016

Portland Water District
FROM SEBAGO LAKE TO CASCO BAY

January 14, 2020

Lauren Swett, PE
Woodard and Curran
41 Hutchins Drive
Portland, ME 04102

RE: 3-6 Portland Square, Capacity to Serve

Dear Lauren:

Based on the information provided to date, the Portland Water District can grant a conceptual level Capacity to Serve determination, in support of the Portland Square Master Development Plan, for the above referenced project with respect to water and sewer treatment capacity. This letter is not an approval of the project at this time nor shall it be used to demonstrate approval from the District for any reason beyond support of the Portland Square Master Development Plan. The development team will need to submit plans to PWD for review and approval at site plan application with the City of Portland for each phase of the project. PWD will issue a separate Ability to Serve determination letter for each phase of the project after plans have been reviewed and approved by the district. Only after receiving an Ability to Serve determination may the developer commence with water and wastewater improvements.

This Capacity to Serve determination shall be used to identify the condition of the existing water and wastewater system, and the steps to be taken by the development team, at their cost, to bring the existing infrastructure up to current standards to service the proposed development.

The District owns and operates water mains in Spring Street, Cotton Street, Fore Street and Cross Street immediately adjacent to the proposed project at 3-6 Portland Square. The existing 12-inch ductile iron water main (1972) in Spring Street has the capacity to serve the proposed development. The existing 6-inch cast iron water main (1888) in Cotton Street, and the existing 6-inch cast iron water main (1883) in Cross Street do not have the capacity to serve the proposed development and must be renewed by the developer; size to be determined by the District once domestic water and fire sprinkler demands are calculated. The existing 8-inch cast iron water main (1886) in Fore Street will need to be renewed by the development team with an 8-inch ductile iron water main, along the frontage of the property between Center Street and Cross Street; limits of renewal to be determined by PWD.

The sewer collection system adjacent to the site is owned and operated by the City of Portland. The East End Wastewater Treatment Facility has the capacity to serve the wastewater generated at this site. The type of wastewater generated is not expected to require treatment beyond what is typical for a similar use.

This Capacity to Serve determination is made based on information provided by the development team regarding the size, use, and proposed phasing of the project. As redevelopment continues on the peninsula, contemplated improvements associated with this project will be evaluated at each phase to ensure proper development of the water and wastewater systems.

As the project progresses, we advise you to submit any preliminary design plans to the MEANS Group for water and wastewater infrastructure for District review and approval. The District will work with you to ensure that your design meets our current standards.

Sincerely,
Portland Water District



Robert Bartels, PE
Senior Project Engineer

CARROLL ASSOCIATES

Att. W

3 Portland Square
Neighborhood Meeting Certification

I, Patrick J. Carroll hereby certify that a neighborhood meeting was held on January 30, 2020 at One Portland Square, Lower Level at 5:30 pm.

I also certify that on January 15, 2020 invitations were mailed to the following:

1. All addresses on the mailing list provided by the Planning Division which includes property owners within 500 feet of the proposed development or within 1000 feet of a proposed industrial subdivision or industrial zone change.

2. Residents on the "interested parties" list.

3. A digital copy of the notice was also provided to the Planning Division (jmy@portlandmaine.gov and ldobson@portlandmaine.gov) and the assigned planner to be forwarded to those on the interested citizen list who receive e-mail notices.

Signed,



February 7, 2020

Attached to this certification are:

1. Copy of the invitation sent
2. Sign-in sheet
3. Meeting minutes

CARROLL ASSOCIATES

Att. X

Neighborhood Meeting Invitation

January 13, 2020

Dear Neighbor:

Please join us for a neighborhood meeting to discuss our plans for **Three Portland Square**, the proposed development for a 2.26 Acre site located at Spring, Cotton, Cross, and Fore Streets in Portland. This project represents Phase 2 of the Proposed Portland Square Master Development Plan which is currently undergoing Review.

Meeting Location: 1 Portland Square, Café on lower level

Meeting Date: Thursday, January 30, 2020

Meeting Time: 5:30 pm

(The City code requires that property owners within 500 feet (1000 feet for proposed industrial subdivisions and industrial zone changes) of the proposed development and residents on an "interested parties list", be invited to participate in a neighborhood meeting. A sign-in sheet will be circulated and minutes of the meeting will be taken. Both the sign-in sheet and minutes will be submitted to the Planning Board.)

If you have any questions, please call my office at 207-772-1552.

Signed,

CARROLL ASSOCIATES



Patrick J. Carroll, Principal

Note:

Under Section 14-32(C) and 14-524(a)d of the City Code of Ordinances, an applicant for a Level III development, subdivision of over five lots/units, or zone change is required to hold a neighborhood meeting within 30 days of submitting a preliminary application or 21 days of submitting a final site plan application, if a preliminary plan was not submitted. The neighborhood meeting must be held at least seven days prior to the Planning Board public hearing on the proposal. Should you wish to offer additional comments on this proposed development, you may contact the Planning Division at 874-8721 or send written correspondence to the Planning and Urban Development Department, Planning Division, 4th Floor, 389 Congress Street Portland, ME 04101 or by email: to bab@portlandmaine.gov

Three Portland Square

01/30/2020
Neighborhood meeting minutes

Attendees: see attached sign-in sheet.

- Presentation from Pat Carroll, Steve Weatherhead, Larry Osmer:
- This meeting is required for site plan approval process
- Planning Board workshop 02/25, expected public hearing 2nd March meeting.
- Slide show (attached)
    - Neighborhood context
    - Project boundaries
    - Master Development Plan
    - Program & square footages of each building and use group
    - Overview typical floor plans
    - Cross-section
    - Site improvements / landscaping plan / site features and amenities
    - New plaza level at Spring Street between 1 & 3 Portland Square
    - Utility connections
    - Construction management plan
        - Construction traffic & access, loading & unloading
        - No shutdown of Cotton Street near Fore, sequencing of work on Cotton Street to avoid service disruption to Rivalries parking lot
    - Renderings and architectural expression
        - Height & setbacks
        - Materials & fenestration
        - Relation to neighborhood scale & context

- Questions from attendees:
    - Q: What is the project timeline? A: Aiming for site plan approval in February, construction permits summer 2020, occupancy 2022.
    - Q: Expecting excavation will require blasting? A: Small amount of ledge removal, not sure if will require blasting.
    - Q: Are you planning to build both buildings at the same time? A: Yes, aiming to fast track garage and open that a few months ahead of time to bring parking online ASAP.
    - Q: What is the plan for construction crew parking? A: Construction management plan discusses a mix of strategies, including parking in neighborhood garages and carpooling / van pooling.
    - Q: Why was parking count reduced from ~1,200 to ~850? A: This was a balance of parking and maximizing rentable square footage. Combination of cost estimating and pushback from lack of active uses on Spring Street led to current design. Suggest attending workshop 02/25. Refer to VHB parking study materials. Traffic Demand Management Plan encourages car pooling, using alternate modes of transportation, car charging stations, etc.
    - Q: How many spaces are currently on upper lot? A: 236
    - Q: Make sure you have exceptional lighting around the whole project. A: We are following new municipal lighting guidelines.

- Q: Was the alley requested by City? Seems like a dead space. A: Alley was required to maintain separations between building and maintain light to both adjacent buildings. We are working now to activate the alley with interesting lighting and street furniture.
- Q: Is there a solar component? A: We haven't gotten to that yet, we have talked about it.
- Q: Is Cross Street one way or two way? A: Two way going to Fore, one way going to Union.
- Q: How will work on Cotton Street affect the steps and elevations for the parking lot on the west side of Cotton Street? How to service 2 and 10 Cotton Street? Rivalries takes all deliveries through front door. A: Sequencing plan shows phased work on Cotton Street that maintains access on Cotton Street. Any disruption of Cotton Street would be temporary. Need to understand access needs on Cotton Street. During this time, this would be a business interruption for the tenants in these buildings. We will do our best to accommodate tenants and their deliveries.
- Where is service and loading entrance for 3PS? A: Upper Cross Street, near 1PS.

(1)

NORTH RIVER COMPANY

Att. Z

3 PORTLAND SQUARE
NEIGHBORHOOD MEETING
01.30.2020

NAME	ADDRESS
DAN JACQUES	ONE PORTLAND SQUARE, PORTLAND 04101
LARRY OSMER	FRANKLIN STREET, PORTLAND 04101
ANDY JACKSON	PEARS. ISLAND " 04101
PATRICK CARROLL	217 COMMERCIAL ST. PORTLAND ME 04101
Erin Kay	217 Commercial St Portland ME 04107
Steve Weatherlead	Winton Scott Architects
Ellen Thompson	17 South st, Portland, ME
BRAD FRIES	17 South St, Portland ME
DREW SWENSON	6 CITY CENTER " "
CARLO GIOBBI	14 PLEASANT ST - PORTLAND
Gerard Kiladjian	468 Fore St. Ptld.
Megan McDevitt	Woodard & Curran
MATTHEW TONELLO	CONSIGLI CONSTRUCTION CO., INC.
Hank Conklin	269 Commercial St 3E
Carol Pierson	
Catherine Lamson	261 Commercial St.
JAMIE GOUPEE	ONE PORTLAND SQUARE, PORTLAND 04101

COMMITMENT & INTEGRITY
DRIVE RESULTS

41 Hutchins Drive
Portland, Maine 04102
www.woodardcurran.com

T 800.426.4262
T 207.774.2112
F 207.774.6635

Att. AA

February 7, 2020

Matt Grooms, Planner
City of Portland Planning Division
389 Congress Street
Portland, ME 04101

Re: 3 Portland Square Level III Site Plan Submittal – North River IV, LLC
Response to Planning Staff Comments

Dear Matt:

Thank you for coordinating the review of the proposed development of Phase 2 of the Portland Square Project located at 3 Portland Square in Portland, Maine. We received the January 21, 2020 memo from Wright-Pierce, the 3rd party peer reviewer for the City of Portland, and provide the following response and additional information.

Since our previous submission, adjustments have been made to the stormwater management system to avoid conflicts with the building footings. Additionally, design of the stormwater treatment system, and coordination with the manufactures of the system components have progressed. The following stormwater management documents are enclosed with this letter. They include modifications to the stormwater management system and changes to address comments from Wright-Pierce:

- C-201 Grading, Drainage and Erosion Control Plan
- C-304 Civil Details - 5
- Post-Development HydroCAD Model

Additionally, we received a response from the Maine Department of Inland Fisheries & Wildlife (MDIFW) confirming there are no locations of Endangered, Threatened, or Special Concern species within the project area. The MDIFW response letter is enclosed for your reference.

To support the Level III Site Plan process, we provide the following responses to the comments we received from Wright-Pierce dated January 21, 2020.

Basic Standard

Per the City's Technical Manual "Portland Stormwater Management Standards and Maine Dep Chapter 500 Stormwater Management", an Erosion & Sediment Control management plan, notes, and details per the Chapter 500 Rules must be provided to meet the Basic Standard.

- *Erosion and Sedimentation Control best practices were shown on the Erosion and Sedimentation Control Plan, and are indicated on the Grading and Drainage Plan. No further action necessary.*
  - Noted.
- *A written inspection, maintenance and housekeeping plan was provided. No further action necessary.*
  - Noted.

General Standard

The applicant has provided information regarding the size and scope of the project indicating the project is subject to the General Standard under the requirements of the Site Location of Development Act (SLODA). The project is being reviewed under the redevelopment guidelines and requirements.

The applicant has provided an impact analysis to compare pre-development and post-development land use pollutant rankings under MaineDEP redevelopment guidelines. This analysis indicated that the proposed development had a lower pollutant ranking than the existing site and is therefore required to treat 50% of the proposed site's disturbed surface area, with priority placed on the highest-ranked pollutant for the site.

- *Pollutant ranking for both the existing and proposed parking areas was noted as 5 in the narrative, and 4 in the calculations. Please confirm the correct value and update calculations as necessary.*
    - The narrative incorrectly referred to the parking area pollutant ranking. The calculations are correct. The parking areas are pollutant impact ranking 4 (medium use parking lot) for both the existing and proposed condition. Currently, the surface parking lot is used primarily during working hours and does not appear to have high turnover rates. Similarly, the proposed parking garage is being provided to service the surrounding office uses and is not anticipated to have a high turnover rate.
- *Calculations are provided for determining the amount of area requiring treatment. Please confirm the following items:*
    - *Total square feet of site required to receive treatment* – 50% of total redevelopment area of 2.31 acres = 50,307 SF
    - *Total square feet of proposed site receiving treatment* – 50,612 SF
    - *Total % of high-pollutant ranking surfaces receiving treatment*
        - Pollutant Ranking 5 – No areas exist on site
        - Pollutant Ranking 4 – 80.8% of 1.16 acres
        - Pollutant Ranking 3 – 13.2% of 0.61 acres
        - Pollutant Ranking 2 – 32.6% of 0.44 acres
        - Pollutant Ranking 1 – 0% of 0.10 acres
        - Pollutant Ranking 0 – No areas exist on site

          Note that all areas listed above have not changed, and are consistent with previously submitted stormwater calculations.
    - *Total percentage of non-roof impervious area receiving treatment* – 70.2%
- *Proprietary R-Tank systems and Jellyfish filters have been provided for runoff treatment. Please provide the following clarifications:*
    - *Inverts for pipe elevations for Jellyfish filters and R-Tank systems;*
        - The invert elevations for the R-Tank systems and the Peak Diversion StormFilter have been added to the Grading, Drainage and Erosion Control Plan (Sheet C-201).
    - *Filterra units are shown on the October 2019 plan set, which is the most recent grading plan available; updated plans and narrative with the December 2019 Stormwater Management Report did not have Filterra Units. Please confirm if Filterra units are still proposed.*
        - Filterra units are no longer proposed and have been removed from the plans. The current plans do not show any Filterra Units.

- *The applicant has indicated a maintenance agreement for stormwater treatment systems will be provided as the design progresses. An executed maintenance contract for the BMP system is required and may be included as a Condition of Approval.*
    - Noted.

Flooding Standard

The applicant has submitted calculations indicating the total surface flows to the separated storm drain at the intersection of Fore Street and Cross Street.

- *These calculations indicate runoff rates will be less in the proposed condition than in the existing condition in 24-hour, 2-year, 10-year, and 25- year interval storm events. No further action necessary.*
    - The stormwater management system on the site has been modified to avoid building footings. We have also revised our treatment device from a Jelly Fish to a Peak Diversion StormFilter. We have revised the detail sheet to reflect this change. This has also resulted in changes to invert elevations, which changed the post-development HydroCAD model. As shown below, there continues to be a net decrease in the post-development rate of runoff during all storms at the Site's study point. An updated HydroCAD model is attached.

Study Point		Peak Runoff Rate (cfs)		
		2-Year Storm	10-Year Storm	25-Year Storm
1	Pre-Development	5.44	8.96	11.79
	Post-Development	5.16	8.12	9.89

- *See comment 3d, below, for additional City requirements for connections to the existing system.*
    - Noted, see further response below.

Grading and Drainage

- *Catch basin details have been provided. Please confirm intent for 'Drain Basin – 24"' Sheet C-301 and '24" Diam. Catch Basin" Sheet C-302. Please confirm catch basins have 3-foot sumps.*
    - The 'Drain Basin – 24' detail has been removed from Sheet C-301. Catch basins to be provided within the City of Portland Right-of-Way will be standard catch basins with 3-foot sumps.
- *A catch basin at the corner of Cross Street and Fore Street is within the pedestrian tipdown ramp. Standard granite inlet details may not be appropriate for this application and additional detailing may be necessary.*
    - This catch basin has been shifted to be located outside of the tipdown.
- *Sheet C1-C3 for a project in the Boyd Street community were provided. These pages were not reviewed as we anticipate they were accidentally uploaded and part of another project. Please confirm if these plans are used for reference.*
    - Please disregard these plan sheets.

Utility Connections

- *Utility work within the Right-Of-Way is being reviewed by others.*
    - Noted.

- *Ability to serve letters have not been provided for all utilities impacted by the proposed project, but have been requested by the applicant for applicable utilities. The applicant has indicated that ability to serve letters will be submitted to Planning upon receipt.*
    - Woodard & Curran met with Brad Roland from Portland Public Works on Friday January 17, 2020 to discuss separated sewer and storm drain surrounding the site. The drainage plan is being updated per this discussion, and further utility coordination is ongoing relative to changes to infrastructure in Cotton Street.

      Ability to serve approval from Public Works for sewer and Portland Water District for public water will be provided when available.
- *It is understood that grease trap sizing is being reviewed by Department of Public Works. Applicant shall defer to comments from Department of Public Works on this item.*
    - Noted.
- *Connection to Existing Stormwater Systems: E-mail, or otherwise written, confirmation from the Department of Public Works accepting this connection is requested to confirm that this connection is appropriate under Land Use section 14- 526 (b) 3 a. (iv); and 14-526 (c) 3 a. This confirmation is typically provided similar to a capacity to serve letter, and can be a condition of approval.*
    - Noted. Further coordination is ongoing with the Department of Public Works on the proposed stormdrain modifications proposed for Cotton Street.
- *Applicant has stated utilities are being sized to coordinate with future phases of development. No further action necessary.*
    - Noted.

If you have any questions or require additional information, please do not hesitate to contact me at (207) 558-3763 or by email at lswett@woodardcurran.com.

Sincerely,

WOODARD & CURRAN INC.

Lauren Swett

Lauren Swett, PE
Technical Manager

Enclosures: Revised Grading, Drainage and Erosion Control Plan (Sheet C-201) (also uploaded separately to eplan)
Revised Civil Details-5 (Sheet C-304) (also uploaded separately to eplan)
Revised Post-Development HydroCAD Model
MDIFW Response Letter

Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

CARROLL ASSOCIATES
LANDSCAPE ARCHITECTS
217 Commercial St, Suite 200
Portland, ME 04101
207.772.1552
www.carroll-assoc.com

WINTON SCOTT
ARCHITECTS, PA
5 Milk Street
Portland, ME 04101
774-4811
www.wintonscott.com

BECKER STRUCTURAL
ENGINEERS, INC.
75 York Street, Suite 3
Portland, ME 04101
207.879.1838
www.beckerstructural.com

WOODARD & CURRAN
41 Hutchins Dr.
Portland, ME 04101
207.558.3785
www.woodardcurran.com

HALEY & ALDRICH, INC.
75 Washington Ave, Suite 1A
Portland, ME 04101
207.482.4609
www.haleyaldrich.com

GORRILL PALMER
707 Sable Oaks Drive, Suite 30
South Portland, ME 04106
207.239.7470
www.gorrillpalmer.com

Revisions		
1	2.7.2020	SITE PLAN RESPONSE TO COMMENTS

Drawing Title: GRADING, DRAINAGE AND EROSION CONTROL PLAN

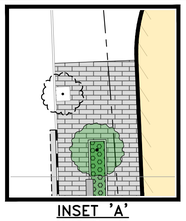
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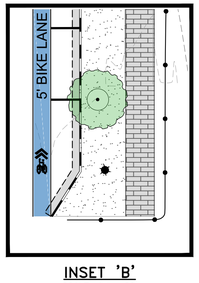
STATE OF MAINE
LAUREN JANE SWETT
12284
PROFESSIONAL ENGINEER
LICENSED
Lauren J. Swett
2/7/2020

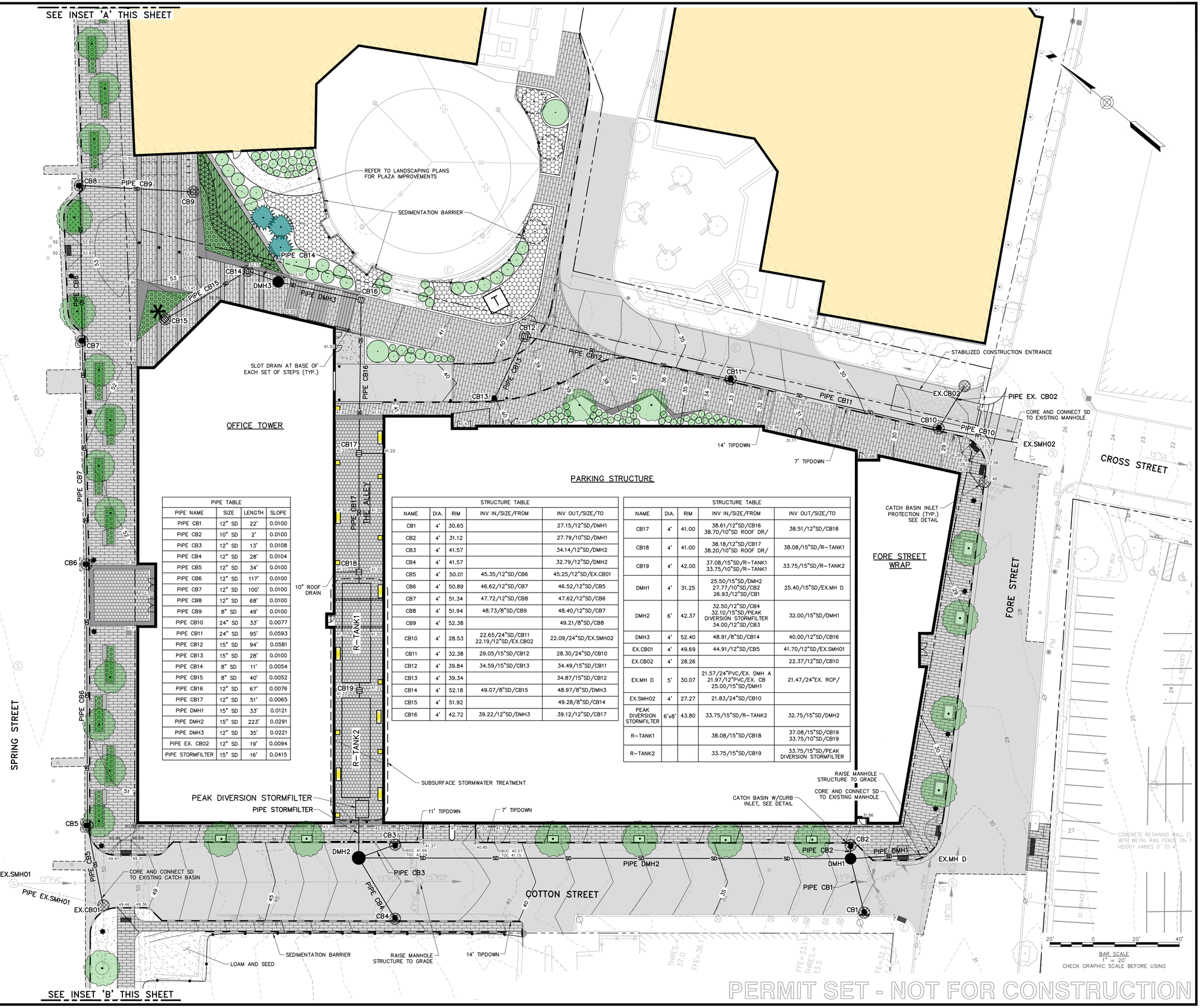
Date: FEBRUARY 7, 2020

Phase: PERMITTING

C-201







PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
PIPE CB1	12" SD	22'	0.0100
PIPE CB2	10" SD	2'	0.0100
PIPE CB3	12" SD	13'	0.0108
PIPE CB4	12" SD	28'	0.0104
PIPE CB5	12" SD	34'	0.0100
PIPE CB6	12" SD	117'	0.0100
PIPE CB7	12" SD	100'	0.0100
PIPE CB8	12" SD	68'	0.0100
PIPE CB9	8" SD	49'	0.0100
PIPE CB10	24" SD	33'	0.0077
PIPE CB11	24" SD	95'	0.0593
PIPE CB12	15" SD	94'	0.0581
PIPE CB13	15" SD	28'	0.0100
PIPE CB14	8" SD	11'	0.0054
PIPE CB15	8" SD	40'	0.0052
PIPE CB16	12" SD	67'	0.0076
PIPE CB17	12" SD	51'	0.0065
PIPE DMH1	15" SD	33'	0.0121
PIPE DMH2	15" SD	223'	0.0291
PIPE DMH3	12" SD	35'	0.0221
PIPE EX. CB02	12" SD	19'	0.0094
PIPE STORMFILTER	15" SD	16'	0.0415

STRUCTURE TABLE				
NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO
CB1	4'	30.65		27.15/12"SD/DMH1
CB2	4'	31.12		27.79/10"SD/DMH1
CB3	4'	41.57		34.14/12"SD/DMH2
CB4	4'	41.57		32.79/12"SD/DMH2
CB5	4'	50.01	45.35/12"SD/CB6	45.25/12"SD/EX.CB01
CB6	4'	50.89	46.62/12"SD/CB7	46.52/12"SD/CB5
CB7	4'	51.34	47.72/12"SD/CB8	47.62/12"SD/CB6
CB8	4'	51.94	48.73/8"SD/CB9	48.40/12"SD/CB7
CB9	4'	52.38		49.21/8"SD/CB8
CB10	4'	28.53	22.65/24"SD/CB11 22.19/12"SD/EX.CB02	22.09/24"SD/EX.SMH02
CB11	4'	32.38	29.05/15"SD/CB12	28.30/24"SD/CB10
CB12	4'	39.84	34.59/15"SD/CB13	34.49/15"SD/CB11
CB13	4'	39.34		34.87/15"SD/CB12
CB14	4'	52.18	49.07/8"SD/CB15	48.97/8"SD/DMH3
CB15	4'	51.92		49.28/8"SD/CB14
CB16	4'	42.72	39.22/12"SD/DMH3	39.12/12"SD/CB17

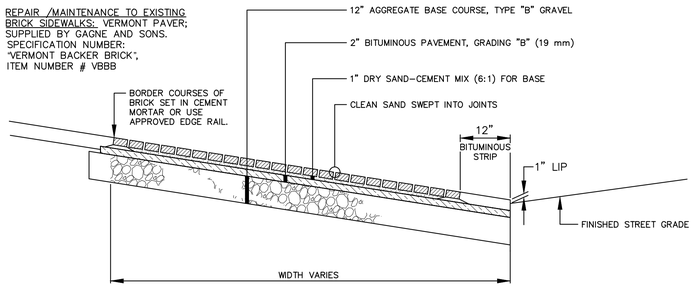
STRUCTURE TABLE				
NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO
CB17	4'	41.00	38.61/12"SD/CB16 38.70/10"SD ROOF DR/	38.51/12"SD/CB18
CB18	4'	41.00	38.18/12"SD/CB17 38.20/10"SD ROOF DR/	38.08/15"SD/R-TANK1
CB19	4'	42.00	37.08/15"SD/R-TANK1 33.75/10"SD/R-TANK1	33.75/15"SD/R-TANK2
DMH1	4'	31.25	25.50/15"SD/DMH2 27.77/10"SD/CB2 26.93/12"SD/CB1	25.40/15"SD/EX.MH D
DMH2	6'	42.37	32.50/12"SD/CB4 32.10/15"SD/PEAK DIVERSION STORMFILTER 34.00/12"SD/CB3	32.00/15"SD/DMH1
DMH3	4'	52.40	48.91/8"SD/CB14	40.00/12"SD/CB16
EX.CB01	4'	49.69	44.91/12"SD/CB5	41.70/12"SD/EX.SMH01
EX.CB02	4'	28.26		22.37/12"SD/CB10
EX.MH D	5'	30.07	21.57/24"PVC/EX. DMH A 21.97/12"PVC/EX. CB 25.00/15"SD/DMH1	21.47/24"EX. RCP/
EX.SMH02	4'	27.27	21.83/24"SD/CB10	
PEAK DIVERSION STORMFILTER	6'x8'	43.80	33.75/15"SD/R-TANK2	32.75/15"SD/DMH2
R-TANK1			38.08/15"SD/CB18	37.08/15"SD/CB19 33.75/10"SD/CB19
R-TANK2			33.75/15"SD/CB19	33.75/15"SD/PEAK DIVERSION STORMFILTER

PERMIT SET - NOT FOR CONSTRUCTION

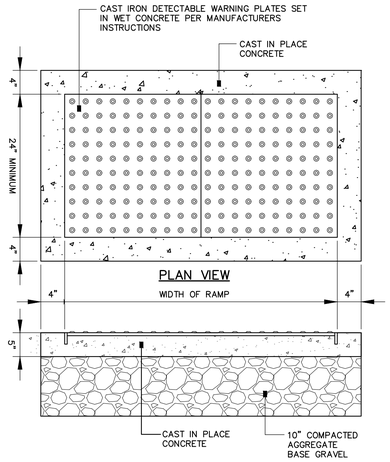
BRICKS TO BE USED:

NEW CONSTRUCTION:
4"x8" PINE HALL PATHWAY PAVER BRICK; MFG. BY PINE HALL BRICK CO., MADISON, NORTH CAROLINA. LACHANCE ITEM # 193623, PINE HALL PATHWAY PAVER BRICK.

REPAIR /MAINTENANCE TO EXISTING BRICK SIDEWALKS: VERMONT PAVER; SUPPLIED BY GAGNE AND SONS. SPECIFICATION NUMBER: "VERMONT BACKER BRICK", ITEM NUMBER # VBBB



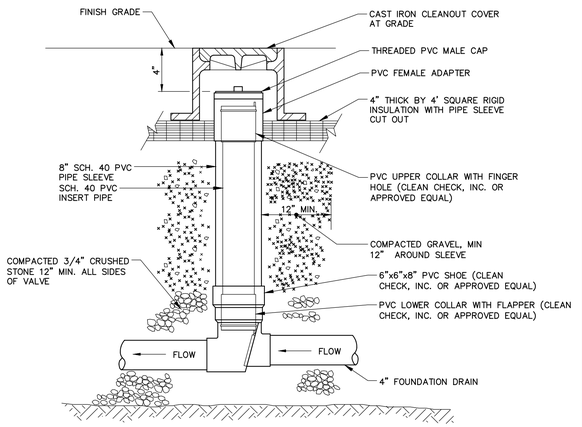
BRICK DRIVEWAY APRON
N.T.S.



SECTION VIEW

NOTES:
1. ALL DETECTABLE WARNING PLATES SHALL BE UNCOATED CAST IRON. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.
2. CAST IN PLACE CONCRETE SHALL MEET SPECIFICATIONS FOR MAINE D.O.T. CLASS A STRUCTURAL CONCRETE, MINIMUM COMPRESSIVE STRENGTH 4,000 PSI. THE EXPOSED CONCRETE BORDER SHALL RECEIVE A UNIFORM BROOM FINISH PERPENDICULAR TO THE FLOW OF PEDESTRIAN TRAFFIC.
3. TRUNCATED DOMES SHALL BE ALIGNED IN ROWS, PARALLEL AND PERPENDICULAR TO THE PREDOMINANT DIRECTION OF TRAVEL. TRUNCATED DOME BRICKS AND GRANITE PAVERS ARE NOT ALLOWED.
4. SIZE: THE DETECTABLE WARNING PLATES SHALL EXTEND 24 INCHES MINIMUM IN THE DIRECTION OF TRAVEL AND THE PLATE WIDTH + CONCRETE SHALL EXTEND THE WIDTH OF THE CURB RAMP, LANDING, OR BLENDED TRANSITION TO THE STREET.
5. ORIENTATION: THE DETECTABLE WARNING PANEL SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 INCHES MINIMUM AND 8 INCHES MAXIMUM FROM THE CURB LINE. THE PANEL SHALL BE ORIENTED TO THE DIRECTION OF TRAVEL AS IDENTIFIED BY THE POINT OF EGRESS.

SIDEWALK RAMP DETECTABLE WARNING
N.T.S.

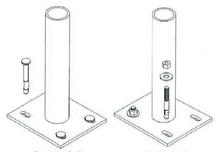


NOTES:
1. MATERIALS AND INSTALLATION PER MANUFACTURER'S INSTRUCTIONS.
2. SEE MECHANICAL PLANS FOR DETAIL OF BACK FLOW PREVENTOR LOCATED IN BELOW BUILDING PARKING LOT.

BACKFLOW PREVENTER
N.T.S.

Tools Needed for Installation

Tape Measure
Marker or Pencil
Masonry Drill Bit
Drill (Hammer drill recommended)
Hammer
Wrench 9/16"
Level
Washers (for leveling if necessary)

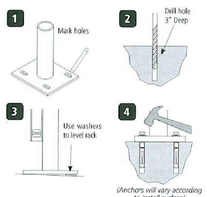


Recommended Base Materials:

Solid concrete is the best base material for installation. Ask your Dero Rack representative which anchor is appropriate for your application to ensure the proper anchors are shipped with your rack. Be sure nothing is underneath the base material that could be damaged by drilling.

Installation:

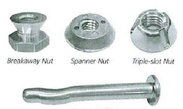
3/8" anchors are shipped with the rack. Place the rack in the desired location. Use a marker or pencil to outline the holes of the flange onto the base material. Drill the holes in accordance with the specifications shipped with the anchors. Make sure the holes are at least 6" away from any cracks in the base material.



Tamper Resistant Fasteners

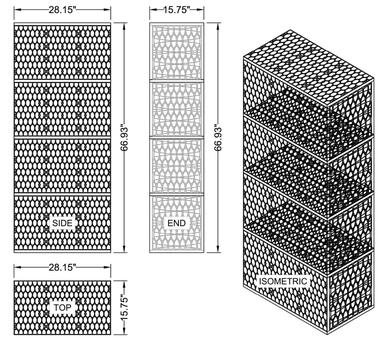
The concrete spike is a permanent anchor. The top of the wedge anchor can also be pounded sideways after installation so that it cannot be removed. Other tamper resistant fasteners are also available for purchase.

When using the special tamper resistant nuts, always set and first tighten the anchors. Once the rack is installed, replace two nuts from the bracket (opposite sides from each other) with the tamper resistant fastener. DO NOT OVERTIGHTEN the tamper resistant nut.



If you have any questions about installation or other features of the Bike Rack, please call us toll free at 1-800-298-4915

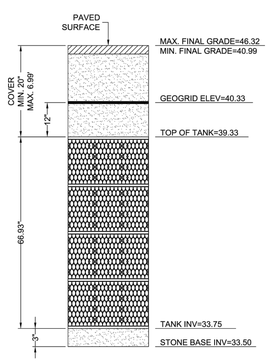
TYPICAL BIKE RACK DETAIL IN R.O.W.
N.T.S.



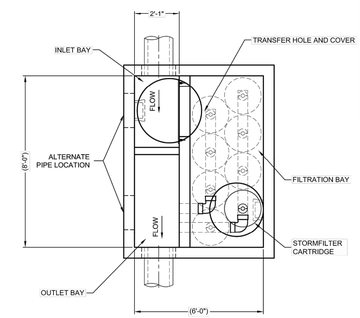
MODULE DATA

GEOMETRY:	**LOAD RATING:**
LENGTH = 28.15 IN. (715 MM)	33.4 PSI, (MODULE ONLY)
WIDTH = 15.75 IN. (400 MM)	HS20, (WITH ACF COVER SYSTEM)
HEIGHT = 66.93 IN. (1700 MM)	**MATERIAL:**
TANK VOLUME = 17.17 CF	100% RECYCLED POLYPROPYLENE
STORAGE VOLUME = 16.31 CF	**SMALL PLATES PER**
VOID INTERNAL VOLUME: 95%	**SEGMENT/TOTAL:**
VOID SURFACE AREA: 90%	5/20

R-TANKHD - QUAD MODULE
N.T.S.



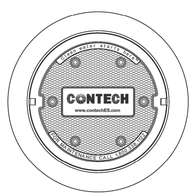
QUAD R-TANKHD-ELEVATION
N.T.S.



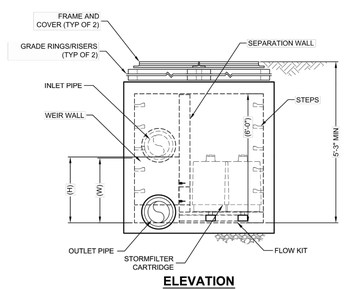
PLAN

STORMFILTER DESIGN NOTES									
• THE 8' x 6' PEAK DIVERSION STORMFILTER TREATMENT CAPACITY VARIES BY CARTRIDGE COUNT AND LOCALLY APPROVED SURFACE AREA SPECIFIC FLOW RATE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD. • THE PEAK DIVERSION STORMFILTER IS AVAILABLE IN A LEFT INLET (AS SHOWN) OR RIGHT INLET CONFIGURATION. • ALL PARTS AND INTERNAL ASSEMBLY PROVIDED BY CONTECH UNLESS OTHERWISE NOTED.									
CARTRIDGE SELECTION									
CARTRIDGE HEIGHT	27"			18"			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H)	3.05'			2.3'			1.8'		
HEIGHT OF WEIR (W)	3.00'			2.25'			1.75'		
SPECIFIC FLOW RATE (gpm/sf)	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf
CARTRIDGE FLOW RATE (gpm)	22.5	18.79	11.25	15	12.53	7.5	10	8.35	5

* 1.67 gpm/sf SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



ELEVATION

PERFORMANCE SPECIFICATION
FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. **RADIAL MEDIA DEPTH SHALL BE 7 INCHES.** FILTER MEDIA CONTACT TIME SHALL BE AT LEAST **36 SECONDS.**
SPECIFIC FLOW RATE SHALL BE **2 GPM/SF (MAXIMUM)**. SPECIFIC FLOW RATE IS THE MEASURE OF THE FLOW (GPM) DIVIDED BY THE MEDIA SURFACE CONTACT AREA (SF). MEDIA VOLUMETRIC FLOW RATE SHALL BE **6 GPM/CF OF MEDIA (MAXIMUM).**

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.ContechES.com
4. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
5. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
F. CONTRACTOR TO REMOVE THE TRANSFER HOLE COVER WHEN THE SYSTEM IS BROUGHT ONLINE.

8'x6' PEAK DIVERSION STORMFILTER
N.T.S.

NOTES:
ALL RAMPS SHALL COMPLY WITH ADA STANDARDS.

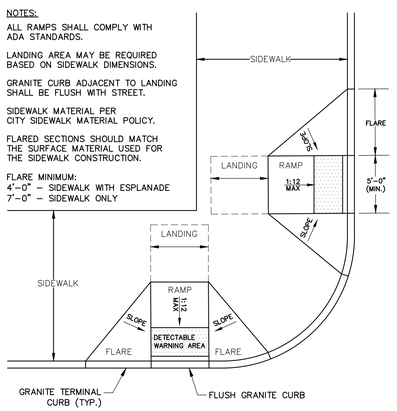
LANDING AREA MAY BE REQUIRED BASED ON SIDEWALK DIMENSIONS.

GRANITE CURB ADJACENT TO LANDING SHALL BE FLUSH WITH STREET.

SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY.

FLARED SECTIONS SHOULD MATCH THE SURFACE MATERIAL USED FOR THE SIDEWALK CONSTRUCTION.

FLARE MINIMUM:
4'-0" - SIDEWALK WITH ESPLANADE
7'-0" - SIDEWALK ONLY



SIDEWALK RAMP AT INTERSECTION

ADA ACCESSIBLE CURB RAMPS
N.T.S.

PERMIT SET - NOT FOR CONSTRUCTION

Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

CARROLL ASSOCIATES LANDSCAPE ARCHITECTS
217 Commercial St, Suite 200
Portland, ME 04101
207.772.1552
www.carroll-assoc.com

WINTON SCOTT ARCHITECTS, PA
5 Milk Street
Portland, ME 04101
774-4811
www.wintonscott.com

BECKER STRUCTURAL ENGINEERS, INC.
75 York Street, Suite 3
Portland, ME 04101
207.879.1838
www.beckerstructural.com

WOODARD & CURRAN
41 Hutchins Dr.
Portland, ME 04101
207.558.3785
www.woodardcurran.com

HALEY & ALDRICH, INC.
75 Washington Ave, Suite 1A
Portland, ME 04101
207.482.4609
www.haleyaldrich.com

GORRILL PALMER
707 Sable Oaks Drive, Suite 30
South Portland, ME 04106
207.239.7470
www.gorrillpalmer.com

Revisions		
1	2.7.2020	SITE PLAN RESPONSE TO COMMENTS

Drawing Title: CIVIL DETAILS - 5

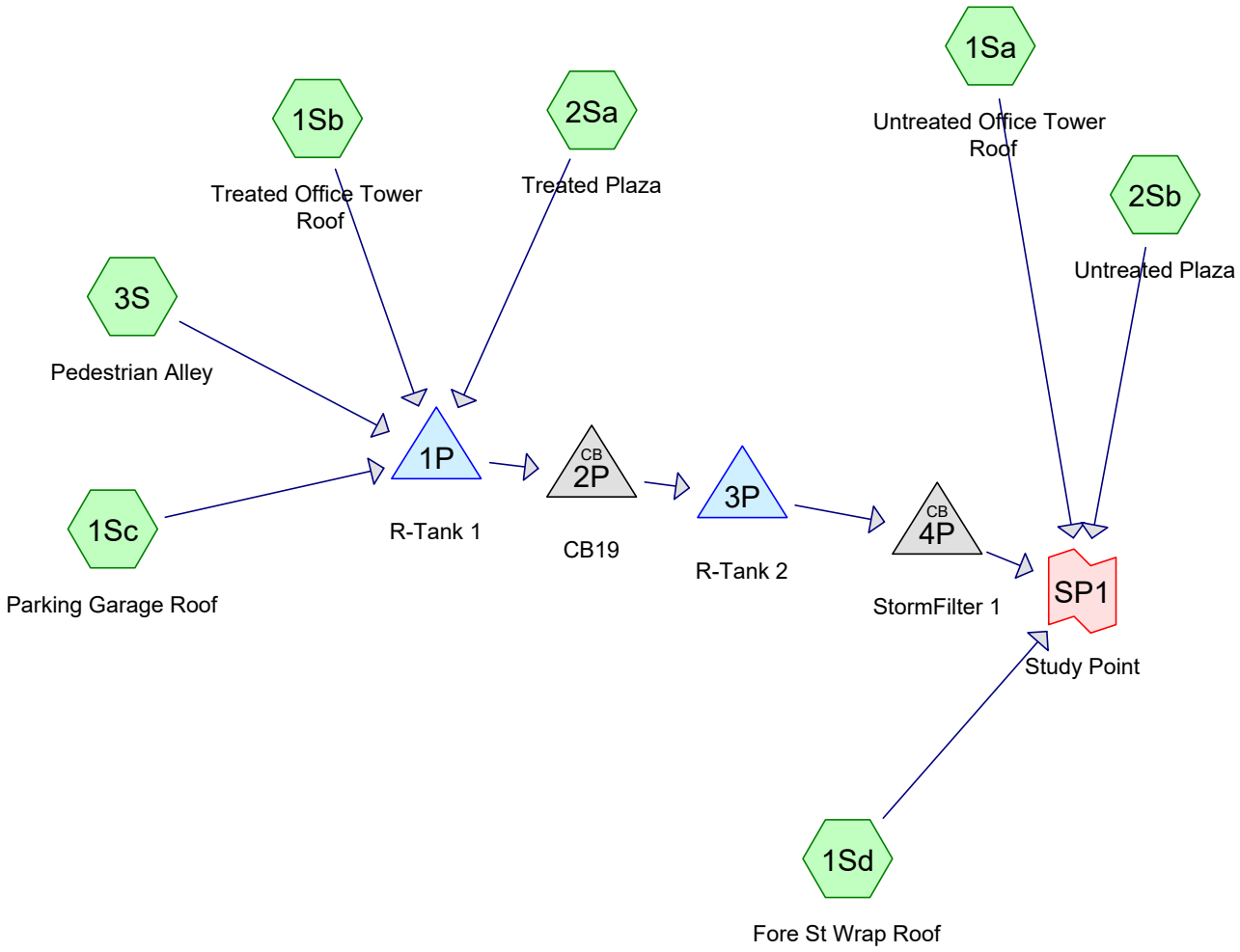
Scale: AS NOTED



Date: FEBRUARY 7, 2020
Phase: PERMITTING

C-304

C:\Users\lcoulombe\onedrive - woodard & curran_pcfolders\documents_000 projects_0231886.00 carroll assoc - port square redev\Civil\0231886.00-C-300 - C-305-DETAILS-PORT SCHEMATIC.dwg, Feb 07, 2020 - 2:42pm



Subcat Reach Pond Link

Routing Diagram for C2. Post Stormwater Analysis
Prepared by Woodard Curran, Printed 2/7/2020
HydroCAD® 10.00-21 s/n 01204 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.161	49	50-75% Grass cover, Fair, HSG A (2Sa, 2Sb)
2.149	98	Impervious (1Sa, 1Sb, 1Sc, 1Sd, 2Sa, 2Sb, 3S)
2.310	**95**	**TOTAL AREA**

Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1Sa: Untreated Office Runoff Area=18,158 sf 100.00% Impervious Runoff Depth>2.98"
Tc=6.0 min CN=98 Runoff=1.30 cfs 0.103 af

Subcatchment1Sb: Treated Office Tower Runoff Area=3,500 sf 100.00% Impervious Runoff Depth>2.98"
Tc=6.0 min CN=98 Runoff=0.25 cfs 0.020 af

Subcatchment1Sc: Parking Garage Roof Runoff Area=41,170 sf 100.00% Impervious Runoff Depth>2.98"
Tc=6.0 min CN=98 Runoff=2.95 cfs 0.234 af

Subcatchment1Sd: Fore St Wrap Roof Runoff Area=5,745 sf 100.00% Impervious Runoff Depth>2.98"
Tc=6.0 min CN=98 Runoff=0.41 cfs 0.033 af

Subcatchment2Sa: Treated Plaza Runoff Area=2,515 sf 90.74% Impervious Runoff Depth>2.45"
Tc=6.0 min CN=93 Runoff=0.16 cfs 0.012 af

Subcatchment2Sb: Untreated Plaza Runoff Area=25,855 sf 73.75% Impervious Runoff Depth>1.76"
Tc=6.0 min CN=85 Runoff=1.23 cfs 0.087 af

Subcatchment3S: Pedestrian Alley Runoff Area=3,670 sf 100.00% Impervious Runoff Depth>2.98"
Tc=6.0 min CN=98 Runoff=0.26 cfs 0.021 af

Pond 1P: R-Tank 1 Peak Elev=35.89' Storage=1,040 cf Inflow=3.62 cfs 0.287 af
Outflow=2.72 cfs 0.284 af

Pond 2P: CB19 Peak Elev=34.88' Inflow=2.72 cfs 0.284 af
15.0" Round Culvert n=0.013 L=2.0' S=0.0000 '/' Outflow=2.72 cfs 0.284 af

Pond 3P: R-Tank 2 Peak Elev=34.87' Storage=575 cf Inflow=2.72 cfs 0.284 af
15.0" Round Culvert n=0.013 L=4.0' S=0.0000 '/' Outflow=2.66 cfs 0.282 af

Pond 4P: StormFilter 1 Peak Elev=38.51' Inflow=2.66 cfs 0.282 af
Outflow=2.66 cfs 0.282 af

Link SP1: Study Point Inflow=5.16 cfs 0.505 af
Primary=5.16 cfs 0.505 af

Total Runoff Area = 2.310 ac Runoff Volume = 0.510 af Average Runoff Depth = 2.65"
6.98% Pervious = 0.161 ac 93.02% Impervious = 2.149 ac

Summary for Subcatchment 1Sa: Untreated Office Tower Roof

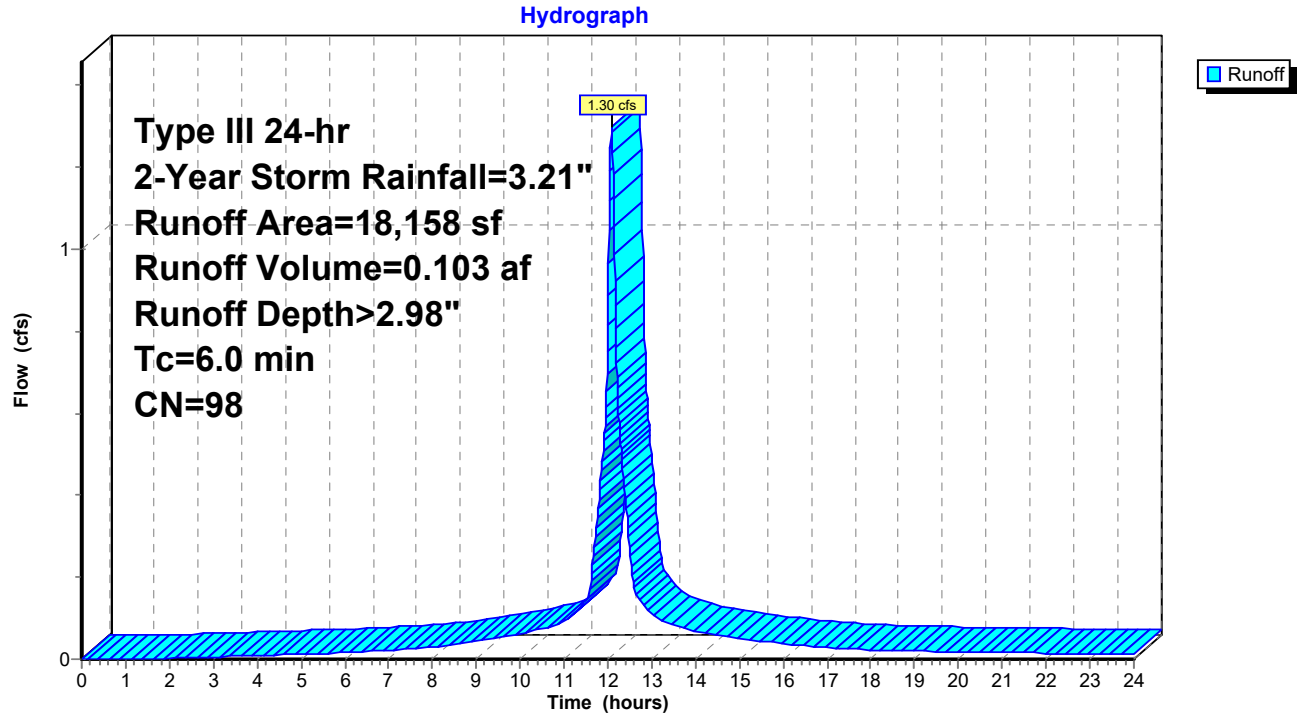
Runoff = 1.30 cfs @ 12.08 hrs, Volume= 0.103 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
*	18,158	98	Impervious
	18,158		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sa: Untreated Office Tower Roof



Summary for Subcatchment 1Sb: Treated Office Tower Roof

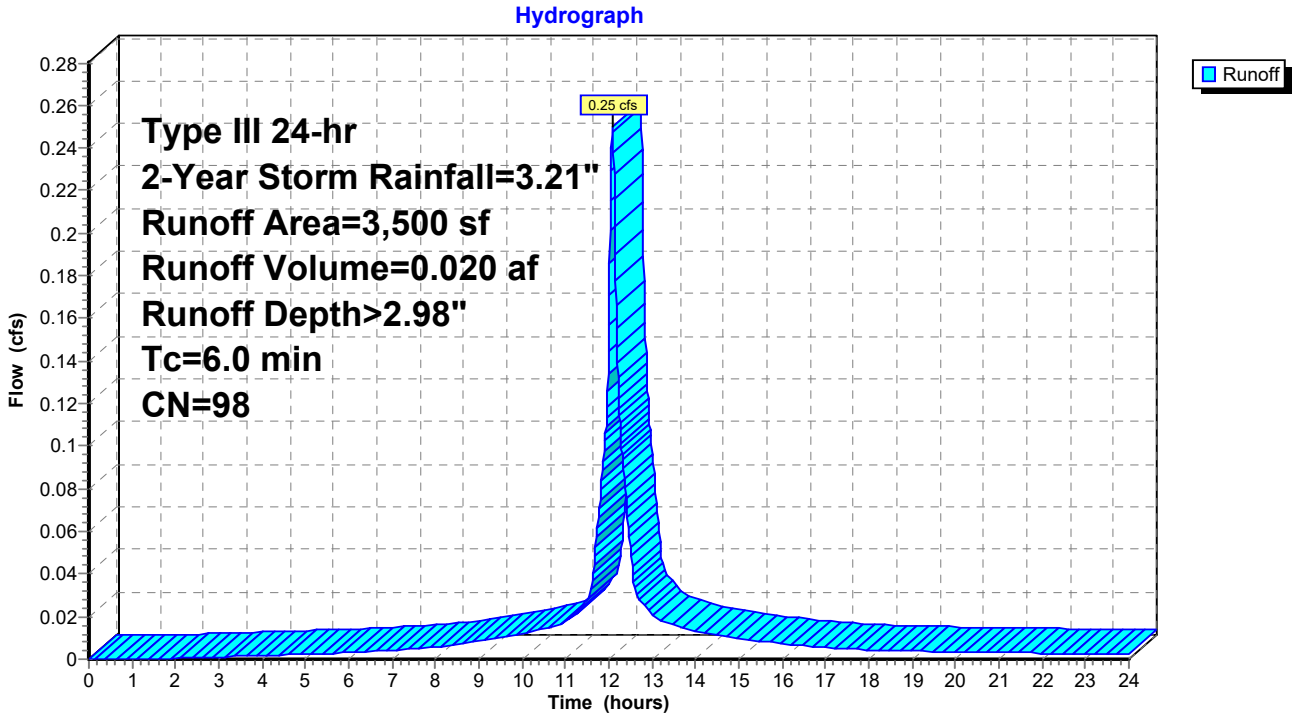
Runoff = 0.25 cfs @ 12.08 hrs, Volume= 0.020 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
*	3,500	98	Impervious
	3,500		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sb: Treated Office Tower Roof



Summary for Subcatchment 1Sc: Parking Garage Roof

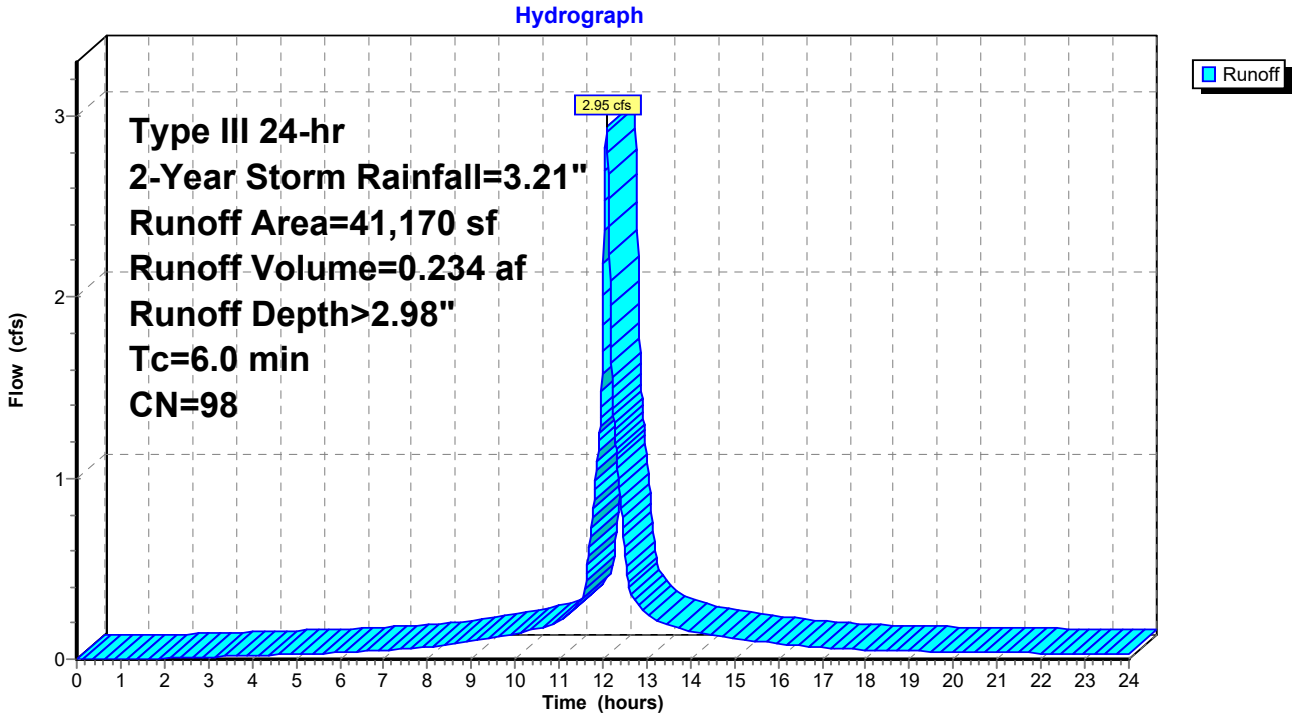
Runoff = 2.95 cfs @ 12.08 hrs, Volume= 0.234 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
*	41,170	98	Impervious
	41,170		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sc: Parking Garage Roof



Summary for Subcatchment 1Sd: Fore St Wrap Roof

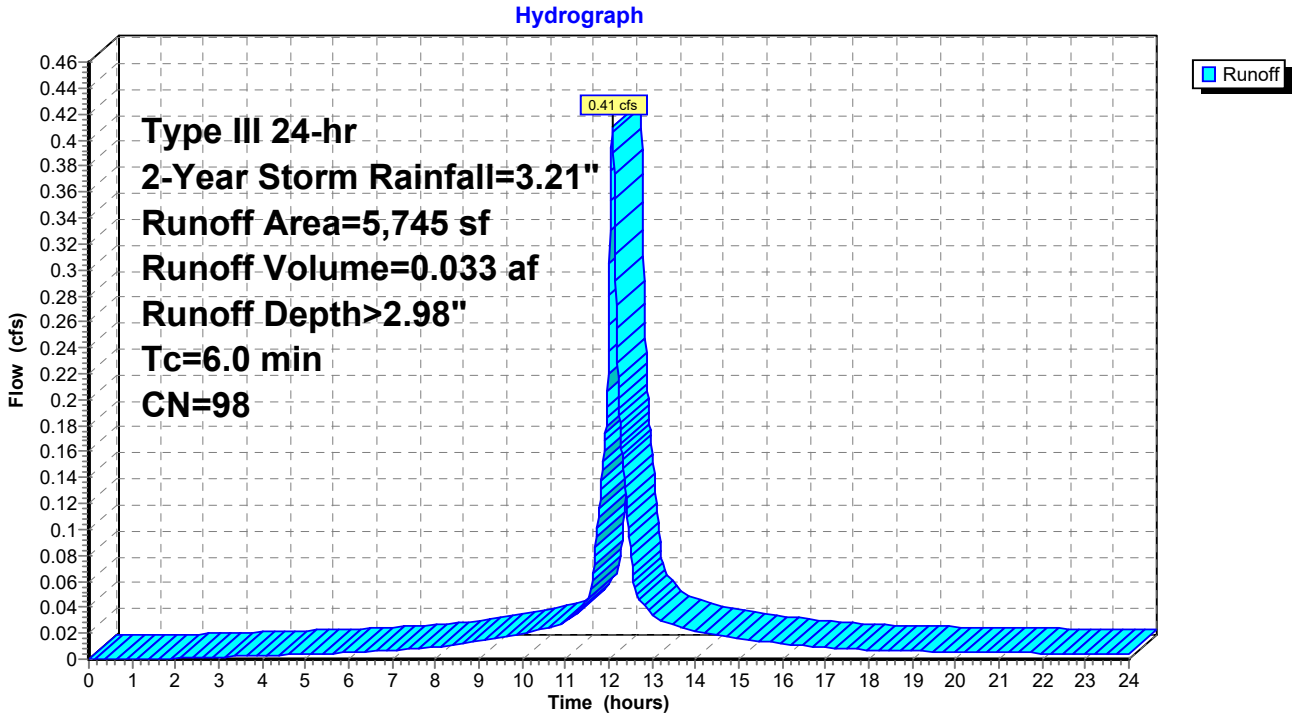
Runoff = 0.41 cfs @ 12.08 hrs, Volume= 0.033 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
*	5,745	98	Impervious
	5,745		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sd: Fore St Wrap Roof



Summary for Subcatchment 2Sa: Treated Plaza

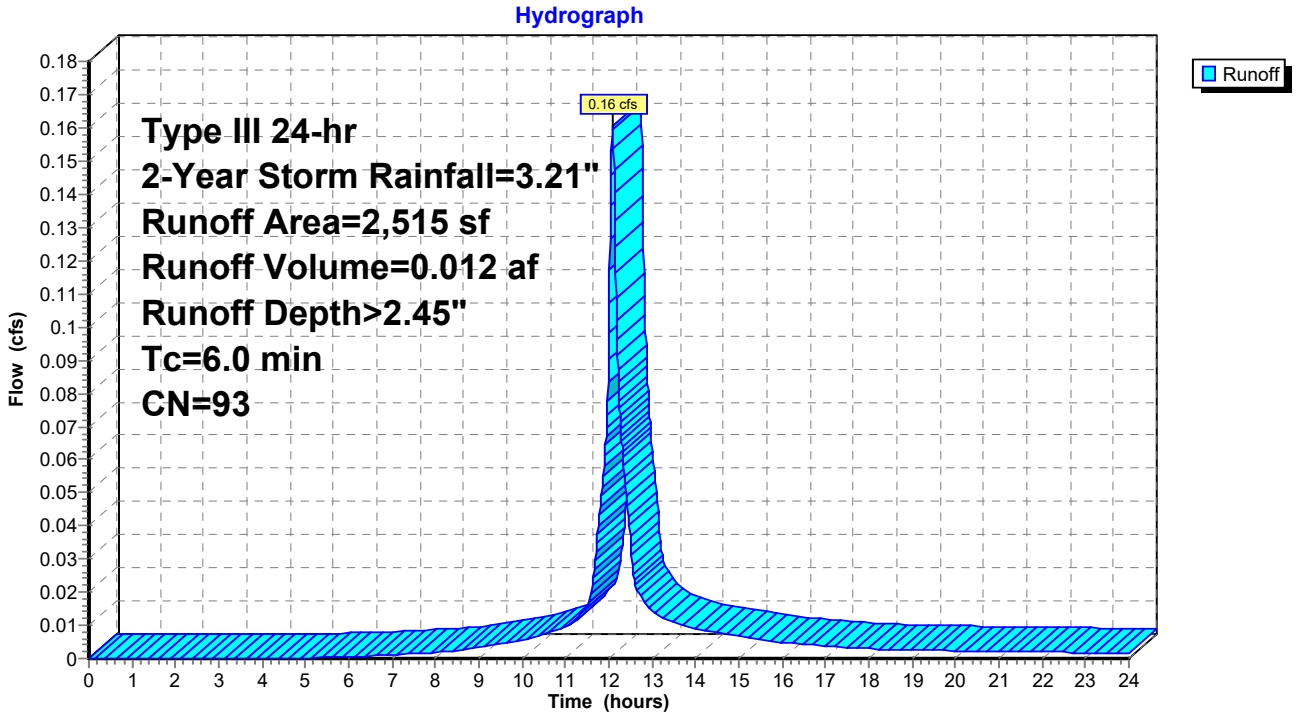
Runoff = 0.16 cfs @ 12.09 hrs, Volume= 0.012 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
	233	49	50-75% Grass cover, Fair, HSG A
*	2,282	98	Impervious
	2,515	93	Weighted Average
	233		9.26% Pervious Area
	2,282		90.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2Sa: Treated Plaza



Summary for Subcatchment 2Sb: Untreated Plaza

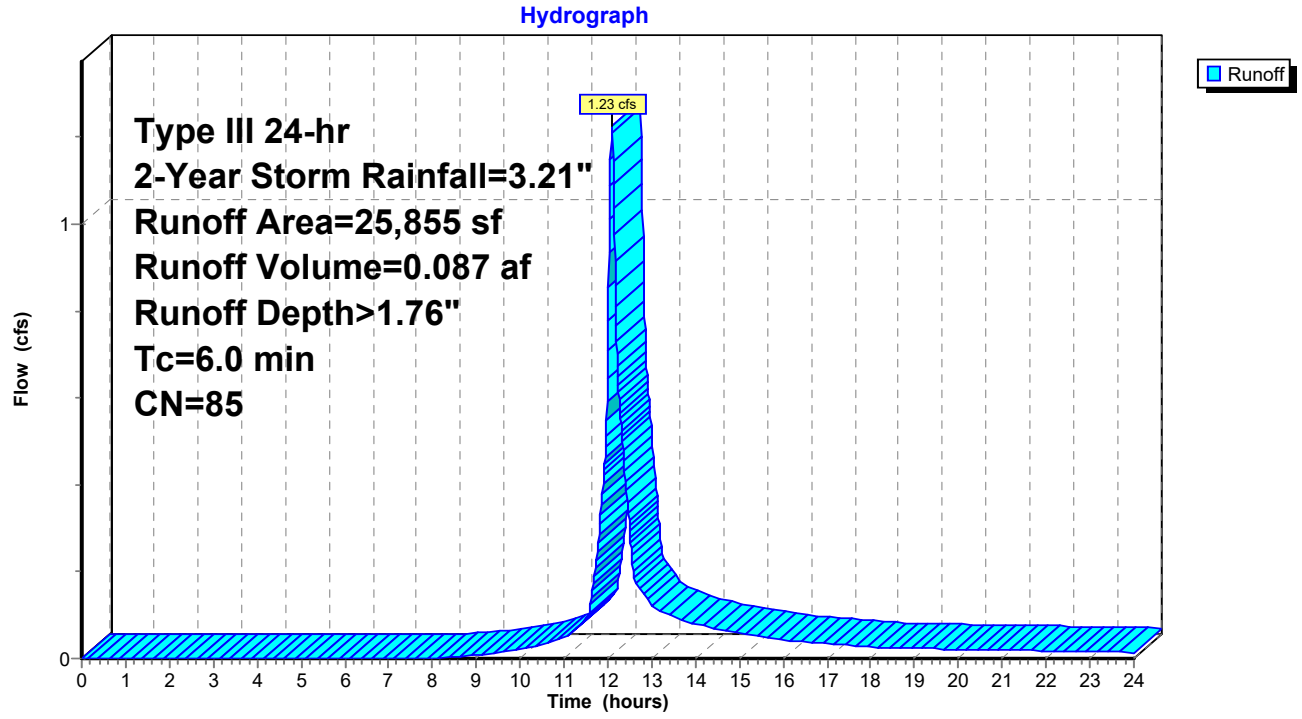
Runoff = 1.23 cfs @ 12.09 hrs, Volume= 0.087 af, Depth> 1.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
	6,787	49	50-75% Grass cover, Fair, HSG A
*	19,068	98	Impervious
	25,855	85	Weighted Average
	6,787		26.25% Pervious Area
	19,068		73.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2Sb: Untreated Plaza



Summary for Subcatchment 3S: Pedestrian Alley

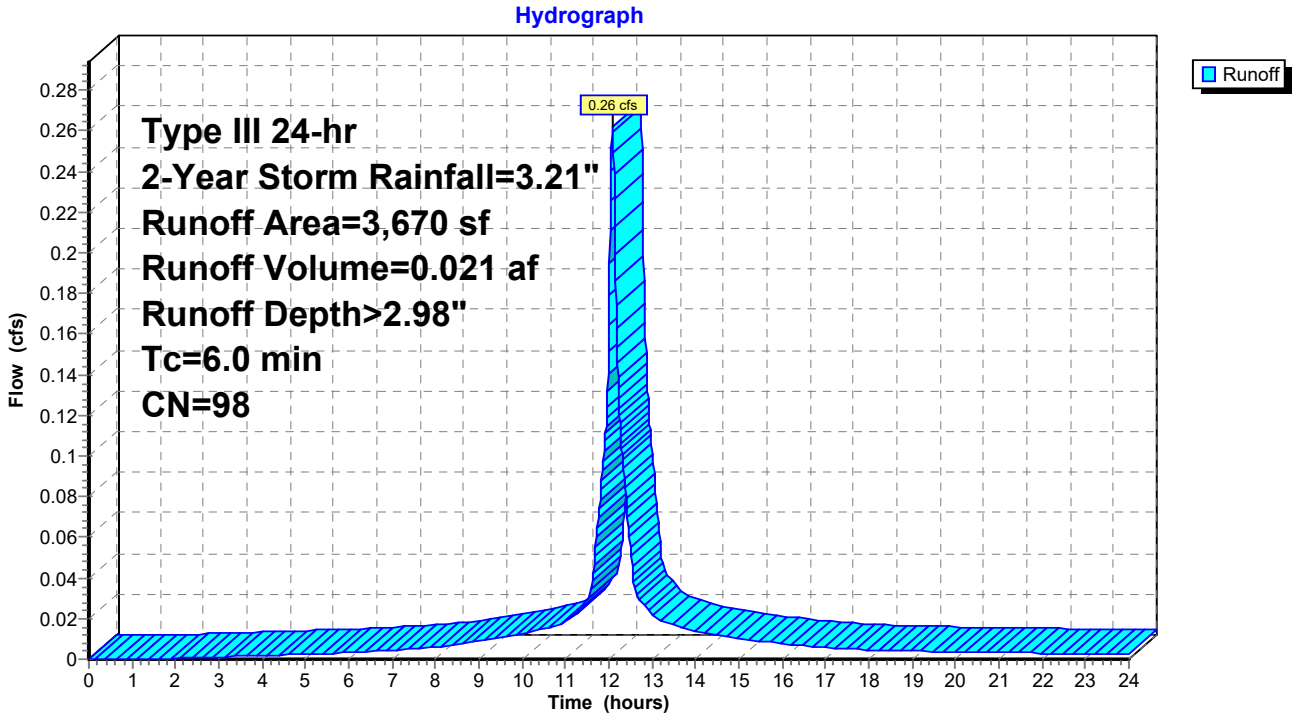
Runoff = 0.26 cfs @ 12.08 hrs, Volume= 0.021 af, Depth> 2.98"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Storm Rainfall=3.21"

	Area (sf)	CN	Description
*	3,670	98	Impervious
	3,670		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Pedestrian Alley



Summary for Pond 1P: R-Tank 1

Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 2.95" for 2-Year Storm event
Inflow = 3.62 cfs @ 12.08 hrs, Volume= 0.287 af
Outflow = 2.72 cfs @ 12.15 hrs, Volume= 0.284 af, Atten= 25%, Lag= 4.1 min
Primary = 2.72 cfs @ 12.15 hrs, Volume= 0.284 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 35.89' @ 12.15 hrs Surf.Area= 614 sf Storage= 1,040 cf
Flood Elev= 39.33' Surf.Area= 614 sf Storage= 2,613 cf

Plug-Flow detention time= 17.3 min calculated for 0.284 af (99% of inflow)
Center-of-Mass det. time= 11.1 min (768.4 - 757.3)

Volume	Invert	Avail.Storage	Storage Description
#1	33.50'	818 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,194 cf Overall - 2,148 cf Embedded = 2,045 cf x 40.0% Voids
#2	33.75'	2,041 cf	**R-Tank Quad Modules (Prismatic)** Listed below (Recalc) Inside #1 2,148 cf Overall x 95.0% Voids
		2,859 cf	Total Available Storage

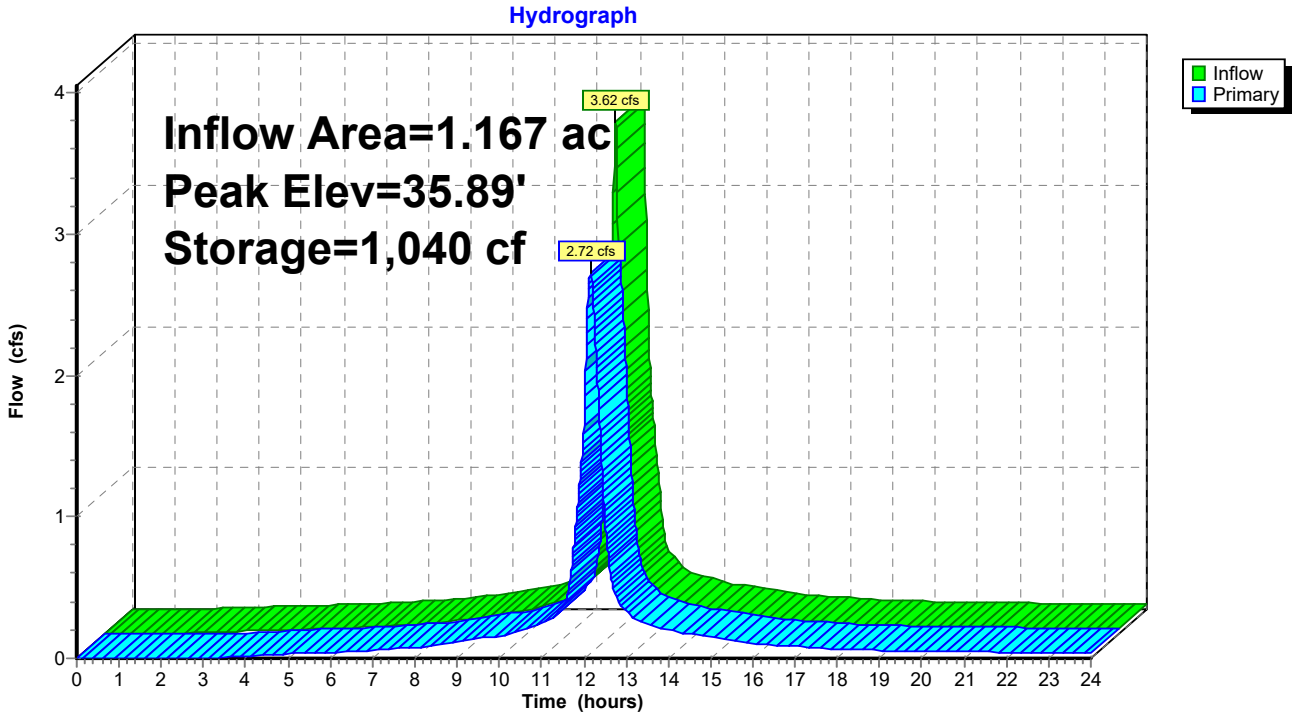
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.50	614	0	0
40.33	614	4,194	4,194

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.75	385	0	0
39.33	385	2,148	2,148

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	**10.0" Round Culvert** L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.75' / 33.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Primary	38.08'	**15.0" Round Culvert** L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.08' / 38.08' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.72 cfs @ 12.15 hrs HW=35.89' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 2.72 cfs @ 4.99 fps)
└—**2=Culvert** (Controls 0.00 cfs)

Pond 1P: R-Tank 1



Summary for Pond 2P: CB19

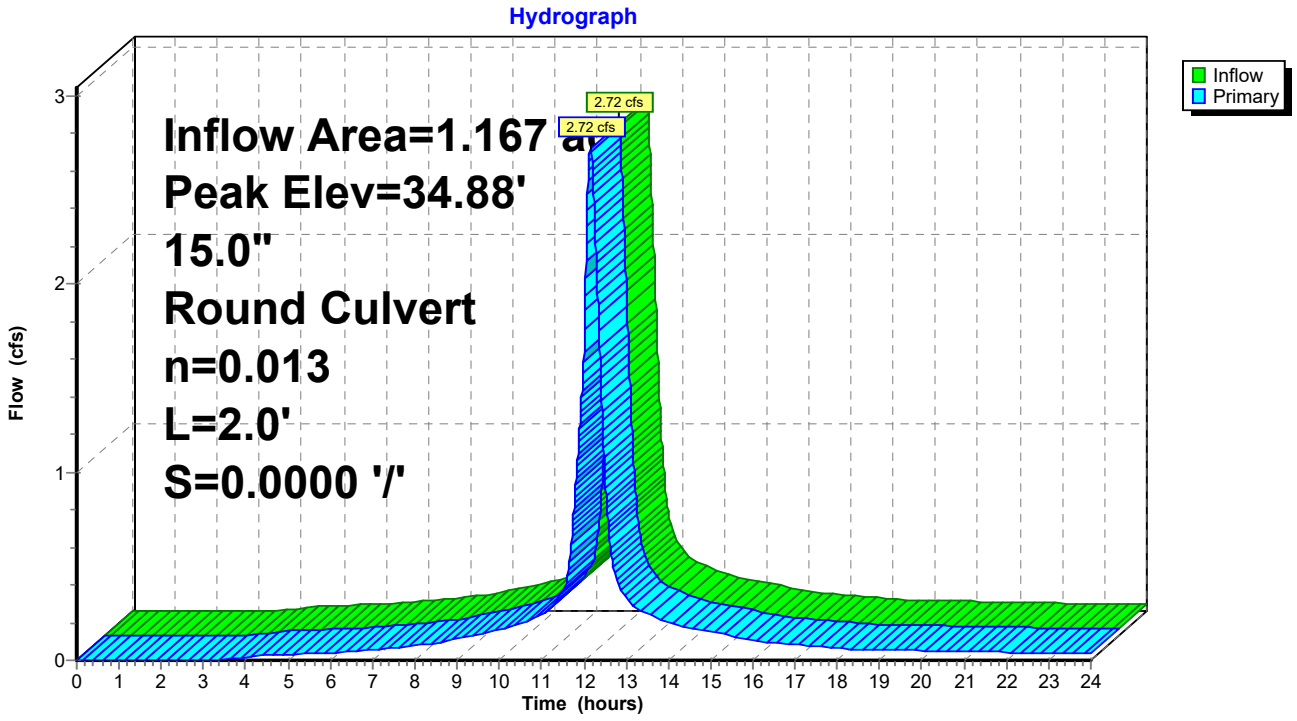
Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 2.92" for 2-Year Storm event
Inflow = 2.72 cfs @ 12.15 hrs, Volume= 0.284 af
Outflow = 2.72 cfs @ 12.15 hrs, Volume= 0.284 af, Atten= 0%, Lag= 0.0 min
Primary = 2.72 cfs @ 12.15 hrs, Volume= 0.284 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 34.88' @ 12.15 hrs
Flood Elev= 41.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	**15.0" Round Culvert** L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.75' / 33.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.72 cfs @ 12.15 hrs HW=34.88' (Free Discharge)
1=Culvert (Barrel Controls 2.72 cfs @ 3.07 fps)

Pond 2P: CB19



Summary for Pond 3P: R-Tank 2

Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 2.92" for 2-Year Storm event
Inflow = 2.72 cfs @ 12.15 hrs, Volume= 0.284 af
Outflow = 2.66 cfs @ 12.19 hrs, Volume= 0.282 af, Atten= 2%, Lag= 2.1 min
Primary = 2.66 cfs @ 12.19 hrs, Volume= 0.282 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 34.87' @ 12.19 hrs Surf.Area= 614 sf Storage= 575 cf
Flood Elev= 39.33' Surf.Area= 614 sf Storage= 2,613 cf

Plug-Flow detention time= 15.3 min calculated for 0.281 af (99% of inflow)
Center-of-Mass det. time= 9.3 min (777.6 - 768.4)

Volume	Invert	Avail.Storage	Storage Description
#1	33.50'	818 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,194 cf Overall - 2,148 cf Embedded = 2,045 cf x 40.0% Voids
#2	33.75'	2,041 cf	**R-Tank Quad Modules (Prismatic)** Listed below (Recalc) Inside #1 2,148 cf Overall x 95.0% Voids
		2,859 cf	Total Available Storage

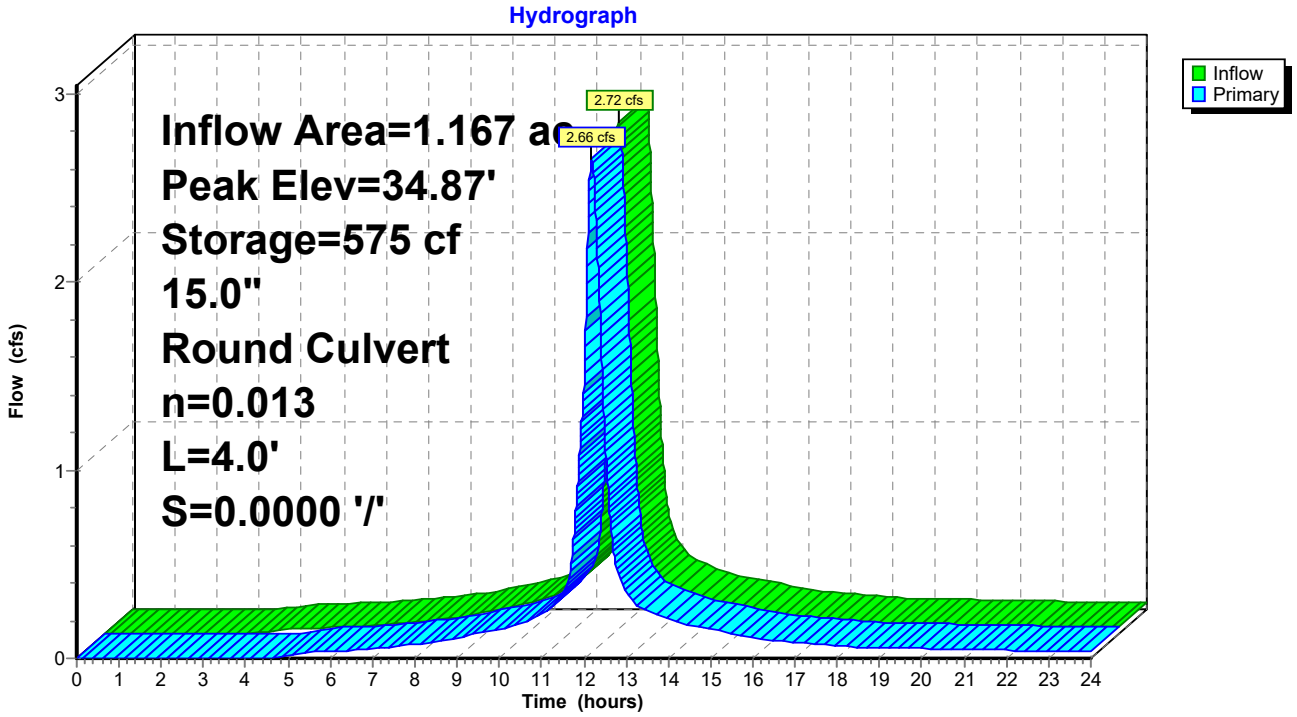
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.50	614	0	0
40.33	614	4,194	4,194

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.75	385	0	0
39.33	385	2,148	2,148

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	**15.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.75' / 33.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=2.66 cfs @ 12.19 hrs HW=34.87' (Free Discharge)
1=Culvert (Barrel Controls 2.66 cfs @ 3.02 fps)

Pond 3P: R-Tank 2



Summary for Pond 4P: StormFilter 1

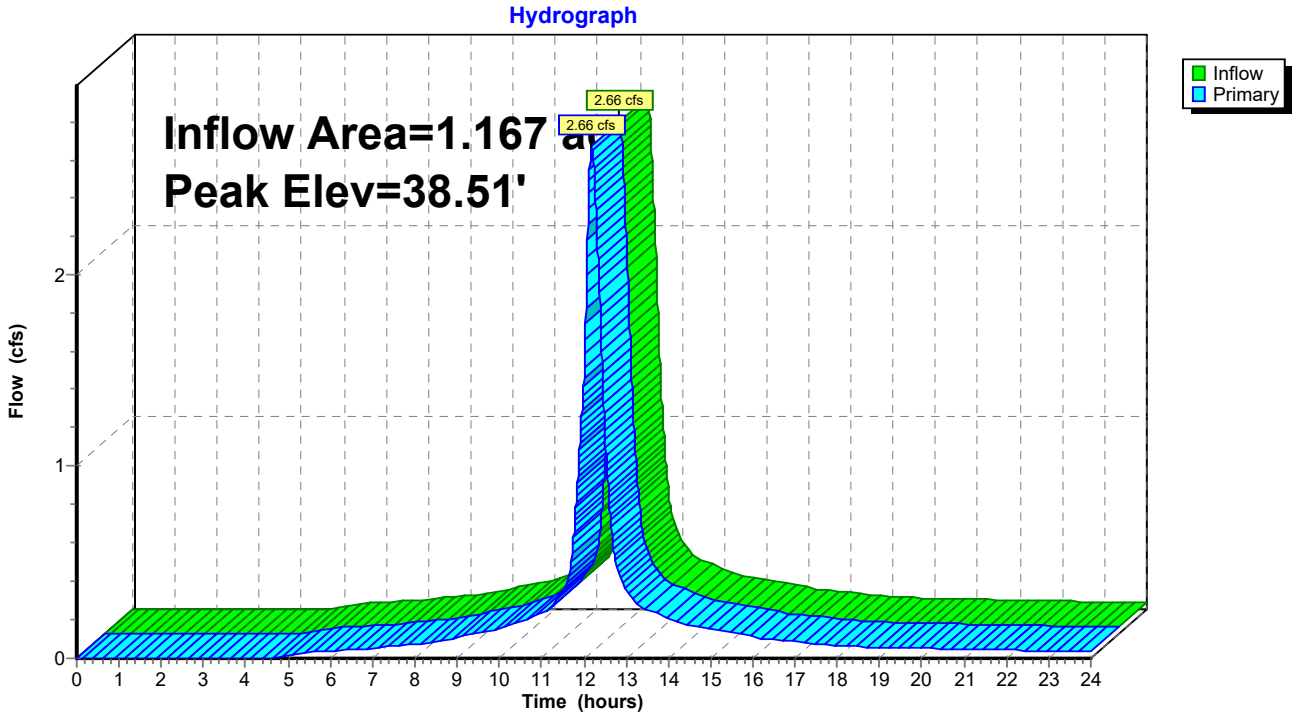
Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 2.89" for 2-Year Storm event
Inflow = 2.66 cfs @ 12.19 hrs, Volume= 0.282 af
Outflow = 2.66 cfs @ 12.19 hrs, Volume= 0.282 af, Atten= 0%, Lag= 0.0 min
Primary = 2.66 cfs @ 12.19 hrs, Volume= 0.282 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 38.51' @ 12.19 hrs
Flood Elev= 39.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.75'	**15.0" Round Filter Culvert Out** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.75' / 32.50' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	32.75'	**SF Filter-1 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.129 0.198 0.267 0.337 0.406 0.475 0.545 0.614 0.683 0.753 0.822 0.891
#3	Device 1	38.08'	**2.1' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=2.66 cfs @ 12.19 hrs HW=38.51' (Free Discharge)
└**1=Filter Culvert Out** (Passes 2.66 cfs of 10.57 cfs potential flow)
  ├**2=SF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 1.77 cfs @ 1.94 fps)

Pond 4P: StormFilter 1

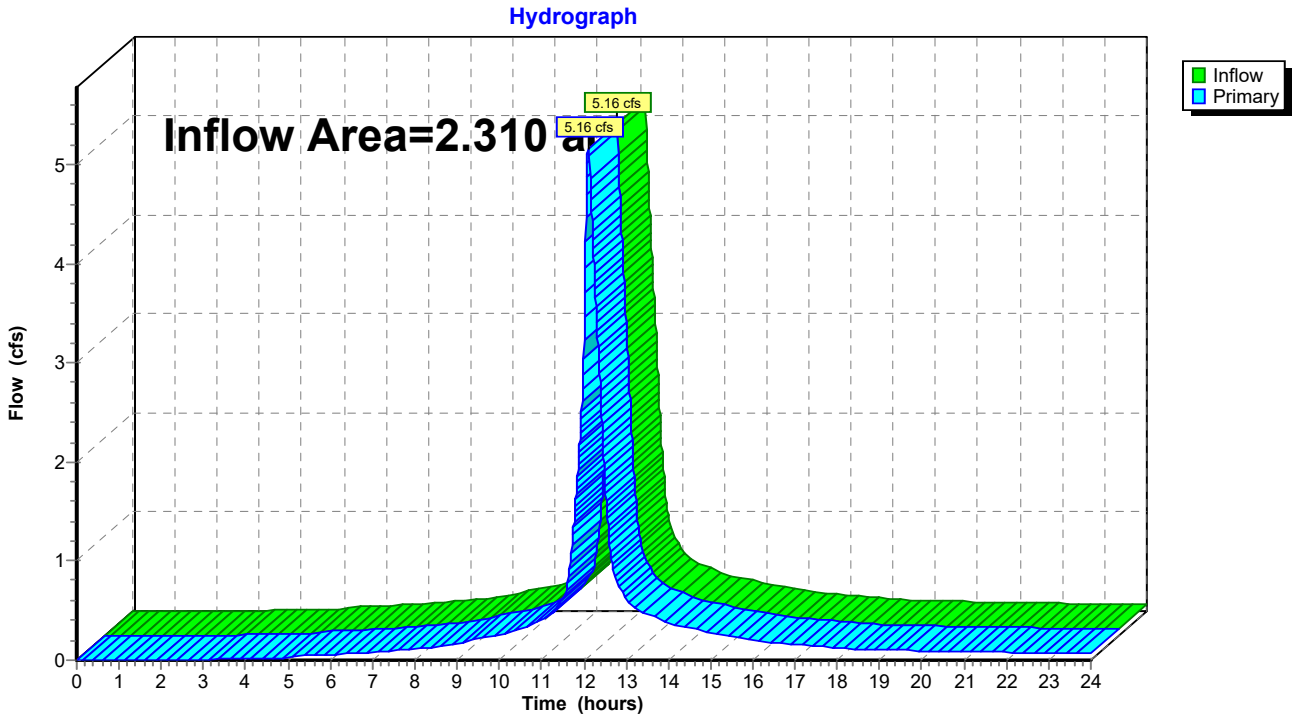


Summary for Link SP1: Study Point

Inflow Area = 2.310 ac, 93.02% Impervious, Inflow Depth > 2.62" for 2-Year Storm event
Inflow = 5.16 cfs @ 12.11 hrs, Volume= 0.505 af
Primary = 5.16 cfs @ 12.11 hrs, Volume= 0.505 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link SP1: Study Point



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1Sa: Untreated Office Runoff Area=18,158 sf 100.00% Impervious Runoff Depth>4.78"
Tc=6.0 min CN=98 Runoff=2.05 cfs 0.166 af

Subcatchment1Sb: Treated Office Tower Runoff Area=3,500 sf 100.00% Impervious Runoff Depth>4.78"
Tc=6.0 min CN=98 Runoff=0.39 cfs 0.032 af

Subcatchment1Sc: Parking Garage Roof Runoff Area=41,170 sf 100.00% Impervious Runoff Depth>4.78"
Tc=6.0 min CN=98 Runoff=4.64 cfs 0.376 af

Subcatchment1Sd: Fore St Wrap Roof Runoff Area=5,745 sf 100.00% Impervious Runoff Depth>4.78"
Tc=6.0 min CN=98 Runoff=0.65 cfs 0.053 af

Subcatchment2Sa: Treated Plaza Runoff Area=2,515 sf 90.74% Impervious Runoff Depth>4.21"
Tc=6.0 min CN=93 Runoff=0.27 cfs 0.020 af

Subcatchment2Sb: Untreated Plaza Runoff Area=25,855 sf 73.75% Impervious Runoff Depth>3.38"
Tc=6.0 min CN=85 Runoff=2.33 cfs 0.167 af

Subcatchment3S: Pedestrian Alley Runoff Area=3,670 sf 100.00% Impervious Runoff Depth>4.78"
Tc=6.0 min CN=98 Runoff=0.41 cfs 0.034 af

Pond 1P: R-Tank 1 Peak Elev=37.65' Storage=1,843 cf Inflow=5.72 cfs 0.462 af
Outflow=3.87 cfs 0.459 af

Pond 2P: CB19 Peak Elev=35.18' Inflow=3.87 cfs 0.459 af
15.0" Round Culvert n=0.013 L=2.0' S=0.0000 '/' Outflow=3.87 cfs 0.459 af

Pond 3P: R-Tank 2 Peak Elev=35.17' Storage=712 cf Inflow=3.87 cfs 0.459 af
15.0" Round Culvert n=0.013 L=4.0' S=0.0000 '/' Outflow=3.80 cfs 0.456 af

Pond 4P: StormFilter 1 Peak Elev=38.67' Inflow=3.80 cfs 0.456 af
Outflow=3.80 cfs 0.456 af

Link SP1: Study Point Inflow=8.12 cfs 0.842 af
Primary=8.12 cfs 0.842 af

Total Runoff Area = 2.310 ac Runoff Volume = 0.848 af Average Runoff Depth = 4.41"
6.98% Pervious = 0.161 ac 93.02% Impervious = 2.149 ac

Summary for Subcatchment 1Sa: Untreated Office Tower Roof

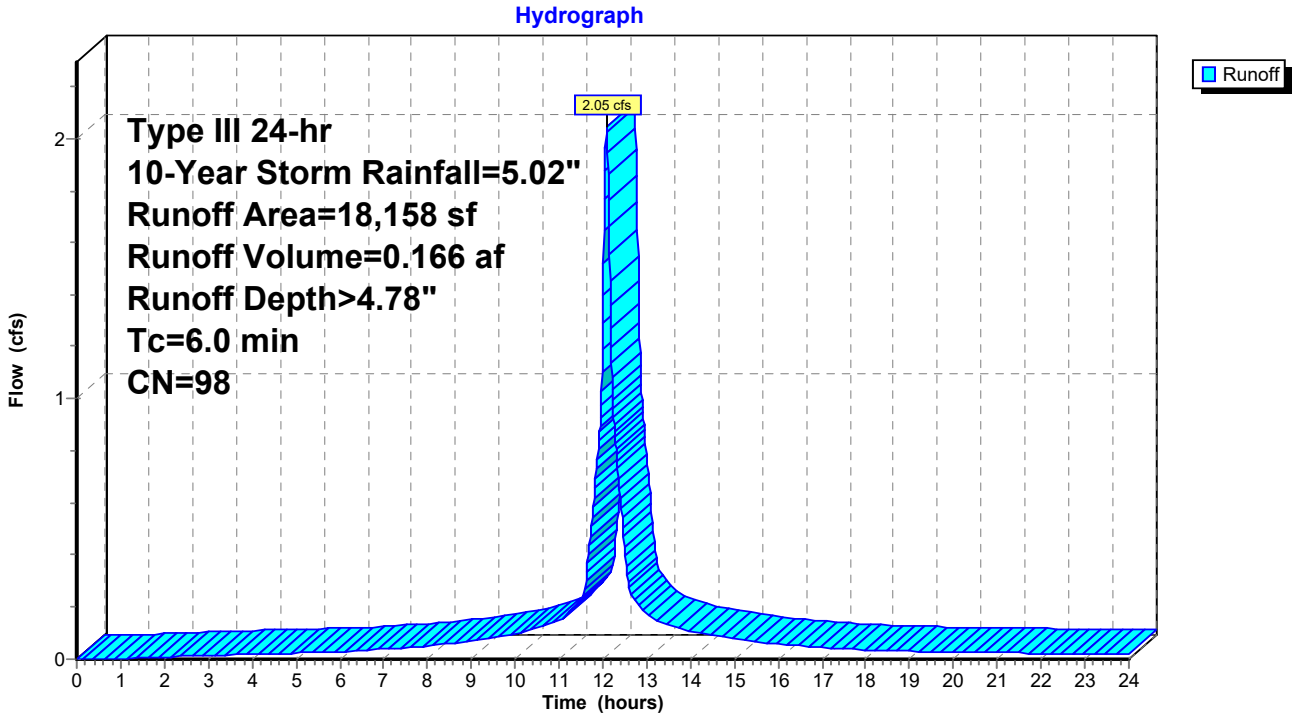
Runoff = 2.05 cfs @ 12.08 hrs, Volume= 0.166 af, Depth> 4.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
*	18,158	98	Impervious
	18,158		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sa: Untreated Office Tower Roof



Summary for Subcatchment 1Sb: Treated Office Tower Roof

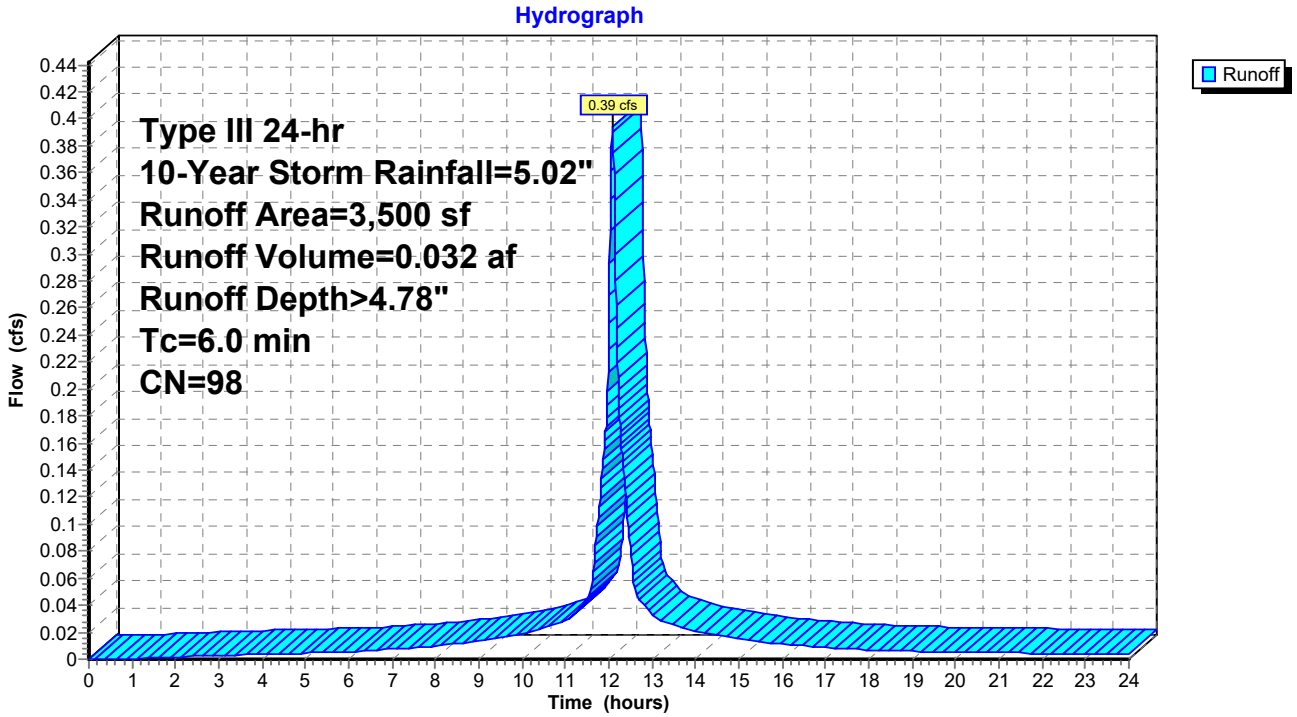
Runoff = 0.39 cfs @ 12.08 hrs, Volume= 0.032 af, Depth> 4.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
*	3,500	98	Impervious
	3,500		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sb: Treated Office Tower Roof



Summary for Subcatchment 1Sc: Parking Garage Roof

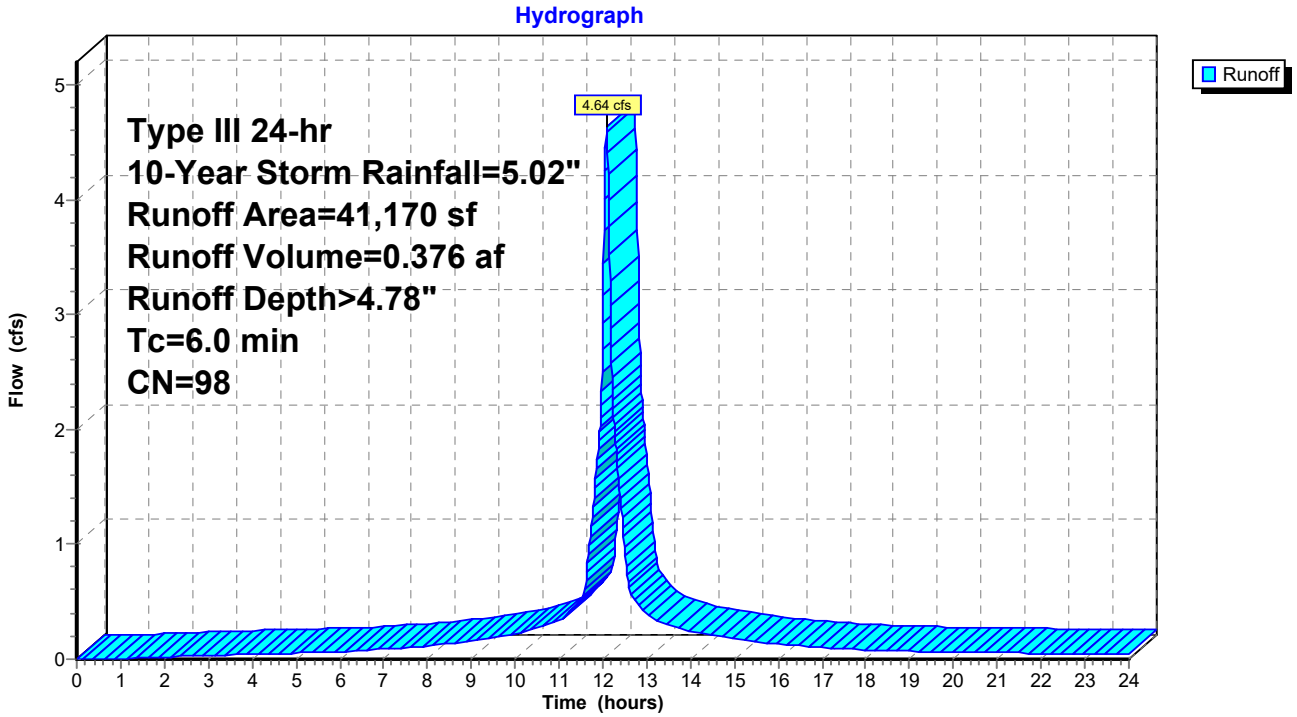
Runoff = 4.64 cfs @ 12.08 hrs, Volume= 0.376 af, Depth> 4.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
*	41,170	98	Impervious
	41,170		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sc: Parking Garage Roof



Summary for Subcatchment 1Sd: Fore St Wrap Roof

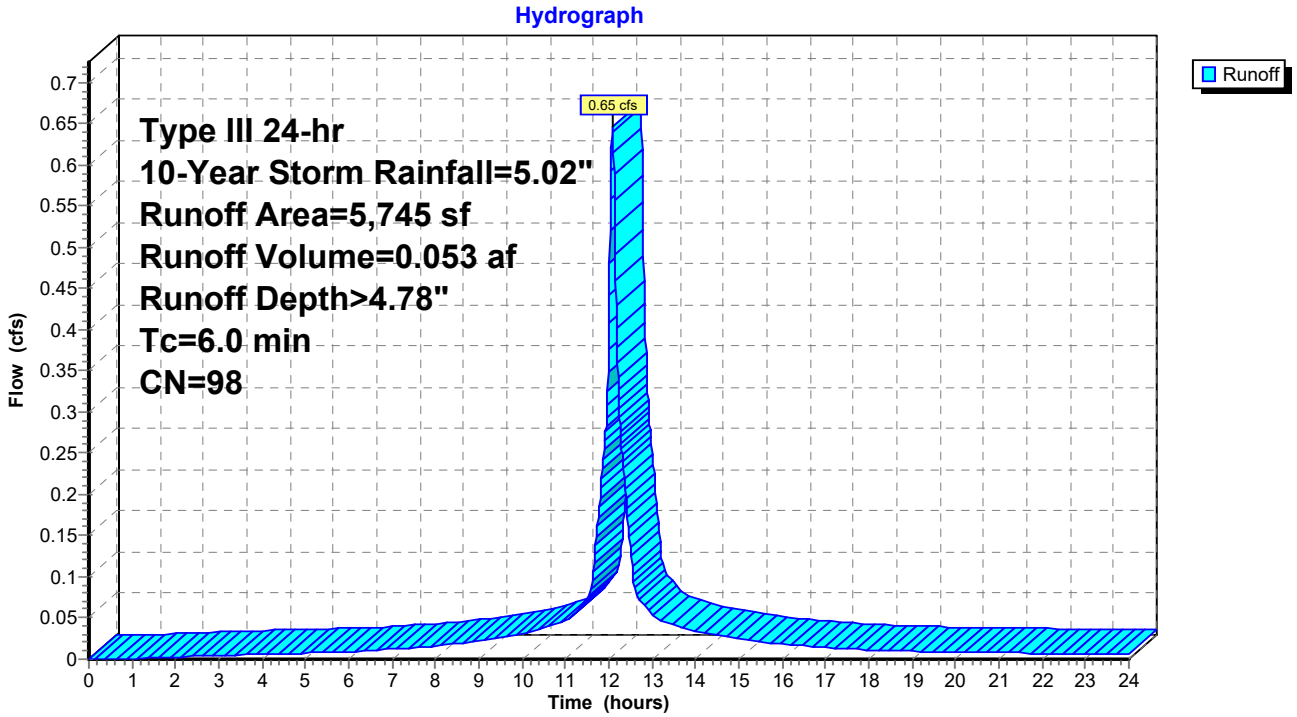
Runoff = 0.65 cfs @ 12.08 hrs, Volume= 0.053 af, Depth> 4.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
*	5,745	98	Impervious
	5,745		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sd: Fore St Wrap Roof



Summary for Subcatchment 2Sa: Treated Plaza

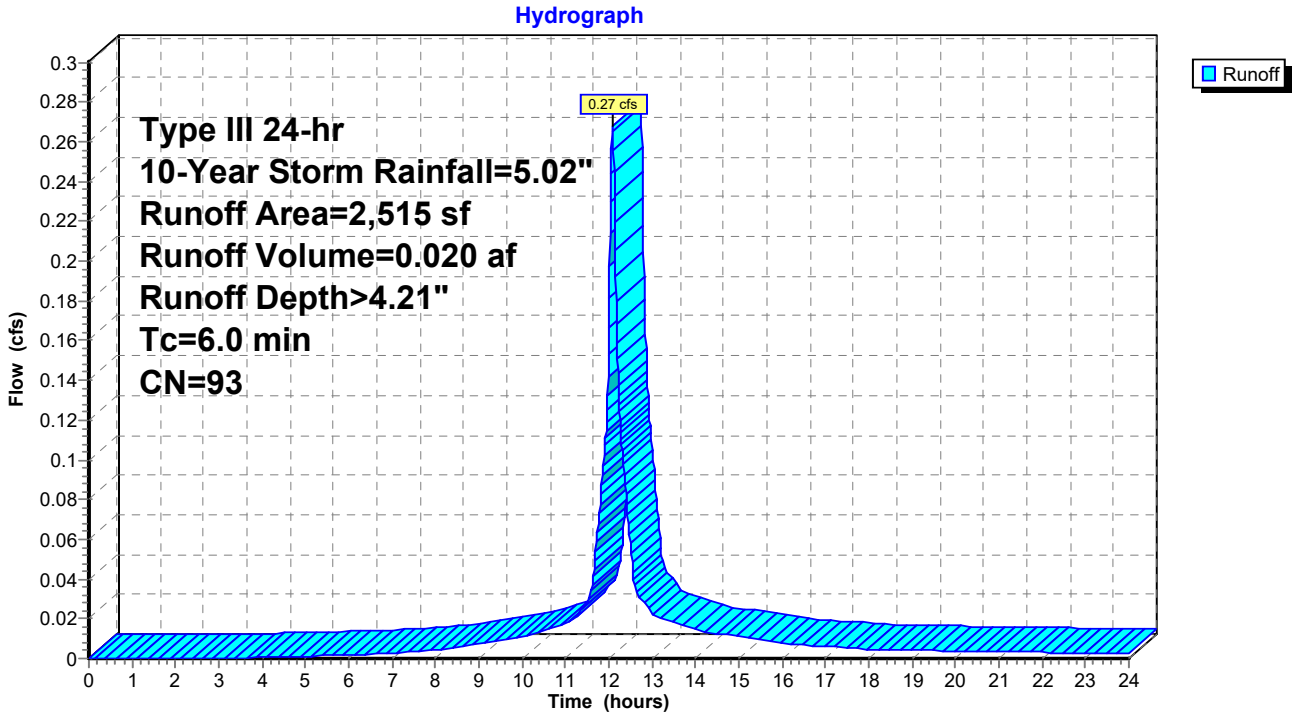
Runoff = 0.27 cfs @ 12.08 hrs, Volume= 0.020 af, Depth> 4.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
	233	49	50-75% Grass cover, Fair, HSG A
*	2,282	98	Impervious
	2,515	93	Weighted Average
	233		9.26% Pervious Area
	2,282		90.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2Sa: Treated Plaza



Summary for Subcatchment 2Sb: Untreated Plaza

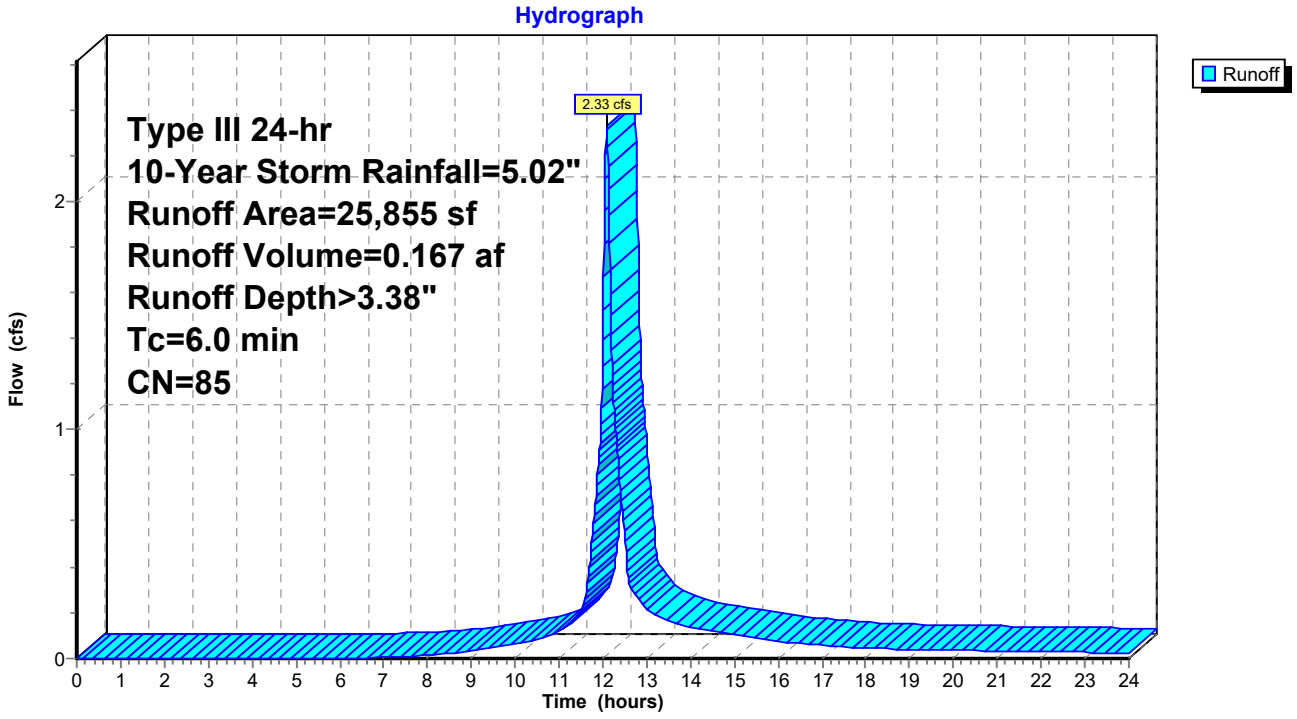
Runoff = 2.33 cfs @ 12.09 hrs, Volume= 0.167 af, Depth> 3.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
	6,787	49	50-75% Grass cover, Fair, HSG A
*	19,068	98	Impervious
	25,855	85	Weighted Average
	6,787		26.25% Pervious Area
	19,068		73.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2Sb: Untreated Plaza



Summary for Subcatchment 3S: Pedestrian Alley

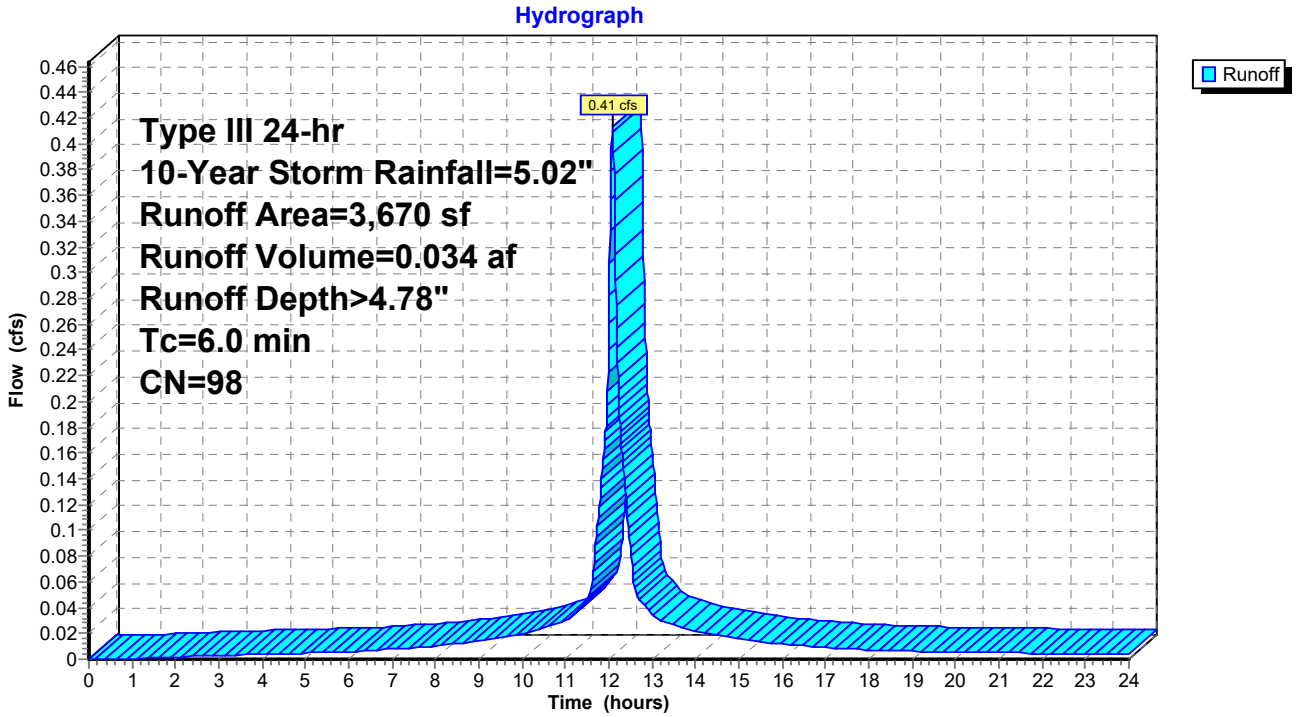
Runoff = 0.41 cfs @ 12.08 hrs, Volume= 0.034 af, Depth> 4.78"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Storm Rainfall=5.02"

	Area (sf)	CN	Description
*	3,670	98	Impervious
	3,670		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Pedestrian Alley



Summary for Pond 1P: R-Tank 1

Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 4.75" for 10-Year Storm event
Inflow = 5.72 cfs @ 12.08 hrs, Volume= 0.462 af
Outflow = 3.87 cfs @ 12.17 hrs, Volume= 0.459 af, Atten= 32%, Lag= 5.0 min
Primary = 3.87 cfs @ 12.17 hrs, Volume= 0.459 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 37.65' @ 12.17 hrs Surf.Area= 614 sf Storage= 1,843 cf
Flood Elev= 39.33' Surf.Area= 614 sf Storage= 2,613 cf

Plug-Flow detention time= 13.8 min calculated for 0.459 af (99% of inflow)
Center-of-Mass det. time= 9.4 min (758.1 - 748.7)

Volume	Invert	Avail.Storage	Storage Description
#1	33.50'	818 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,194 cf Overall - 2,148 cf Embedded = 2,045 cf x 40.0% Voids
#2	33.75'	2,041 cf	**R-Tank Quad Modules (Prismatic)** Listed below (Recalc) Inside #1 2,148 cf Overall x 95.0% Voids
		2,859 cf	Total Available Storage

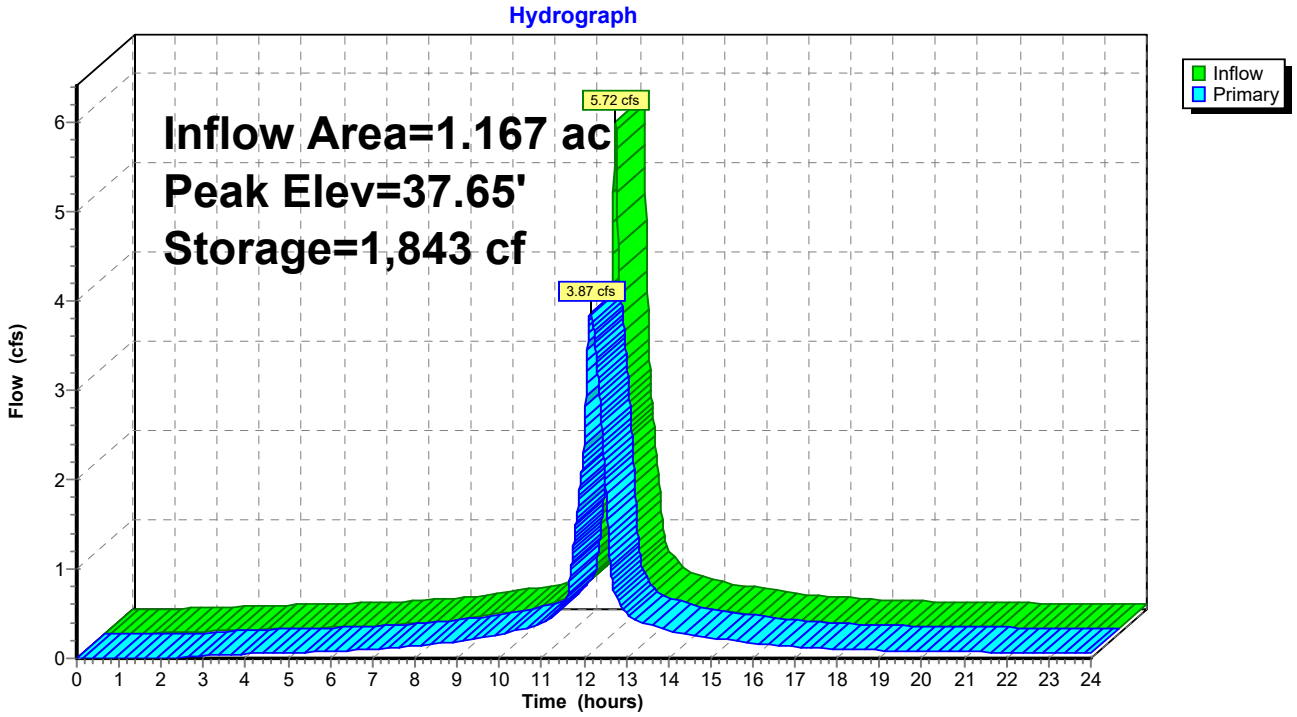
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.50	614	0	0
40.33	614	4,194	4,194

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.75	385	0	0
39.33	385	2,148	2,148

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	**10.0" Round Culvert** L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.75' / 33.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Primary	38.08'	**15.0" Round Culvert** L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.08' / 38.08' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.87 cfs @ 12.17 hrs HW=37.64' (Free Discharge)
↑—**1=Culvert** (Inlet Controls 3.87 cfs @ 7.09 fps)
└—**2=Culvert** (Controls 0.00 cfs)

Pond 1P: R-Tank 1



Summary for Pond 2P: CB19

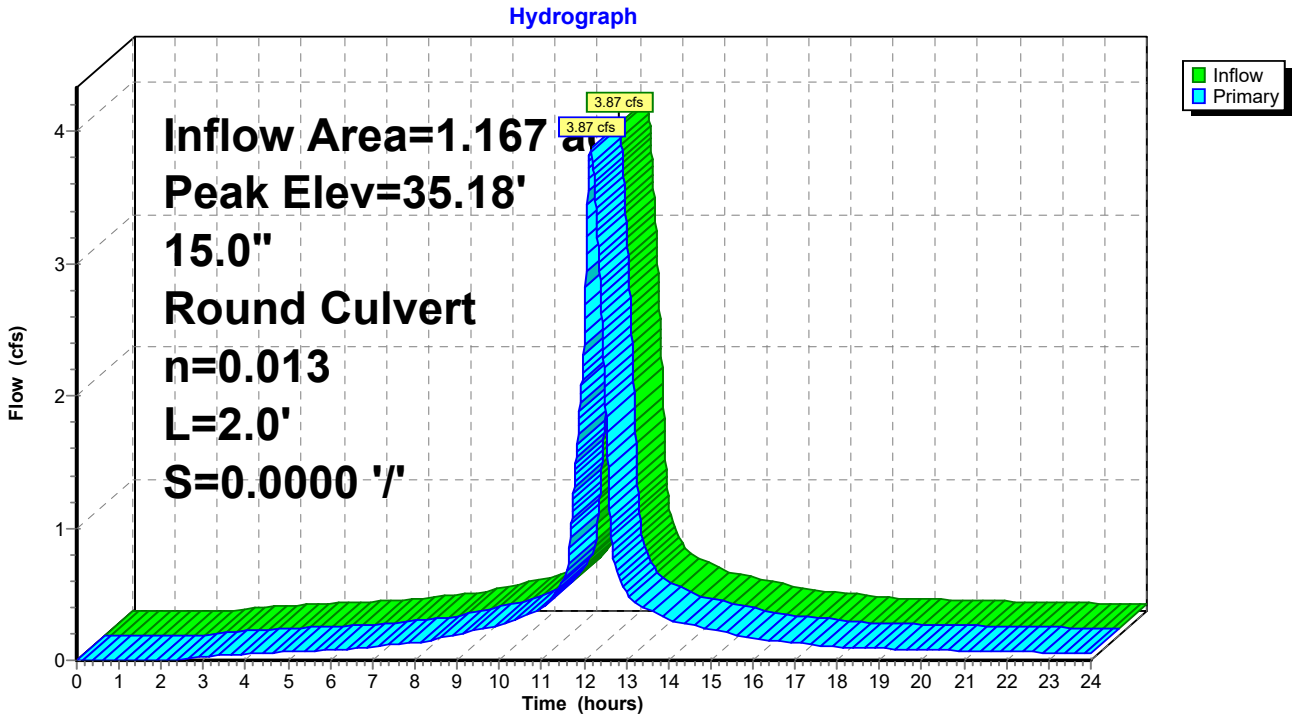
Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 4.72" for 10-Year Storm event
Inflow = 3.87 cfs @ 12.17 hrs, Volume= 0.459 af
Outflow = 3.87 cfs @ 12.17 hrs, Volume= 0.459 af, Atten= 0%, Lag= 0.0 min
Primary = 3.87 cfs @ 12.17 hrs, Volume= 0.459 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 35.18' @ 12.17 hrs
Flood Elev= 41.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	**15.0" Round Culvert** L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.75' / 33.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.87 cfs @ 12.17 hrs HW=35.18' (Free Discharge)
1=Culvert (Barrel Controls 3.87 cfs @ 3.45 fps)

Pond 2P: CB19



Summary for Pond 3P: R-Tank 2

Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 4.72" for 10-Year Storm event
Inflow = 3.87 cfs @ 12.17 hrs, Volume= 0.459 af
Outflow = 3.80 cfs @ 12.21 hrs, Volume= 0.456 af, Atten= 2%, Lag= 2.3 min
Primary = 3.80 cfs @ 12.21 hrs, Volume= 0.456 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 35.17' @ 12.21 hrs Surf.Area= 614 sf Storage= 712 cf
Flood Elev= 39.33' Surf.Area= 614 sf Storage= 2,613 cf

Plug-Flow detention time= 11.6 min calculated for 0.456 af (99% of inflow)
Center-of-Mass det. time= 7.4 min (765.4 - 758.1)

Volume	Invert	Avail.Storage	Storage Description
#1	33.50'	818 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,194 cf Overall - 2,148 cf Embedded = 2,045 cf x 40.0% Voids
#2	33.75'	2,041 cf	**R-Tank Quad Modules (Prismatic)** Listed below (Recalc) Inside #1 2,148 cf Overall x 95.0% Voids
		2,859 cf	Total Available Storage

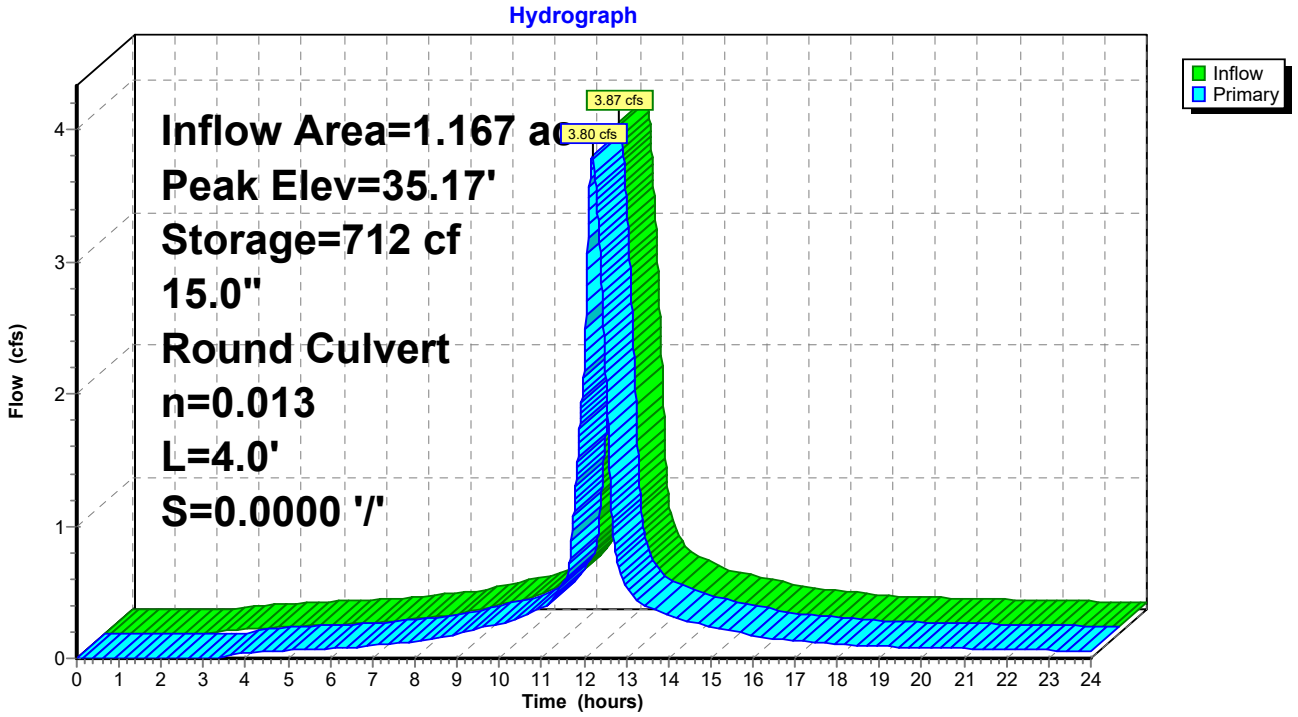
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.50	614	0	0
40.33	614	4,194	4,194

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.75	385	0	0
39.33	385	2,148	2,148

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	**15.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.75' / 33.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=3.80 cfs @ 12.21 hrs HW=35.17' (Free Discharge)
↑**1=Culvert** (Barrel Controls 3.80 cfs @ 3.41 fps)

Pond 3P: R-Tank 2



Summary for Pond 4P: StormFilter 1

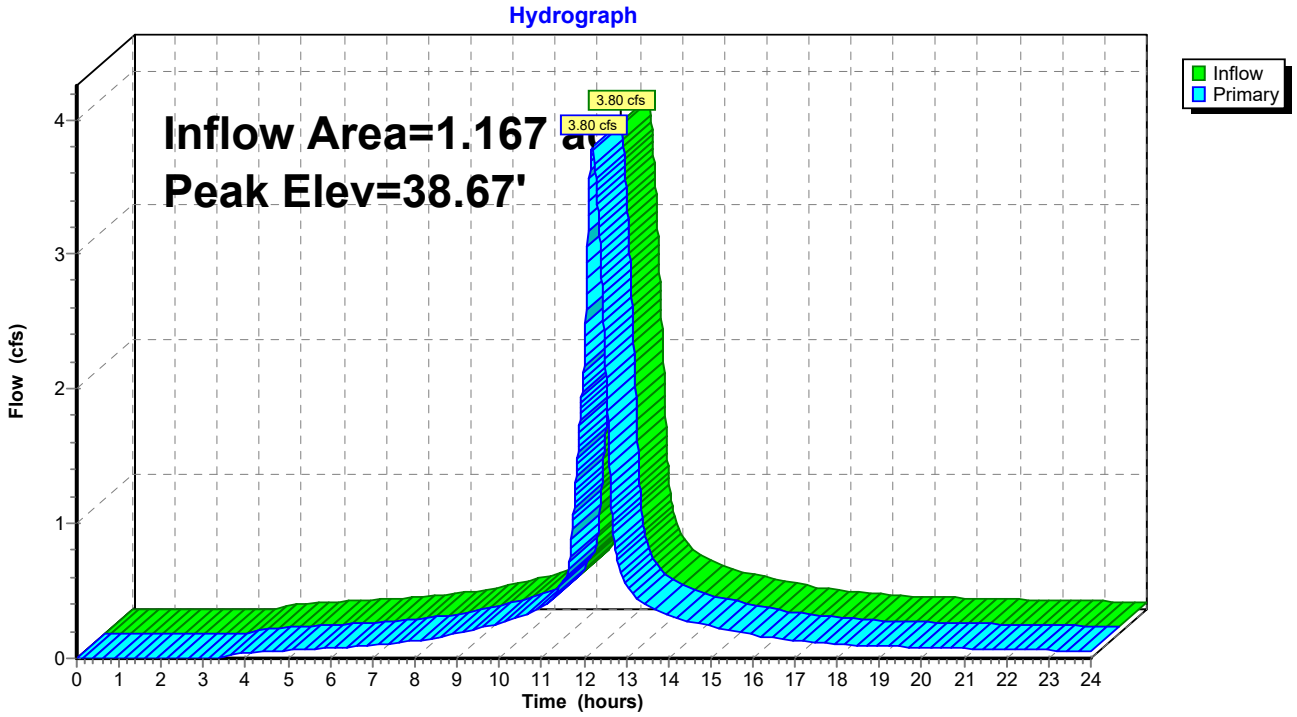
Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 4.69" for 10-Year Storm event
Inflow = 3.80 cfs @ 12.21 hrs, Volume= 0.456 af
Outflow = 3.80 cfs @ 12.21 hrs, Volume= 0.456 af, Atten= 0%, Lag= 0.0 min
Primary = 3.80 cfs @ 12.21 hrs, Volume= 0.456 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 38.67' @ 12.21 hrs
Flood Elev= 39.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.75'	**15.0" Round Filter Culvert Out** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.75' / 32.50' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	32.75'	**SF Filter-1 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.129 0.198 0.267 0.337 0.406 0.475 0.545 0.614 0.683 0.753 0.822 0.891
#3	Device 1	38.08'	**2.1' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=3.79 cfs @ 12.21 hrs HW=38.67' (Free Discharge)
└**1=Filter Culvert Out** (Passes 3.79 cfs of 10.73 cfs potential flow)
  ├**2=SF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 2.90 cfs @ 2.35 fps)

Pond 4P: StormFilter 1

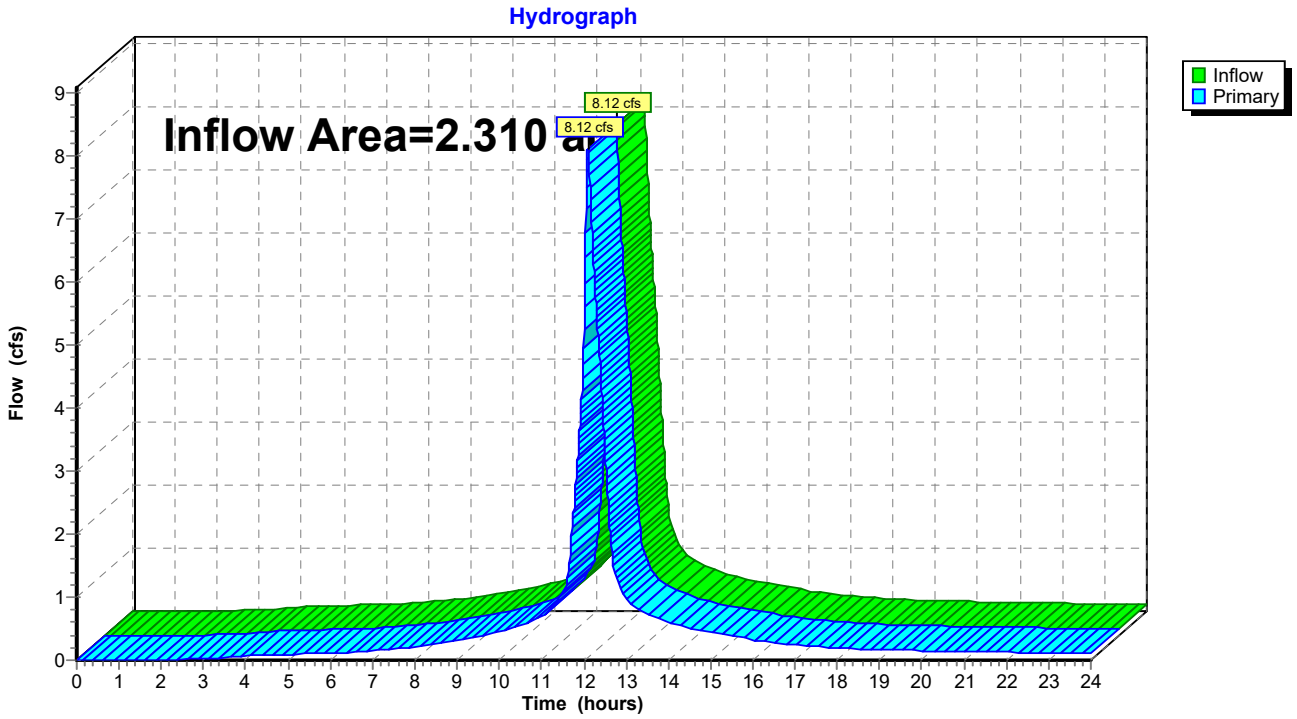


Summary for Link SP1: Study Point

Inflow Area = 2.310 ac, 93.02% Impervious, Inflow Depth > 4.38" for 10-Year Storm event
Inflow = 8.12 cfs @ 12.10 hrs, Volume= 0.842 af
Primary = 8.12 cfs @ 12.10 hrs, Volume= 0.842 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link SP1: Study Point



Time span=0.00-24.00 hrs, dt=0.01 hrs, 2401 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment1Sa: Untreated Office Runoff Area=18,158 sf 100.00% Impervious Runoff Depth>5.90"
Tc=6.0 min CN=98 Runoff=2.51 cfs 0.205 af

Subcatchment1Sb: Treated Office Tower Runoff Area=3,500 sf 100.00% Impervious Runoff Depth>5.90"
Tc=6.0 min CN=98 Runoff=0.48 cfs 0.039 af

Subcatchment1Sc: Parking Garage Roof Runoff Area=41,170 sf 100.00% Impervious Runoff Depth>5.90"
Tc=6.0 min CN=98 Runoff=5.69 cfs 0.464 af

Subcatchment1Sd: Fore St Wrap Roof Runoff Area=5,745 sf 100.00% Impervious Runoff Depth>5.90"
Tc=6.0 min CN=98 Runoff=0.79 cfs 0.065 af

Subcatchment2Sa: Treated Plaza Runoff Area=2,515 sf 90.74% Impervious Runoff Depth>5.32"
Tc=6.0 min CN=93 Runoff=0.33 cfs 0.026 af

Subcatchment2Sb: Untreated Plaza Runoff Area=25,855 sf 73.75% Impervious Runoff Depth>4.43"
Tc=6.0 min CN=85 Runoff=3.02 cfs 0.219 af

Subcatchment3S: Pedestrian Alley Runoff Area=3,670 sf 100.00% Impervious Runoff Depth>5.90"
Tc=6.0 min CN=98 Runoff=0.51 cfs 0.041 af

Pond 1P: R-Tank 1 Peak Elev=38.66' Storage=2,309 cf Inflow=7.01 cfs 0.571 af
Outflow=5.24 cfs 0.568 af

Pond 2P: CB19 Peak Elev=35.63' Inflow=5.24 cfs 0.568 af
15.0" Round Culvert n=0.013 L=2.0' S=0.0000 '/' Outflow=5.24 cfs 0.568 af

Pond 3P: R-Tank 2 Peak Elev=35.50' Storage=863 cf Inflow=5.24 cfs 0.568 af
15.0" Round Culvert n=0.013 L=4.0' S=0.0000 '/' Outflow=4.91 cfs 0.565 af

Pond 4P: StormFilter 1 Peak Elev=38.79' Inflow=4.91 cfs 0.565 af
Outflow=4.91 cfs 0.565 af

Link SP1: Study Point Inflow=9.89 cfs 1.053 af
Primary=9.89 cfs 1.053 af

Total Runoff Area = 2.310 ac Runoff Volume = 1.060 af Average Runoff Depth = 5.51"
6.98% Pervious = 0.161 ac 93.02% Impervious = 2.149 ac

Summary for Subcatchment 1Sa: Untreated Office Tower Roof

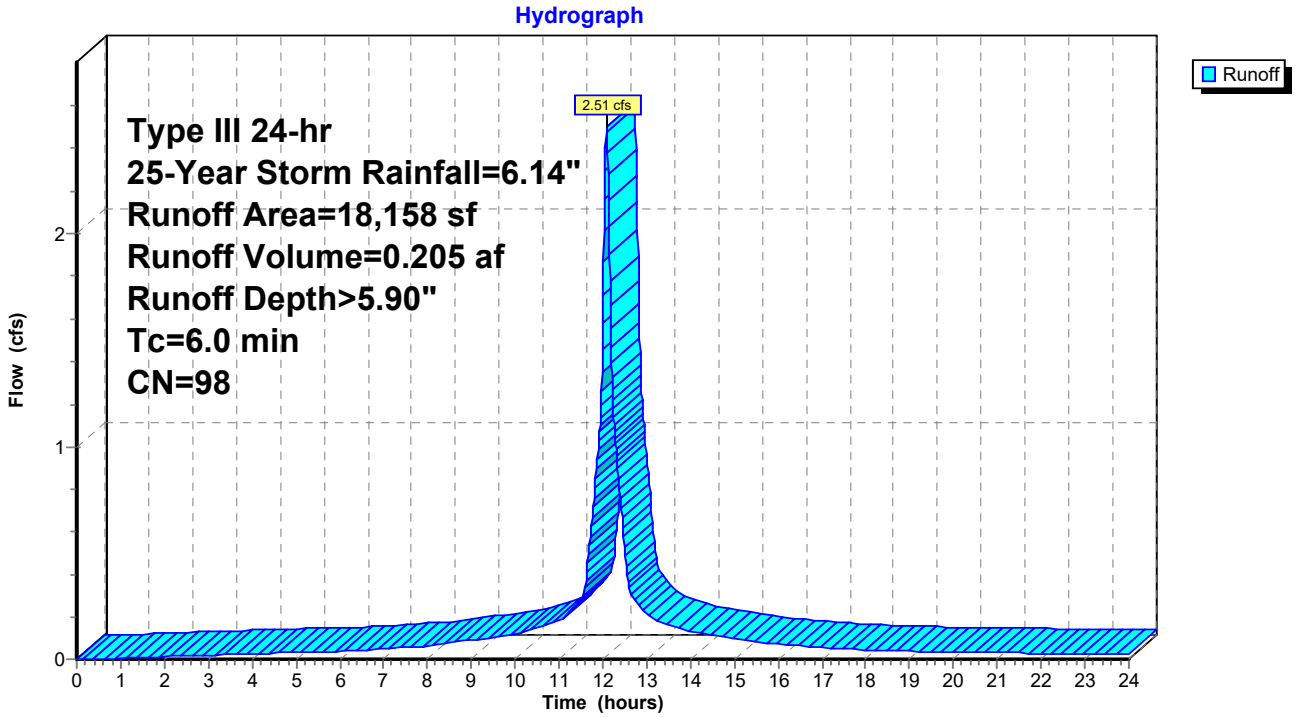
Runoff = 2.51 cfs @ 12.08 hrs, Volume= 0.205 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
*	18,158	98	Impervious
	18,158		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sa: Untreated Office Tower Roof



Summary for Subcatchment 1Sb: Treated Office Tower Roof

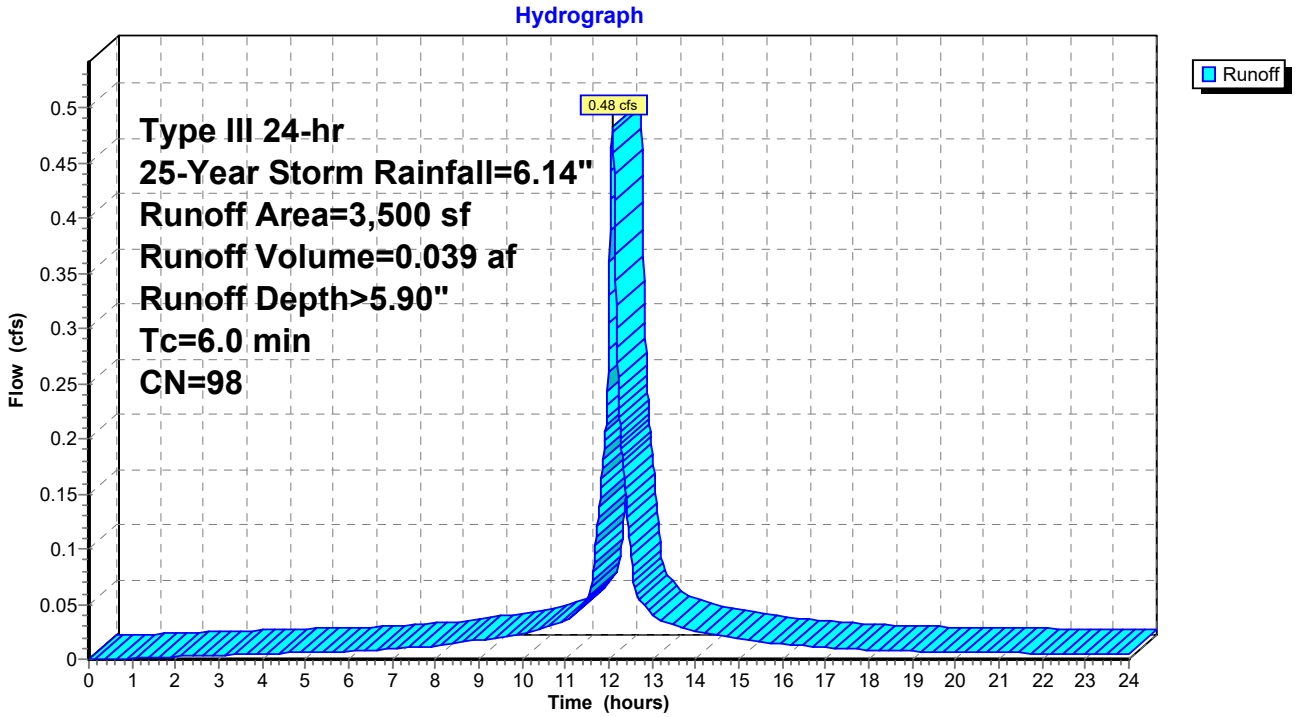
Runoff = 0.48 cfs @ 12.08 hrs, Volume= 0.039 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
*	3,500	98	Impervious
	3,500		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sb: Treated Office Tower Roof



Summary for Subcatchment 1Sc: Parking Garage Roof

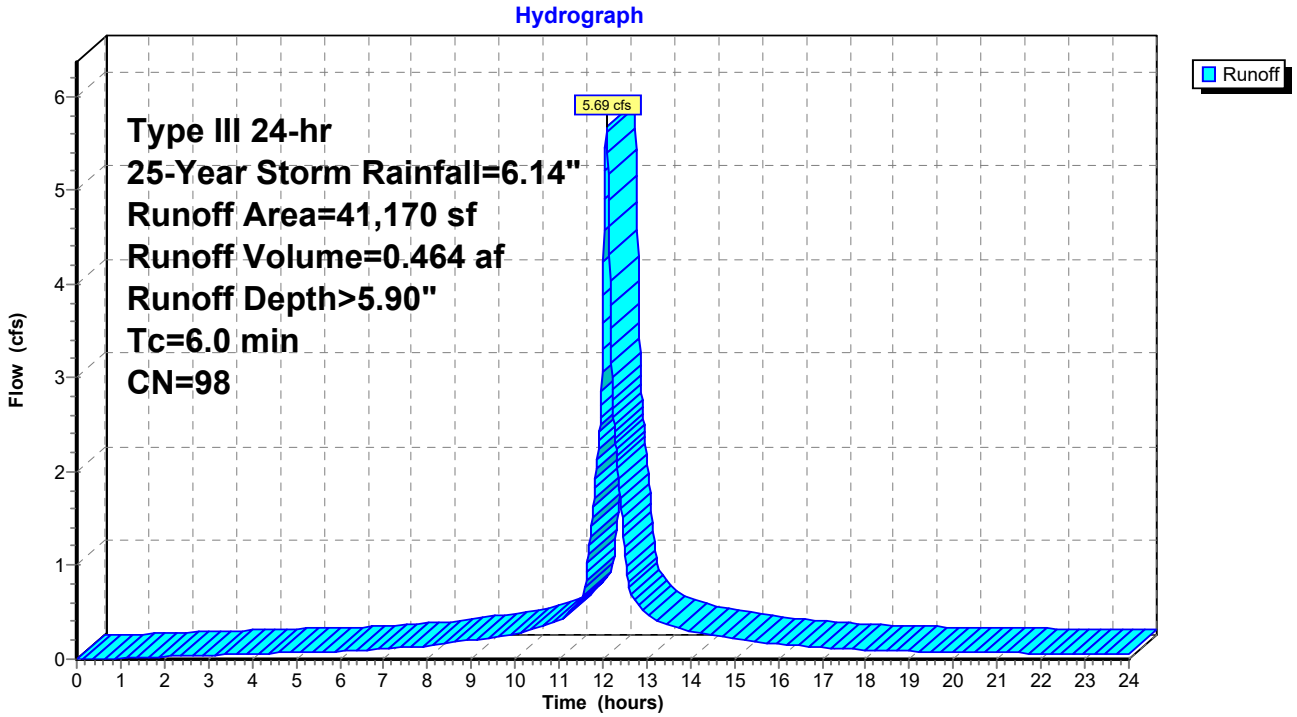
Runoff = 5.69 cfs @ 12.08 hrs, Volume= 0.464 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
*	41,170	98	Impervious
	41,170		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sc: Parking Garage Roof



Summary for Subcatchment 1Sd: Fore St Wrap Roof

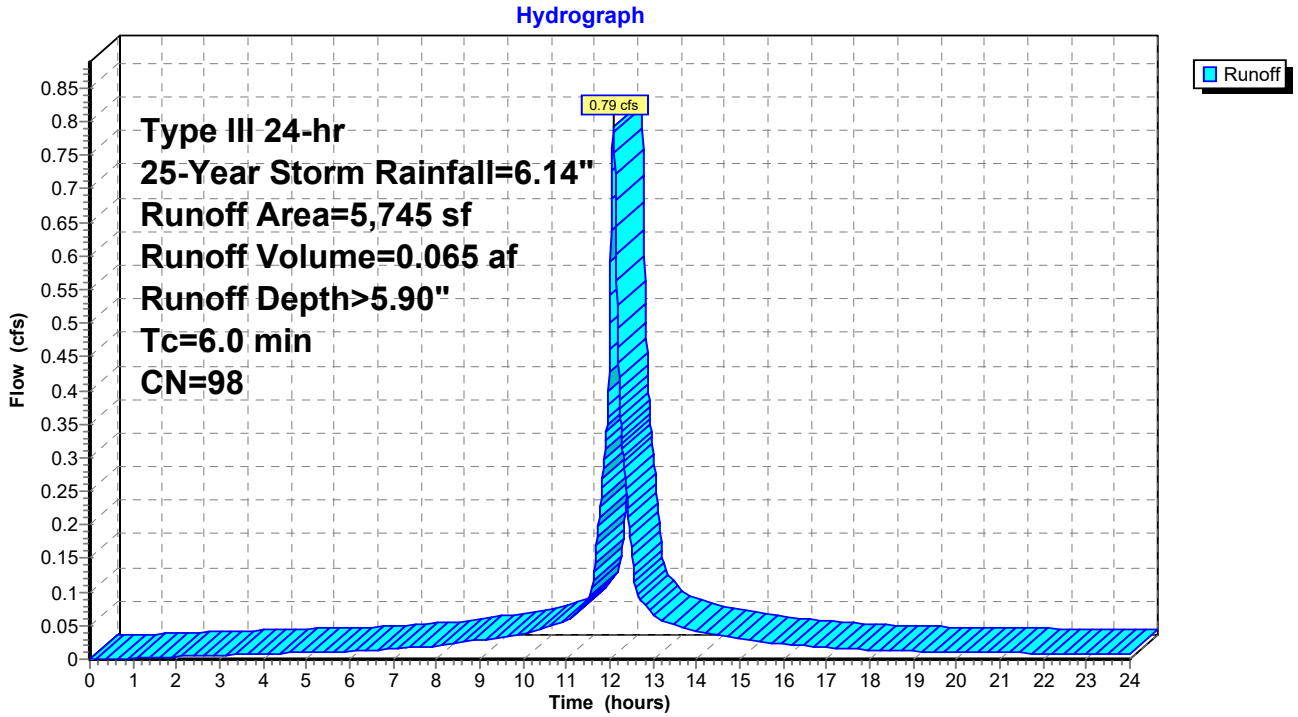
Runoff = 0.79 cfs @ 12.08 hrs, Volume= 0.065 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
*	5,745	98	Impervious
	5,745		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 1Sd: Fore St Wrap Roof



Summary for Subcatchment 2Sa: Treated Plaza

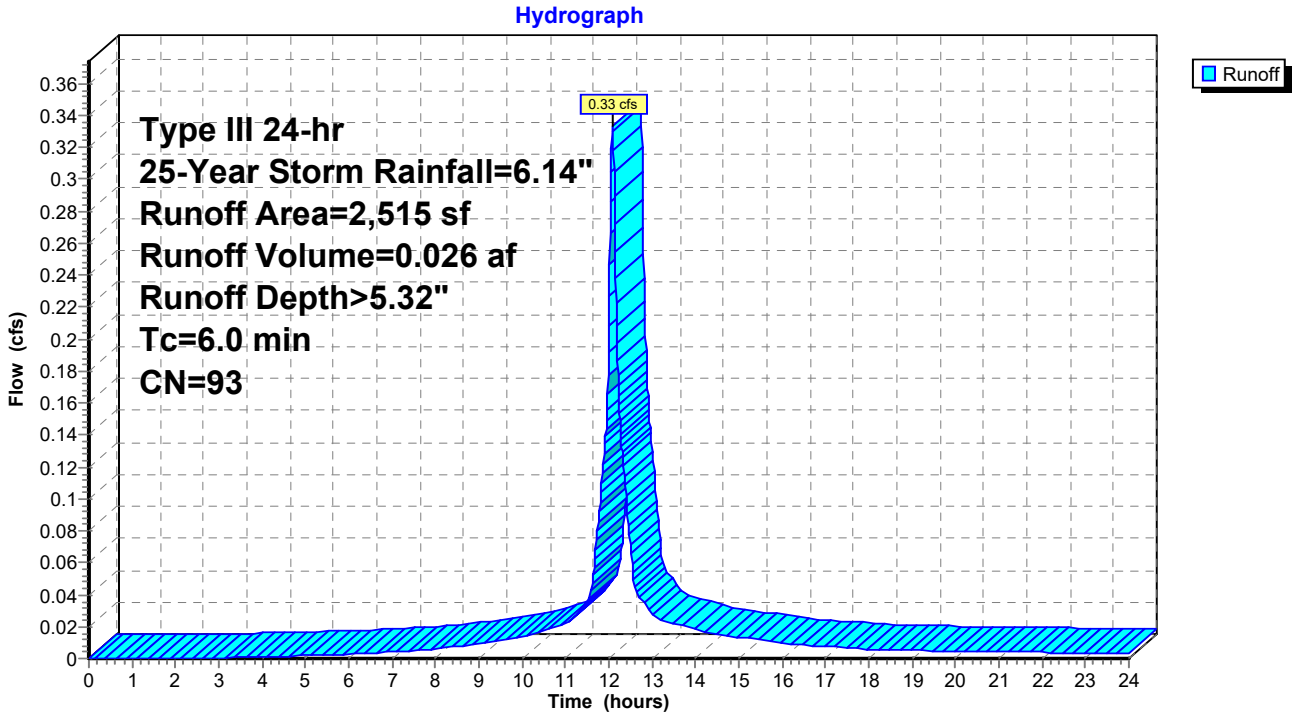
Runoff = 0.33 cfs @ 12.08 hrs, Volume= 0.026 af, Depth> 5.32"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
	233	49	50-75% Grass cover, Fair, HSG A
*	2,282	98	Impervious
	2,515	93	Weighted Average
	233		9.26% Pervious Area
	2,282		90.74% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2Sa: Treated Plaza



Summary for Subcatchment 2Sb: Untreated Plaza

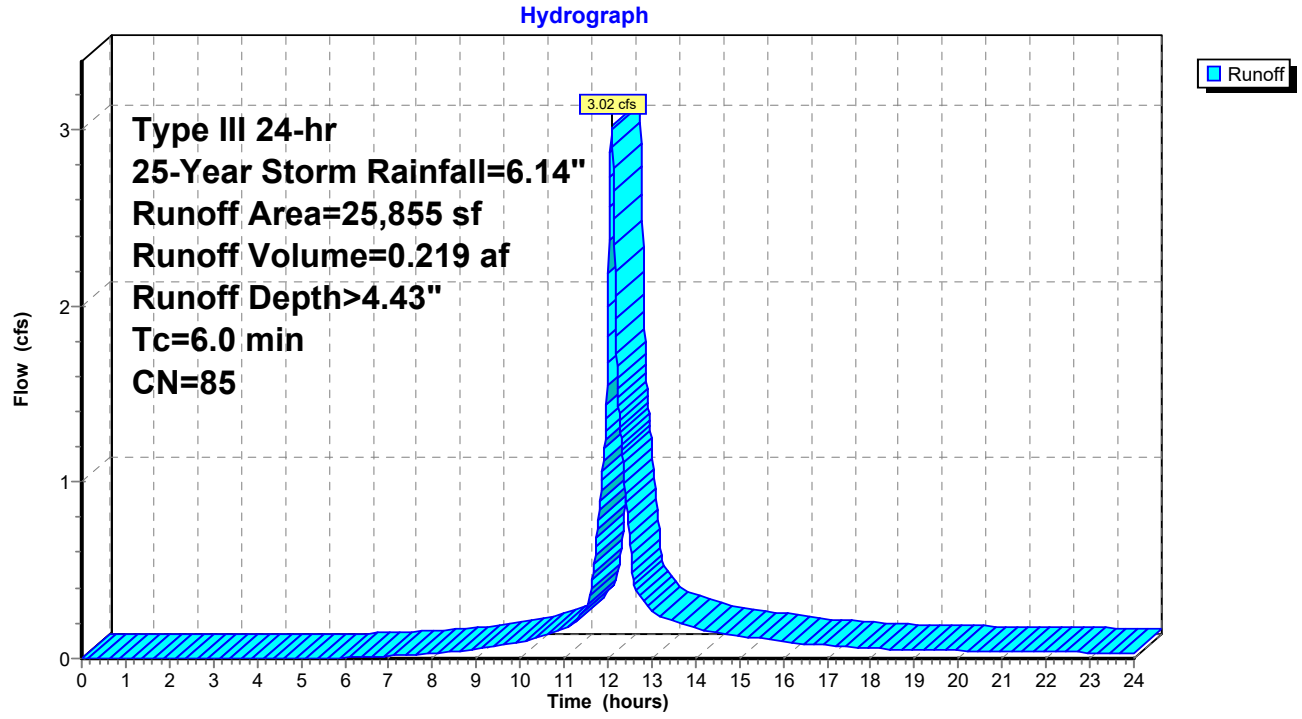
Runoff = 3.02 cfs @ 12.09 hrs, Volume= 0.219 af, Depth> 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
	6,787	49	50-75% Grass cover, Fair, HSG A
*	19,068	98	Impervious
	25,855	85	Weighted Average
	6,787		26.25% Pervious Area
	19,068		73.75% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2Sb: Untreated Plaza



Summary for Subcatchment 3S: Pedestrian Alley

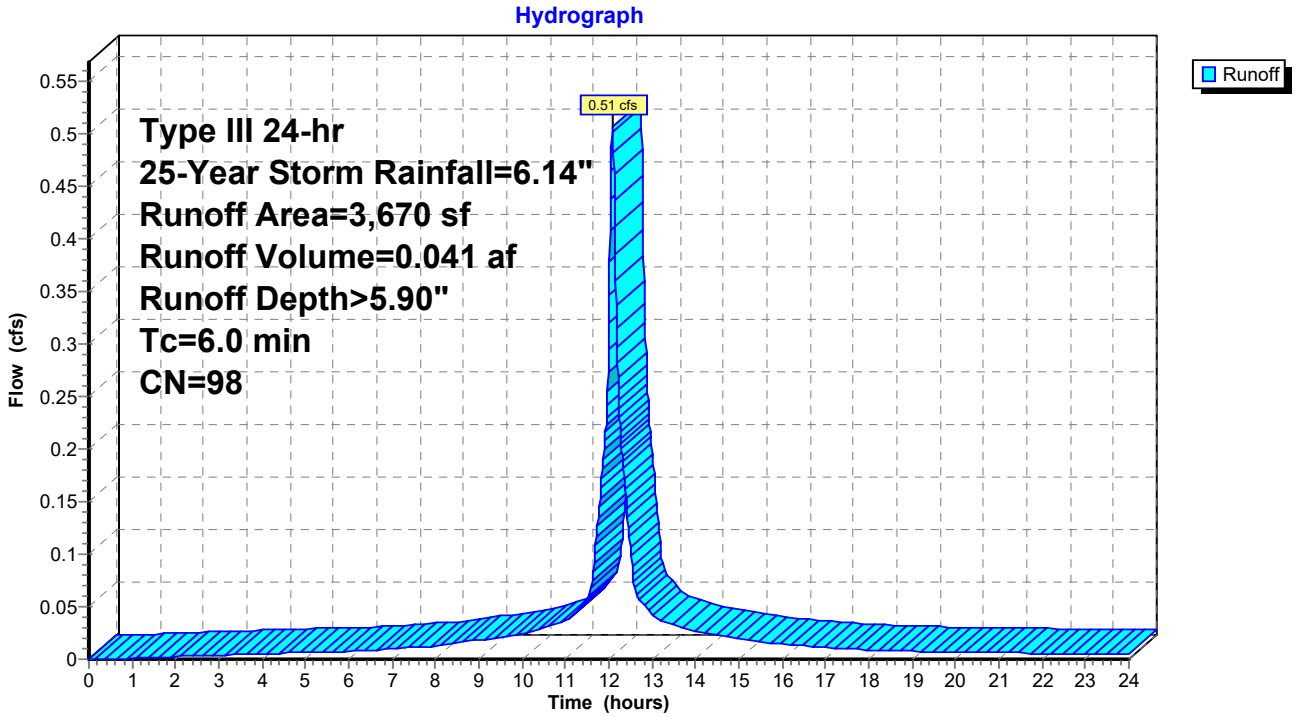
Runoff = 0.51 cfs @ 12.08 hrs, Volume= 0.041 af, Depth> 5.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Storm Rainfall=6.14"

	Area (sf)	CN	Description
*	3,670	98	Impervious
	3,670		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S: Pedestrian Alley



Summary for Pond 1P: R-Tank 1

Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 5.87" for 25-Year Storm event
Inflow = 7.01 cfs @ 12.08 hrs, Volume= 0.571 af
Outflow = 5.24 cfs @ 12.15 hrs, Volume= 0.568 af, Atten= 25%, Lag= 4.2 min
Primary = 5.24 cfs @ 12.15 hrs, Volume= 0.568 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 38.66' @ 12.15 hrs Surf.Area= 614 sf Storage= 2,309 cf
Flood Elev= 39.33' Surf.Area= 614 sf Storage= 2,613 cf

Plug-Flow detention time= 12.7 min calculated for 0.567 af (99% of inflow)
Center-of-Mass det. time= 8.8 min (754.3 - 745.5)

Volume	Invert	Avail.Storage	Storage Description
#1	33.50'	818 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,194 cf Overall - 2,148 cf Embedded = 2,045 cf x 40.0% Voids
#2	33.75'	2,041 cf	**R-Tank Quad Modules (Prismatic)** Listed below (Recalc) Inside #1 2,148 cf Overall x 95.0% Voids
		2,859 cf	Total Available Storage

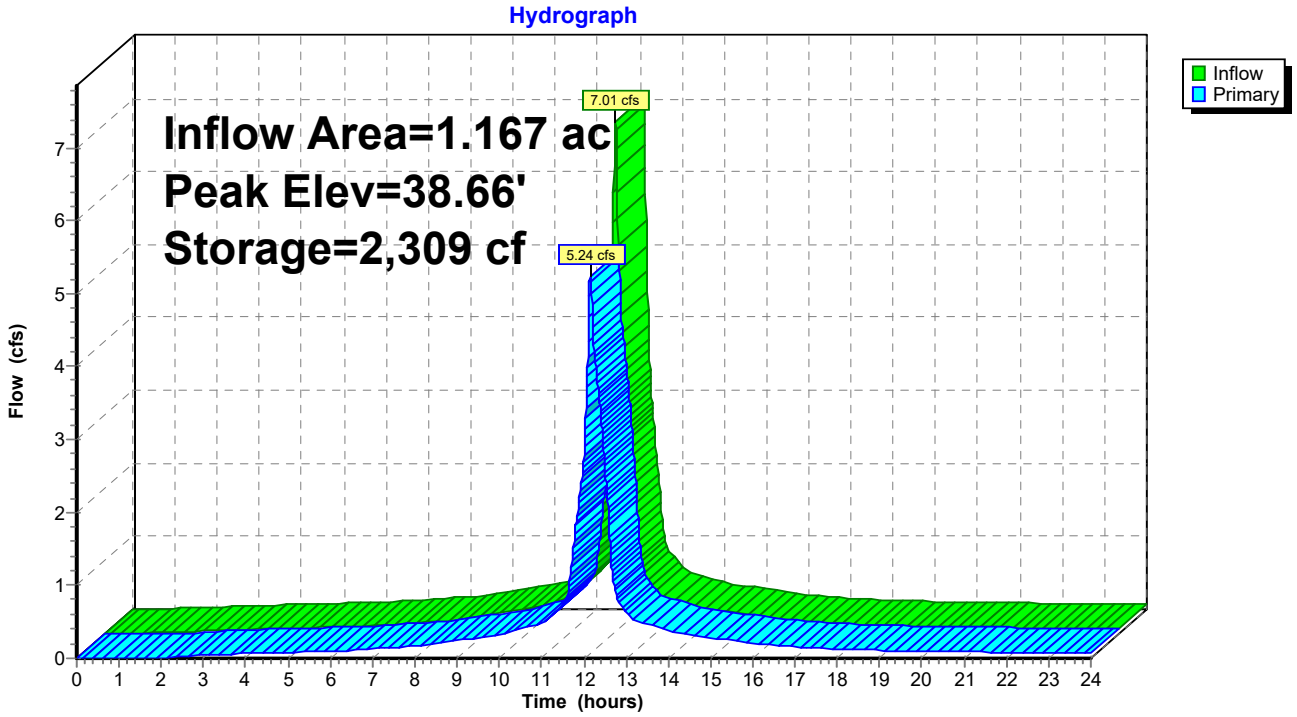
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.50	614	0	0
40.33	614	4,194	4,194

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.75	385	0	0
39.33	385	2,148	2,148

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	**10.0" Round Culvert** L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.75' / 33.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.55 sf
#2	Primary	38.08'	**15.0" Round Culvert** L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 38.08' / 38.08' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.22 cfs @ 12.15 hrs HW=38.66' (Free Discharge)
└**1=Culvert** (Inlet Controls 4.40 cfs @ 8.06 fps)
└**2=Culvert** (Barrel Controls 0.83 cfs @ 2.18 fps)

Pond 1P: R-Tank 1



Summary for Pond 2P: CB19

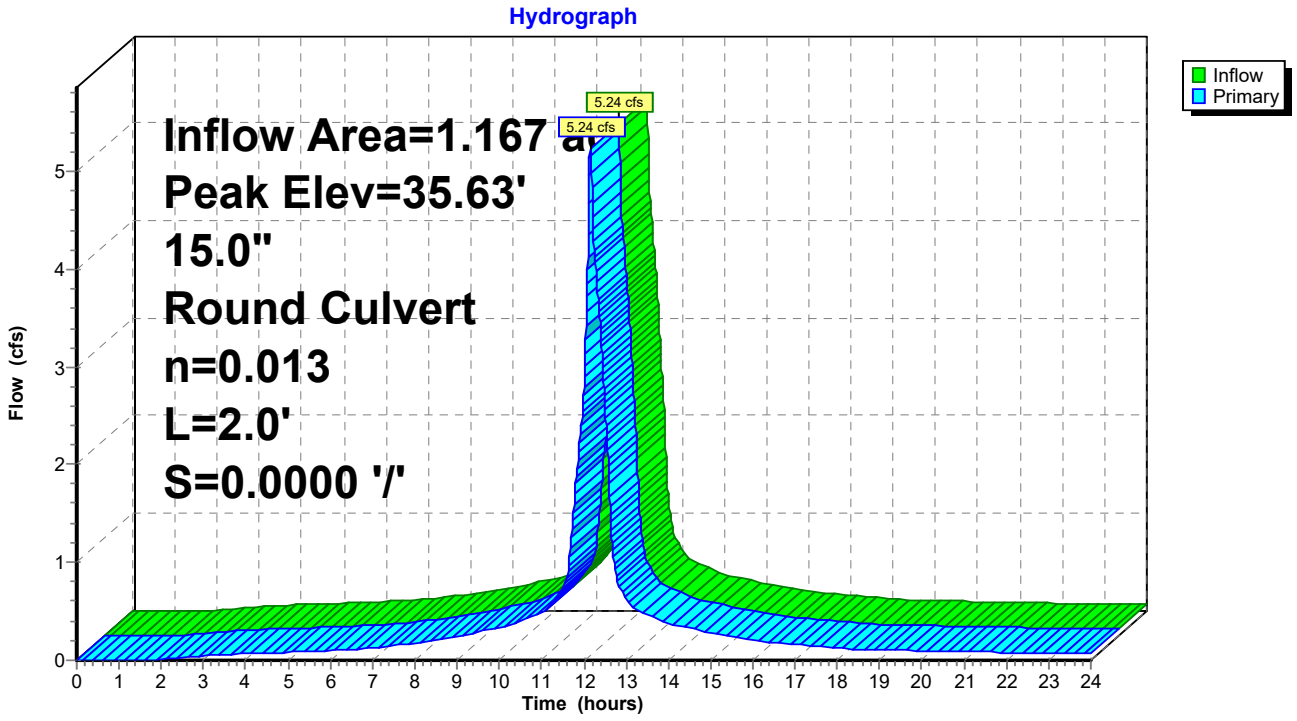
Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 5.84" for 25-Year Storm event
Inflow = 5.24 cfs @ 12.15 hrs, Volume= 0.568 af
Outflow = 5.24 cfs @ 12.15 hrs, Volume= 0.568 af, Atten= 0%, Lag= 0.0 min
Primary = 5.24 cfs @ 12.15 hrs, Volume= 0.568 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 35.63' @ 12.15 hrs
Flood Elev= 41.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	**15.0" Round Culvert** L= 2.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.75' / 33.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=5.23 cfs @ 12.15 hrs HW=35.63' (Free Discharge)
1=Culvert (Inlet Controls 5.23 cfs @ 4.26 fps)

Pond 2P: CB19



Summary for Pond 3P: R-Tank 2

Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 5.84" for 25-Year Storm event
Inflow = 5.24 cfs @ 12.15 hrs, Volume= 0.568 af
Outflow = 4.91 cfs @ 12.19 hrs, Volume= 0.565 af, Atten= 6%, Lag= 2.0 min
Primary = 4.91 cfs @ 12.19 hrs, Volume= 0.565 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 35.50' @ 12.19 hrs Surf.Area= 614 sf Storage= 863 cf
Flood Elev= 39.33' Surf.Area= 614 sf Storage= 2,613 cf

Plug-Flow detention time= 10.3 min calculated for 0.564 af (99% of inflow)
Center-of-Mass det. time= 6.6 min (760.9 - 754.3)

Volume	Invert	Avail.Storage	Storage Description
#1	33.50'	818 cf	**Stone Envelope (Prismatic)** Listed below (Recalc) 4,194 cf Overall - 2,148 cf Embedded = 2,045 cf x 40.0% Voids
#2	33.75'	2,041 cf	**R-Tank Quad Modules (Prismatic)** Listed below (Recalc) Inside #1 2,148 cf Overall x 95.0% Voids
		2,859 cf	Total Available Storage

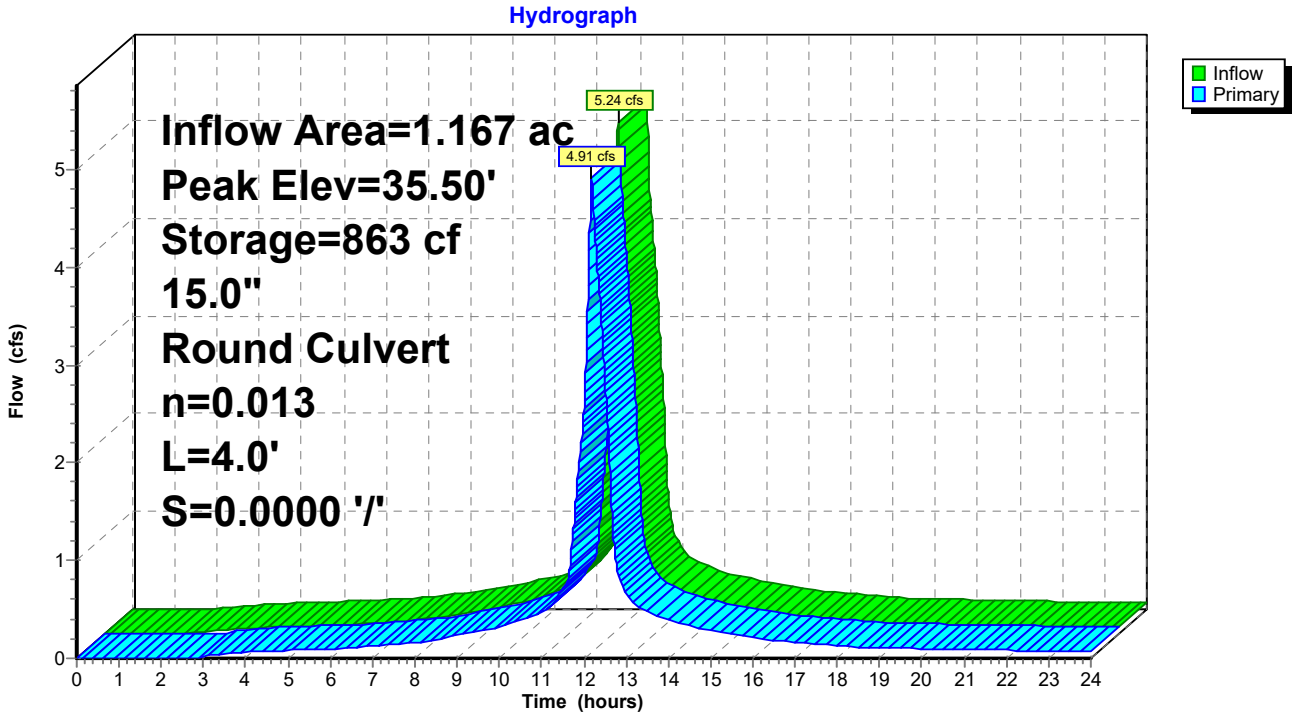
Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.50	614	0	0
40.33	614	4,194	4,194

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
33.75	385	0	0
39.33	385	2,148	2,148

Device	Routing	Invert	Outlet Devices
#1	Primary	33.75'	**15.0" Round Culvert** L= 4.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 33.75' / 33.75' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf

Primary OutFlow Max=4.94 cfs @ 12.19 hrs HW=35.50' (Free Discharge)
↑—**1=Culvert** (Barrel Controls 4.94 cfs @ 4.02 fps)

Pond 3P: R-Tank 2



Summary for Pond 4P: StormFilter 1

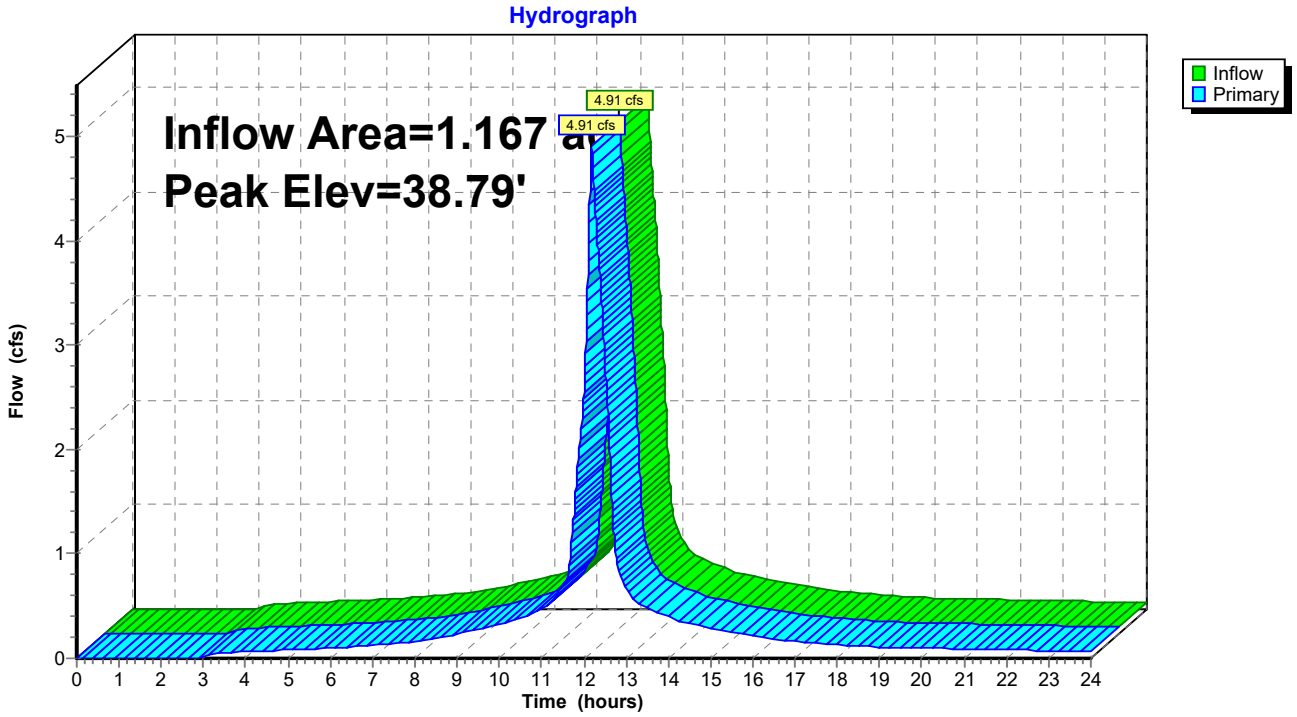
Inflow Area = 1.167 ac, 99.54% Impervious, Inflow Depth > 5.80" for 25-Year Storm event
Inflow = 4.91 cfs @ 12.19 hrs, Volume= 0.565 af
Outflow = 4.91 cfs @ 12.19 hrs, Volume= 0.565 af, Atten= 0%, Lag= 0.0 min
Primary = 4.91 cfs @ 12.19 hrs, Volume= 0.565 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Peak Elev= 38.79' @ 12.19 hrs
Flood Elev= 39.00'

Device	Routing	Invert	Outlet Devices
#1	Primary	32.75'	**15.0" Round Filter Culvert Out** L= 10.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 32.75' / 32.50' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 1.23 sf
#2	Device 1	32.75'	**SF Filter-1 CSV File** Head (feet) 0.00 0.08 0.17 0.25 0.33 0.42 0.50 0.58 0.67 0.75 0.83 0.92 1.00 1.08 1.17 1.25 1.33 1.42 1.50 Disch. (cfs) 0.000 0.010 0.020 0.030 0.040 0.050 0.059 0.129 0.198 0.267 0.337 0.406 0.475 0.545 0.614 0.683 0.753 0.822 0.891
#3	Device 1	38.08'	**2.1' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=4.90 cfs @ 12.19 hrs HW=38.79' (Free Discharge)
└**1=Filter Culvert Out** (Passes 4.90 cfs of 10.85 cfs potential flow)
  ├**2=SF Filter-1 CSV File** (Custom Controls 0.89 cfs)
  └**3=Broad-Crested Rectangular Weir** (Weir Controls 4.01 cfs @ 2.69 fps)

Pond 4P: StormFilter 1

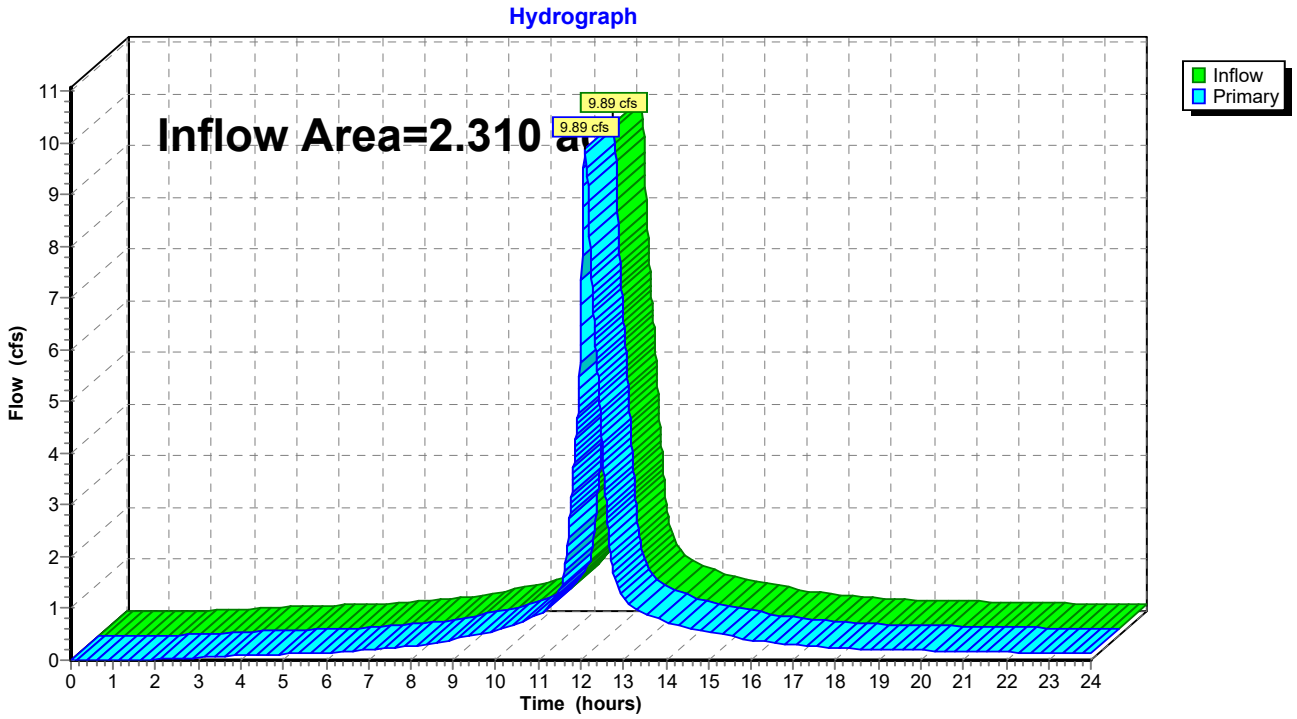


Summary for Link SP1: Study Point

Inflow Area = 2.310 ac, 93.02% Impervious, Inflow Depth > 5.47" for 25-Year Storm event
Inflow = 9.89 cfs @ 12.10 hrs, Volume= 1.053 af
Primary = 9.89 cfs @ 12.10 hrs, Volume= 1.053 af, Atten= 0%, Lag= 0.0 min

Primary outflow = Inflow, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Link SP1: Study Point



JANET T. MILLS
GOVERNOR

STATE OF MAINE
DEPARTMENT OF
INLAND FISHERIES & WILDLIFE
284 STATE STREET
41 STATE HOUSE STATION
AUGUSTA ME 04333-0041

JUDITH CAMUSO
COMMISSIONER

January 28, 2020

Lauren Swett
Woodard & Curran
41 Hutchins Drive
Portland, ME 04102

RE: Information Request –Redevelop Spring Cotton and Fore Street Project, Portland

Dear Lauren:

Per your request received on January 03, 2020, we have reviewed current Maine Department of Inland Fisheries and Wildlife (MDIFW) information for known locations of Endangered, Threatened, and Special Concern species; designated Essential and Significant Wildlife Habitats; and inland fisheries habitat concerns within the vicinity of the *Redevelop Spring Cotton and Fore Street* project in Portland.

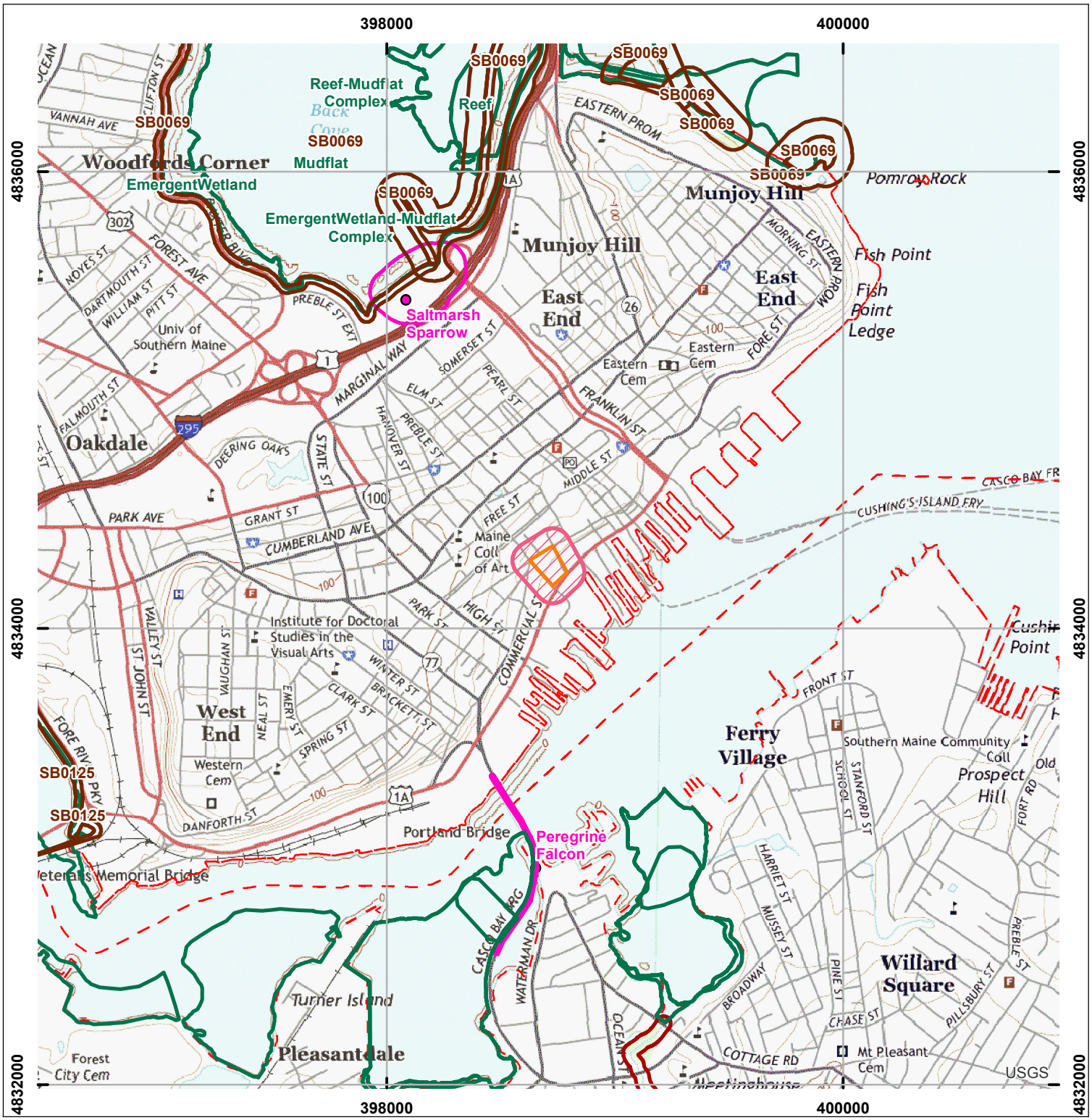
Our information indicates no locations of Endangered, Threatened, or Special Concern species within the project area that would be affected by your project. Additionally, our Department has not mapped any Essential or Significant Wildlife Habitats or inland fisheries habitats that would be directly affected by your project.

This consultation review has been conducted specifically for known MDIFW jurisdictional features and should not be interpreted as a comprehensive review for the presence of other regulated features that may occur in this area. Prior to the start of any future site disturbance we recommend additional consultation with the municipality, and other state resource agencies including the Maine Natural Areas Program, Maine Department of Marine Resources, and Maine Department of Environmental Protection in order to avoid unintended protected resource disturbance.

Please feel free to contact my office if you have any questions regarding this information, or if I can be of any further assistance.

Best regards,

Becca Settele
Wildlife Biologist



Environmental Review of Fish and Wildlife Observations and Priority Habitats

Project Name: Portland, Redevelop Spring Cotton and Fore Street (Version 1)

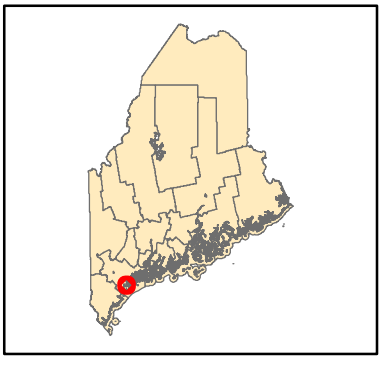
Maine Department of Inland Fisheries and Wildlife

0 0.125 0.25 0.5 0.75 1 Miles

Projection: UTM, NAD83, Zone 19N

Date: 1/8/2020

- ProjectPoints
- ProjectLines
- ProjectPolys
- ProjectSearchAreas
- Maine Cliff and Talus Areas
- Deer Winter Area
- LUPC p-fw
- Cooperative DWAs
- Seabird Nesting Islands
- Shorebird Areas
- Inland Waterfowl and Wading Bird
- 2008 Iwwh - Shoreland Zoning
- Tidal Waterfowl and Wading Bird
- Significant Vernal Pools
- Environmental Review Polygons
- Roseate Tern
- Piping Plover and Least Tern
- Aquatic ETSc - 2.5 mi review
- Rare Mussels - 5 mi review
- Maine Heritage Fish Waters
- Arctic Charr Habitat
- Redfin Pickerel and Swamp Darter Habitats - buffer100ft
- Special Concern occupied habitats - 100ft buffer
- Wild Lake Trout Habitats



CARROLL ASSOCIATES

Att. BB

February 7, 2020

Mr. Matthew Grooms
Senior Planner
City of Portland Planning Division
389 Congress Street, 4th Floor
Portland, ME 04101

RE: Three Portland Square, Level III Site Plan Application
Response to Staff Comments

Dear Matt,

We are in receipt of Review Staff Comments relating to the Portland Square Project and offer the following Responses:

Matt Grooms, Site Plan Review Comments dated 01/27/2020

Comment #1. *The applicant should provide information on where gates internal to the garage would be located, and assess how gate placement will impact vehicle queues and the potential for conflict between vehicles and pedestrians.*
Response: The parking garage gates are located at the entry/ exit of the two entrances typical of most garages in Portland. There is little vehicle queuing available between the travel lane and gate. G/P is assessing the amount of vehicle queuing available on Cotton and Cross Streets and will be submitting a memorandum addressing this under a separate cover.

Comment #2. *The project as shown meets all zoning dimensional requirements for the B-3 zone.*
Response. We agree.

Comment #3. *The project shall conform with the street and site lighting requirements of the City's Technical Manual. Reuse of existing cobrahead and town & country light fixtures is not permitted, and shall be replaced as necessary with either the downtown combo fixtures along Spring Street or Old Port Fixtures elsewhere within the development. Please see Sec. 10 of the City's Technical Manual for more information.*

Comment #4. *S8 light fixtures, proposed within the alley between the office building and parking garage, exceed the allowable lumen count. The lighting cut sheet provides a lesser lumen count, and so applicant should confirm that the amount listed in the memo is correct.*

Comment #5. *Roof mounted S9 light fixtures exceed permissible light trespass limits. If considering roof-top parking as a surface lot, then maximum foot candle limits are 4.0, with an average foot candle of 0.5.*
Response to Comments #2-5. See Response Letter and revised Site Lighting submittals from Bartlett Design.

Comment #6. *Site lighting exceeds allowable light trespass of 1.0 foot candles at the property line. Given the downtown location of this project and requirements of the B-3 zone related to building location, staff recommend that the applicant submit a formal waiver request to permit the current lighting scheme.*
Response. We will submit a Waiver Request for this Standard.

Comment #7. *City staff will coordinate with the applicant to plant additional street trees along Spring, Union and Fore Street along frontages for Portland Square One and Two.*
Response. We have been in contact with the City Arborist.. We have specific responses to his comments below.
Comment #8. *Regarding the on-street parking configuration along Spring Street, we are waiting for additional concrete guidance from City Management on a final recommendation. This will be forwarded as soon as it is received.*
Response. We understand the latest City position on the Spring Street design is to provide the parallel parking as proposed. We will continue to work through the details of that design with City Staff.

Jeff Tarling, Landscape Review Comments dated 01/21/2020

Comment #1. *Tree & Landscape topics for 3 Portland Square -First, the original Portland Square tree and landscape elements have been very successful. The groves of mature trees planted at large specimen sizes have created an important established feel to the site. Going forward, it is important to use these features, hopefully saving and protecting the mature trees, as a model for the future phases.*
Response: we agree and intend to preserve and protect much of what currently exists in the 1 Portland Square garden. Proposed improvements in this area will consist of protection of large mature trees, removal/ replacement of overgrown shrubs along the edges of the garden, allowing the garden to be fully integrated with the new proposed development.

Comment #2. *Street trees - we would like to suggest that the city street trees along the original Portland Square buildings and the proposed street trees have a fair chance of survival. No question that limited root zone, compaction and exposure to deicing salts have resulted in about a total loss of most of the street trees. The Ginkgo trees along Fore Street are struggling and likely to be removed later this year. We would recommend revisiting the best methods to grow and maintain Street trees in the current site plan review. The use of raised tree planters, structural soil or better yet, 'Silva Cels' to ensure that the new trees will survive longer. As shown, the Spring Street street tree element is perhaps the highest priority given the boulevard effect of the street and the existing canopy, shade trees. We would recommend large tree planters and the use of Sila Cels to create the needed soil volume to grow canopy trees. Regular raised granite tree planters could be the standard along Union and Fore Streets. Cotton Street is quite narrow and tree pits with tree grates likely the only option. We can work with the project team to revise the tree types if needed.*
Response: We are not proposing any sidewalk work along the Union and Fore Street frontages of One and Two Portland Square, and as such are not proposing to install raised planters or street trees in these locations. Along Spring and Fore Streets raised granite planters are proposed, the Spring Street planters are oversized to 5 ft x 25ft, which we believe should provide adequate soil volume for those trees. The Fore Street planters conform with the City Standard of 5 ft x 8 ft, and the tree grates along Cotton Street are proposed to be 4 ft x 6 ft due to the narrow sidewalk width.

We have researched the use of Silva-cells and believe they are cost prohibitive for this project, adding approximately $50-60,000 or more to the Site Development Cost. We believe they are appropriate in the right situation, but note they have not been installed on any City project that we are aware of in the past, primarily because of their high cost to the project..

Comment #3. *Cross Street Extension will play an even more important role for pedestrian circulation under the proposed master plan. We would like to see additional tree planting / landscape elements near the Four Portland Square edges.*
Response: We agree, and will be adding trees along the west side of Cross Street between Fore Street and the Garage pedestrian entrance.

Comment #4. *Overall the Portland Square Master Plan should improve street tree growing conditions along project edges. Future site plans should be consistent in treatment. Tree and landscapes should also recognize limitations to success - lack of adequate soil volume, deicing salts as major factors.*
Response. We agree with Jeff's objectives and believe the current Landscape Plan achieves those goals.

We continue to value the working relationship with City Staff and believe the level of communication has resulted in a better project for everyone. We look forward to our meeting on February12 and subsequent review with the Planning Board.

With Regards,
CARROLL ASSOCIATES



Patrick J. Carroll, Principal

CC: Peter Pachios, Adam Meyers, Dan Jacques, NR IV
Jim Brady, FC
Stephen Weatherhead, WSA
Barry Sheff, W&C

CARROLL ASSOCIATES

Att. CC

February 7, 2020

Mr. Matthew Grooms
Senior Planner
City of Portland Planning Division
389 Congress Street, 4th Floor
Portland, ME 04101

RE: Three Portland Square, Level III Site Plan Application

Dear Matt,

On behalf of North River IV, LLC, we are pleased to submit responses to the Staff Review comments we received last week regarding the ongoing review of the MDP and Level III Applications for the development of Three Portland Square property currently owned by North River IV. These comments follow our resubmission of plans and support documents on December 20, 2019, as well as a Staff Review meeting convened on January 22, 2020. The following items are attached to this Response Letter and are uploaded to the respective e-Plan site:

- Updated Traffic Demand Management Plan, from VHB, Inc. This update is based on informal comments from Bruce Hyman in an email to VHB dated January 22, 2020.
- Revised Electrical and Lighting Plans and details, from Bartlett Design. This is in response to Site Plan Review comments from Matt Grooms in an email dated January 27, 2020.
- Revised Architectural modeling and building elevations, by Winton Scott Architects, based on informal conversations with Caitlin Cameron, Urban Designer.
- Revised Stormwater and Utility Plans, by Woodard and Curran, based on a Review memo from Wright Pierce, peer reviewer dated January 21, 2020.
- Response to Review Comments from Jeff Tarling, City Arborist, by Carroll Associates.
- Uploading of documentation from the Neighborhood Meeting that was held on January 30, 2020.

Response to Traffic Comments by Tom Errico and Mike Trembley are still being formulated, and will be hopefully submitted prior to our Staff Meeting scheduled for February 12.

Attached and made part of this Application are documents, reports, plans, and images that describe the Three Portland Square responses in full detail. We believe the project provides many benefits to the City of Portland and welcome the opportunity to work closely with City Staff, Planning Board, and interested residents of Portland during its review and approval.

With Regards,
CARROLL ASSOCIATES



Patrick J. Carroll, Principal

CC: Peter Pachios, Adam Meyers, Dan Jacques, NR IV
Jim Brady, FC
Stephen Weatherhead, WSA
Barry Sheff, W&C

Bartlett Design
LIGHTING & ELECTRICAL ENGINEERING
5 PALMER STREET BATH, MAINE 04530
TEL (207) 443-5447
bartlettdesigninc@comcast.net

3 Portland Square
Portland, Maine January 30, 2020

RESPONSE TO CITY REVIEW COMMENTS PERTAINING TO SITE LIGHTING

Site Plan Review Comments:

- The project shall conform with the street and site lighting requirements of the City's Technical Manual. Reuse of existing cobrahead and town & country light fixtures is not permitted, and shall be replaced as necessary with either the downtown combo fixtures along Spring Street or Old Port Fixtures elsewhere within the development. Please see Sec. 10 of the City's Technical Manual for more information.
  RESPONSE:
  The revised Level III Site Submission documents have been revised to provide street lighting that conforms to Section 10 of the City's Technical Manual.

- S8 light fixtures, proposed within the alley between the office building and parking garage, exceed the allowable lumen count. The lighting cut sheet provides a lesser lumen count, and so applicant should confirm that the amount listed in the memo is correct.
  RESPONSE:
  The revised Level III Site Submission documents have been revised to consistently indicate that the lumen rating for the Type S8 lights is 2,117 lumens.

- Roof mounted S9 light fixtures exceed permissible light trespass limits. If considering roof-top parking as a surface lot, then maximum foot candle limits are 4.0, with an average foot candle of 0.5.
  RESPONSE:
  The revised Level III Site Submission documents have been revised to provide lighting levels at the roof parking deck with an average of 0.5 footcandles, and a maximum of 1.9 footcandles.

- Site lighting exceeds allowable light trespass of 1.0 foot candles at the property line. Given the downtown location of this project and requirements of the B-3 zone related to building location, staff recommend that the applicant submit a formal waiver request to permit the current lighting scheme.
  RESPONSE:
  The suggested waiver will be included in the revised Level III site submission documents.



BUILDING USE SUMMARY

BLDG / LOT	OFFICE	RETAIL	RESIDENTIAL	HOTEL	PARKING
1A (1 PORT SQ.)	133,141 SF	1,700 SF			
1B (2 PORT SQ.)	127,200 SF	11,150 SF			42 SPACES
LOT 2	159,026 SF	21,545 SF			851 SPACES
LOT 3	82,700 SF	29,649 SF	58 UNITS		194 SPACES
LOT 4		4,855 SF		135 ROOMS	
TOTAL	502,067 SF	68,899 SF	58 UNITS	135 ROOMS	1,087 SPACES

LOT CONFIGURATION & DENSITY

OVERALL LOT AREA	280,886 SF	6.45 AC
LOT 1a	39,393 SF	0.90 AC
LOT 1b	39,520 SF	0.90 AC
LOT 2	98,353 SF	2.26 AC
LOT 3	79,829 SF	1.83 AC
LOT 4	23,791 SF	0.55 AC

LEGEND (PROPOSED IMPROVEMENTS)

- PROPERTY LINE
- PROPOSED BUILDINGS "PORTLAND SQUARE"
- EXISTING BUILDING "PORTLAND SQUARE"
- PROPOSED BUILDING "CENTER STREET BOUTIQUE HOTEL"
- BRICK PAVING
- CONCRETE PAVING
- BITUMINOUS CONCRETE PAVING
- SPECIAL PAVING
- GREEN ROOF
- PROPOSED TREE
- TREE GRATE
- TREE PLANTER (RAISED)
- VERTICAL GRANITE CURB
- TRANSITION OR FLUSH CURB
- CROSS WALK
- ADA CURB RAMP

Portland Square

Master Development Plan

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

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Revisions		
1	4.5.19	MDP SUBMISSION TO CITY
2	7.30.19	REV. MDP SUBMISSION TO CITY
3	9.5.19	REV. MDP SUBMISSION TO CITY
4	11.7.19	REV. MDP PER PAHSE 1 CHANGES
5	12.20.19	REV. MDP PER PAHSE 1 CHANGES
6	2.19.20	REV. MDP PER CITY COMMENTS

Drawing Title: SITE PLAN

Scale: 1"=40'-0"

Date: JULY 30, 2019

Phase: Permitting

L1.0



Portland Square

Master Development Plan

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

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5	12.20.19	REV. MDP PER PAHSE 1 CHANGES
6	2.19.20	REV. MDP PER CITY COMMENTS

Drawing Title: CONCEPTUAL LANDSCAPE PLAN

Scale: 1"=40'-0"

Date:

Phase: Permitting

L1.1

PLANT SCHEDULE -TREES

SYM.	BOTANICAL NAME	COMMON NAME	SIZE	NOTES
STREET TREES	AMELANCHIER CANADENSIS AUTUMN BRILLIANCE	SHADBLOW	6-7' MULTI, B&B	
	ACER RUBRUM 'KARPICK'	RED MAPLE	2.5-3" CAL, B&B	
	CELTIS OCCIDENTALIS	HACKBERRY	2.5-3" CAL, B&B	
	GINKGO BILOBA	GINKO	2.5-3" CAL, B&B	
	GLEDITSIA TRIACANTHOS VAR. INERMIS 'IMPERIAL'	THORNLESS HONEYLOCUS	2.5-3" CAL, B&B	
	GLEDITSIA TRIACANTHOS F. INERMIS 'SKYCOLE' SKYLINE	SKYLINE HONEYLOCUS	2.5-3" CAL, B&B	
	PRUNUS SARGENTII 'PINK FLAIR'	FLOWERING CHERRY	2.5-3" CAL, B&B	
	ULMUS AMERICANA 'PRINCETON'	AMERICAN ELM	2.5-3" CAL, B&B	
EVERGREEN TREES	PICEA OMORIKA	SERBIAN SPRUCE	7-8' HT., B&B	
LANDSCAPE TREES	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	2.5-3" CAL, B&B	
	QUERCUS PALUSTRIS	PIN OAK	2.5-3" CAL, B&B	
	STEWARTIA PSEUDOCAMELLIA	JAPANESE STEWARTIA	3-3.5" CAL, B&B	

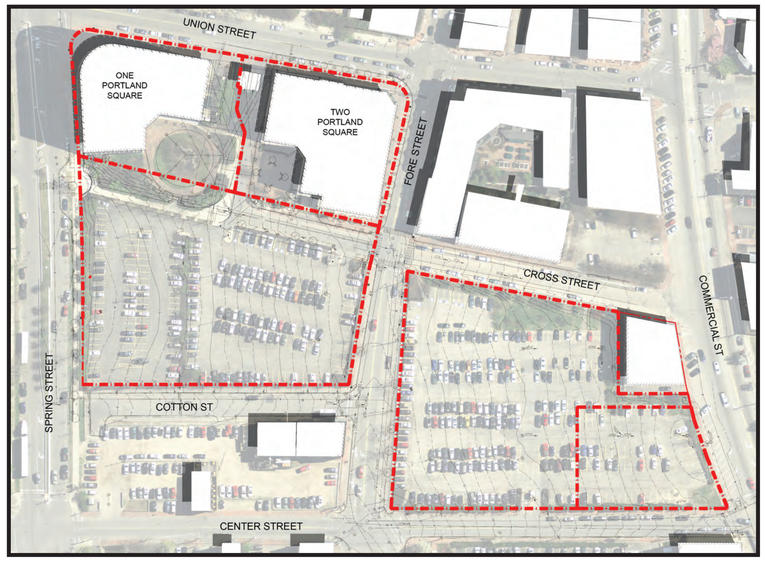
PLANT SCHEDULE -ROOF GARDEN

SYMBOL	BOTANICAL NAME	COMMON NAME	SIZE	NOTES
	CLEMATIS VIRGINIANA	VIRGIN'S BOWER	#5	
	HEDERA HELIX	ENGLISH IVY	4" POT	
	OSMUNDASTRUM CINNAMOMEUM	CINNAMON FERN	#2	
	ARMERIA MARITIMA	SEA THRIFT	#1	
	GERANIUM MACULATUM	WILD GERANIUM	#1	
	LIATRIS ASPERA	BLAZING STAR	#1	
	ANTENNARIA PLANTAGINIFOLIA	PUSSYTOES	#1	
	ARENARIA MONTANA	MOUNTIAN SANDWORT	#1	
	SEEDUM SEXANGULAR	TASTELESS STONECROP	1 QT.	
	SEDUM JOHN CREECH	CAUCASIAN STONECROP	1 QT.	
	SEDUM IMMERGRUNCHEN	LITTLE EVERGREEN STONECROP	1 QT.	
	POLEMONIUM REPTANS 'STAIRWAY TO HEAVEN'	JACOBS LADDER (VARIEGATED)	#1	

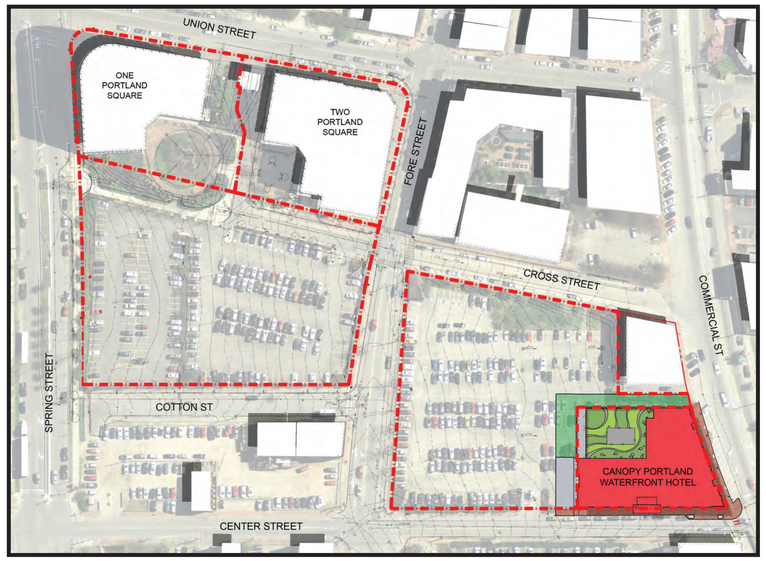
PLANT SCHEDULE -SHRUBS, GROUNDCOVERS & HERBACEOUS'

SYM.	BOTANICAL NAME	COMMON NAME	SIZE	NOTES
LANDSCAPE BED	AMSONIA HUBRICHTII	BLUESTAR	#1 CONT	
	ALLIUM VARIETIES	ORNAMENTAL ONION	BULBS	
	CLETHRA ALNIFOLIA 'SIXTEEN CANDLES'	SUMMERSWEET	#7 CONT	
	CAREX PENSYLVANICA	SEDGE	#1 CONT	
	CORNUS SERICEA 'ISANTI'	RED-OSIER DOGWOOD	3-3.5' B&B	
	DENNSTAEDTIA PUNCTILOBULA	HAY SCENTED FERN	SOD	
	HYDRANGEA ARBORESCENS 'ANNABEL'	SMOOTH HYDRANGEA	#7 CONT	
RAISED PLANTERS	HAMAMELIS X INTERMEDIA 'PALLIDA'	WITCH HAZEL	4-4.5' B&B	
	ILEX GALABRA 'SHAMROCK'	INKBERRY, SHAMROCK	#5 CONT	
	LIRIOPE SPICATA	LILYTURF	QT.	
RAISED PLANTERS	MISCANTHUS SINENSIS PURPURASCENS	FLAME GRASS	#5 CONT	
	PENNISETUM ALOPECUROIDES	DWARF FOUNTAIN GRASS	#3	
	RHUS AROMATICA 'GRO-LOW'	FRAGRANT SUMAC	#3	
	SESLERIA AUTUMNALIS	AUTUMN MOOR GRASS	#1 CONT	
	SCHIZACHYRIUM SCOPARIUM	LITTLE BLUESTEM	#2 CONT	
	VIBURNUM PLICATUM F. TOMENTOSUM 'SHASTA'	DOUBLEFILE VIBURNUM	3-3.5' B&B	

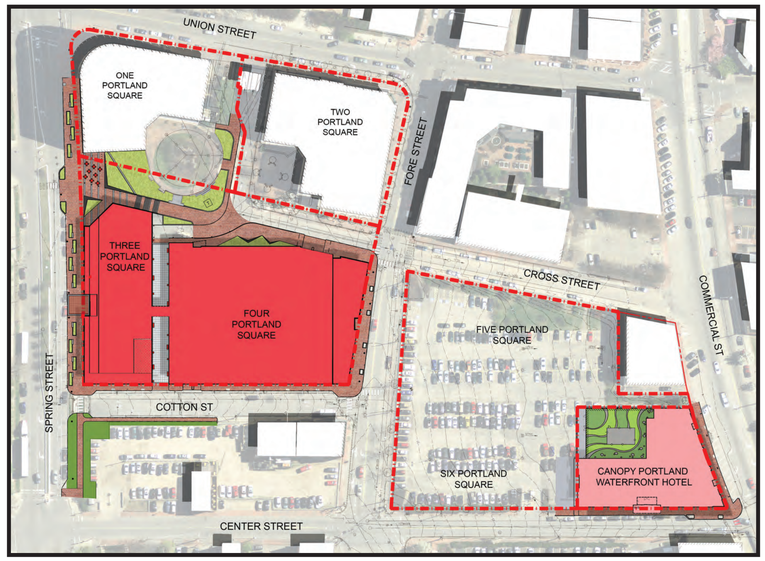
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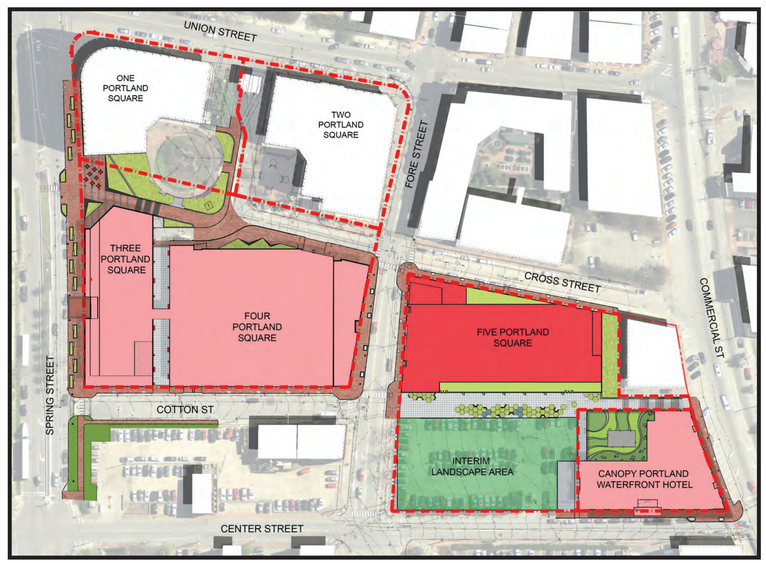
EXISTING CONDITIONS



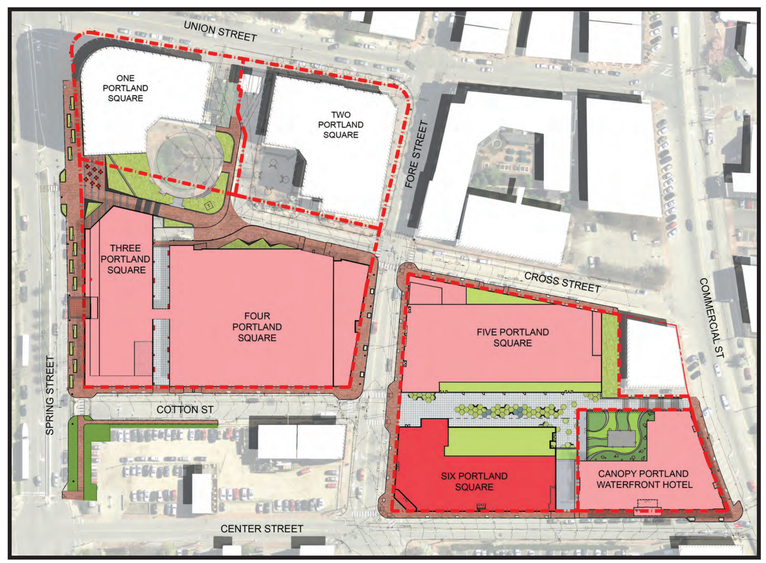
PHASE 1



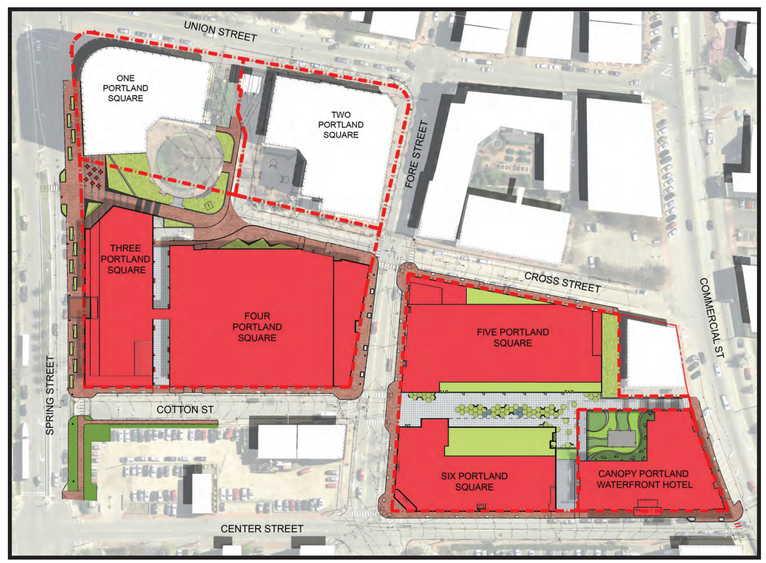
PHASE 2



PHASE 3



PHASE 4



FULL BUILD OUT

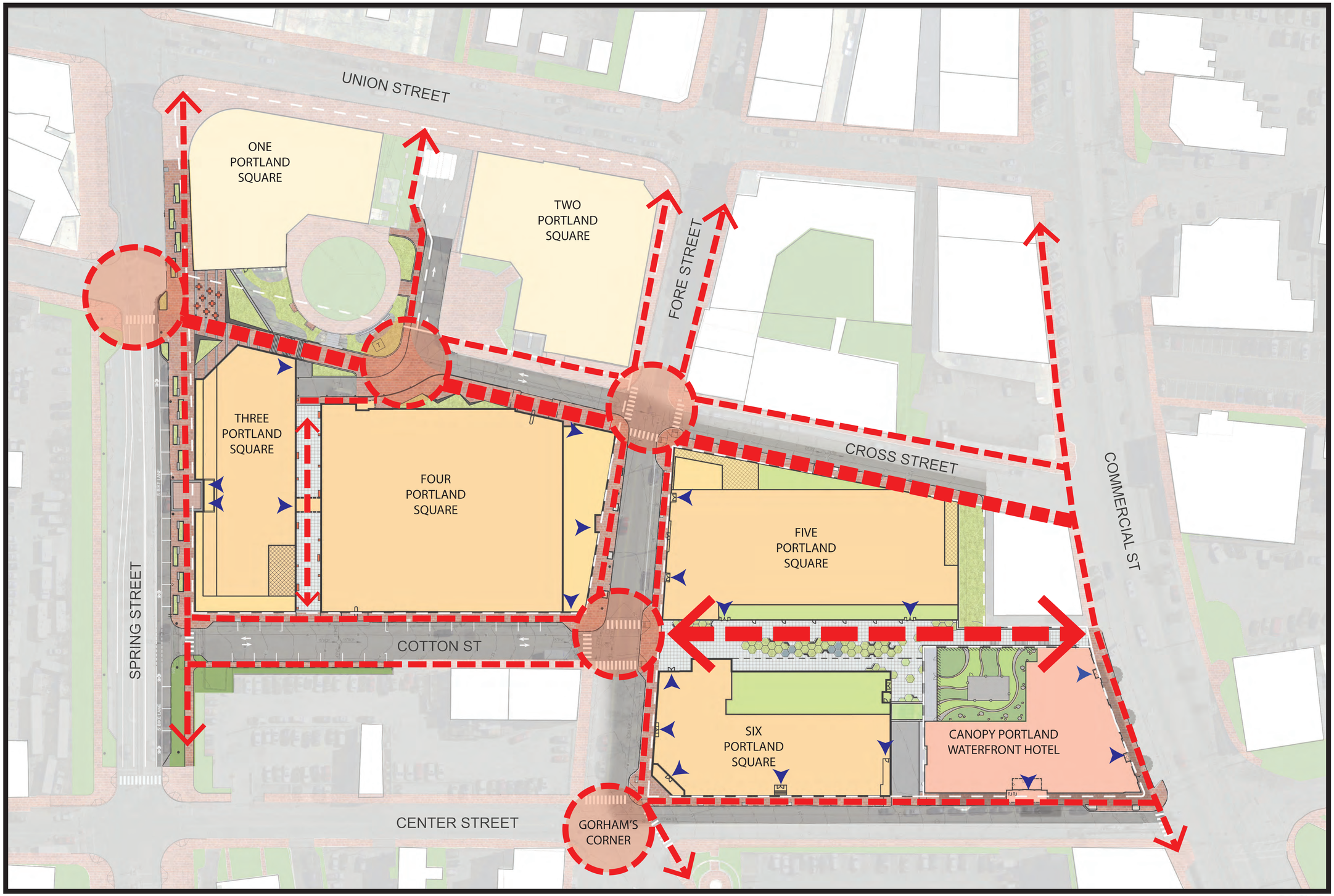
Owner / Developers
NORTH RIVER, LLC
New York, NY

REVISION DATE: DEC. 20, 2019

PORTLAND SQUARE

MASTER DEVELOPMENT
PHASING PLAN

NOT TO SCALE



0 20 40 80
SCALE in FEET
1"=40'

N

REV. DATE: 12.20.2019

Pedestrian Circulation Diagram

UNION STREET

ONE PORTLAND SQUARE

ONE WAY

TWO PORTLAND SQUARE

FORE STREET

SERVICE

THREE PORTLAND SQUARE

FOUR PORTLAND SQUARE

G

ONE WAY CROSS STREET

COMMERCIAL ST

FIVE PORTLAND SQUARE

SPRING STREET

COTTON ST

SIX PORTLAND SQUARE

SERVICE

CENTER STREET BOUTIQUE HOTEL

HOTEL DROP-OFF

CENTER STREET

GORHAM'S CORNER

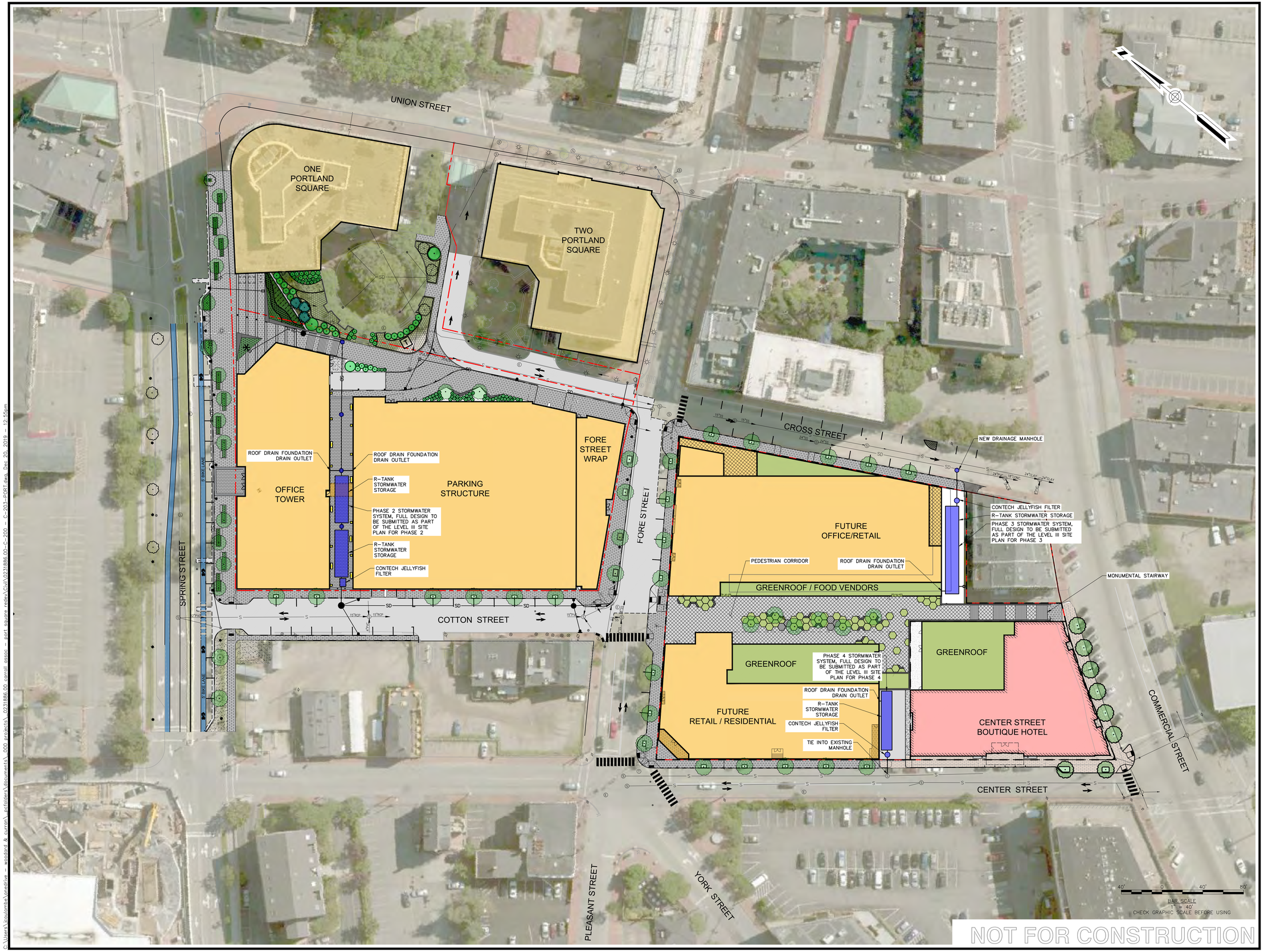
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SCALE in FEET
1"=40'

N

REV. DATE: 12.18.2019

Vehicular Circulation Diagram



Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

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Revisions		
1	12.20.19	MDP APPLICATION REVISIONS

Drawing Title: **DRAINAGE PLAN** Scale: 1" = 40'

STATE OF MAINE
LAUREN JANE SWETT
12284
PROFESSIONAL ENGINEER
LICENSED
Lauren J. Swett
12/20/2019

Date: DECEMBER 2019
Phase: PERMITTING

C-200

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NOT FOR CONSTRUCTION

Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

CARROLL ASSOCIATES LANDSCAPE ARCHITECTS
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Revisions		
1	12.20.19	MDP APPLICATION REVISIONS

Drawing Title: UTILITY PLAN

Scale: 1" = 40'

STATE OF MAINE
LAUREN JANE SWETT
12284
REGISTERED PROFESSIONAL ENGINEER
12/20/2019

Date: DECEMBER 2019
Phase: PERMITTING

C-201

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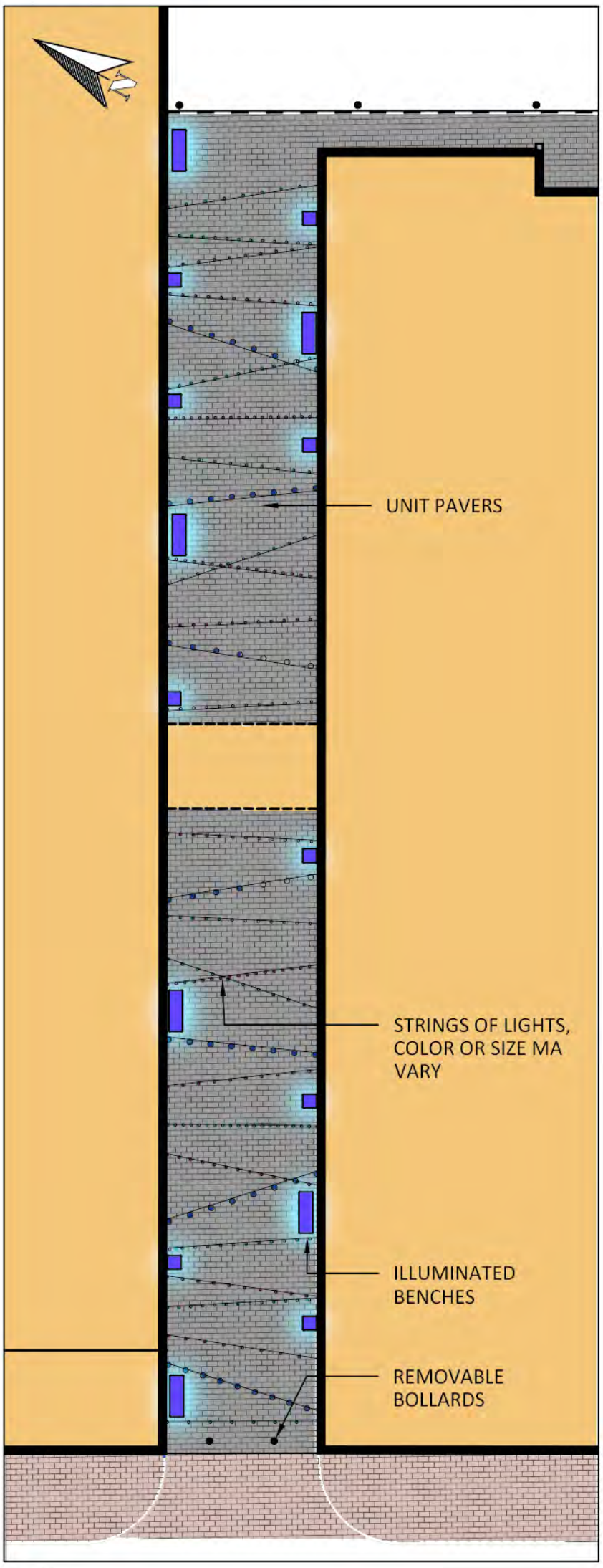
OVERHEAD LIGHTING



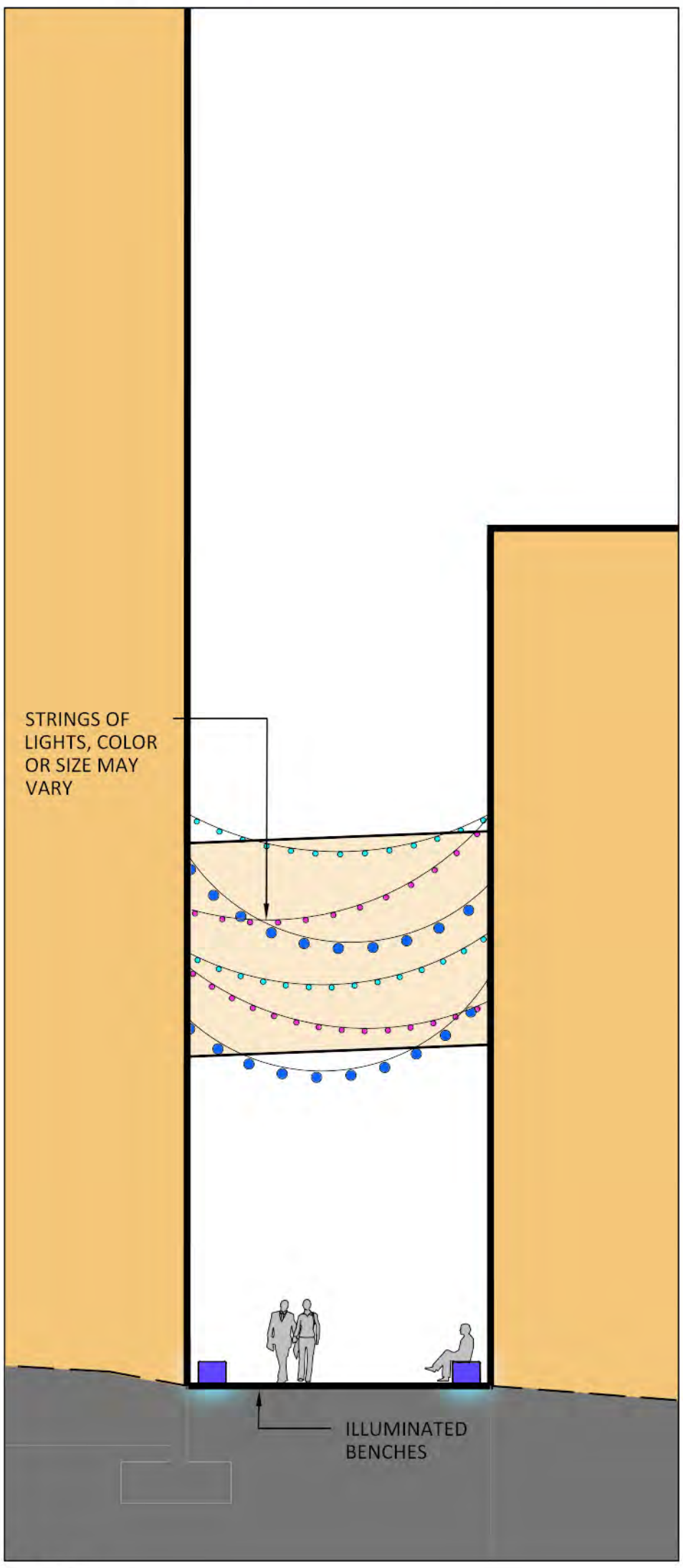




ILLUMINATED SITE FURNITURE



PLAN
SCALE: 1"=20'



SECTION
SCALE: 1"=10'

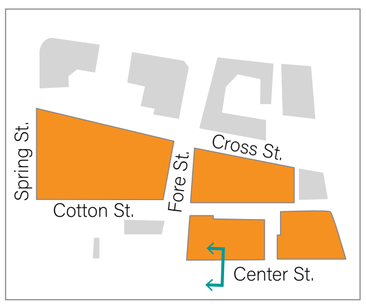
LIGHT CANOPY & ILLUMINATED BENCHES



OVERHEAD VIEW (NE)

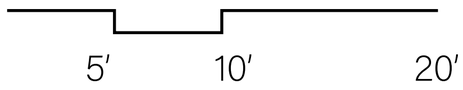
PORTLAND SQUARE
MASTER DEVELOPMENT PLAN
12/20/19

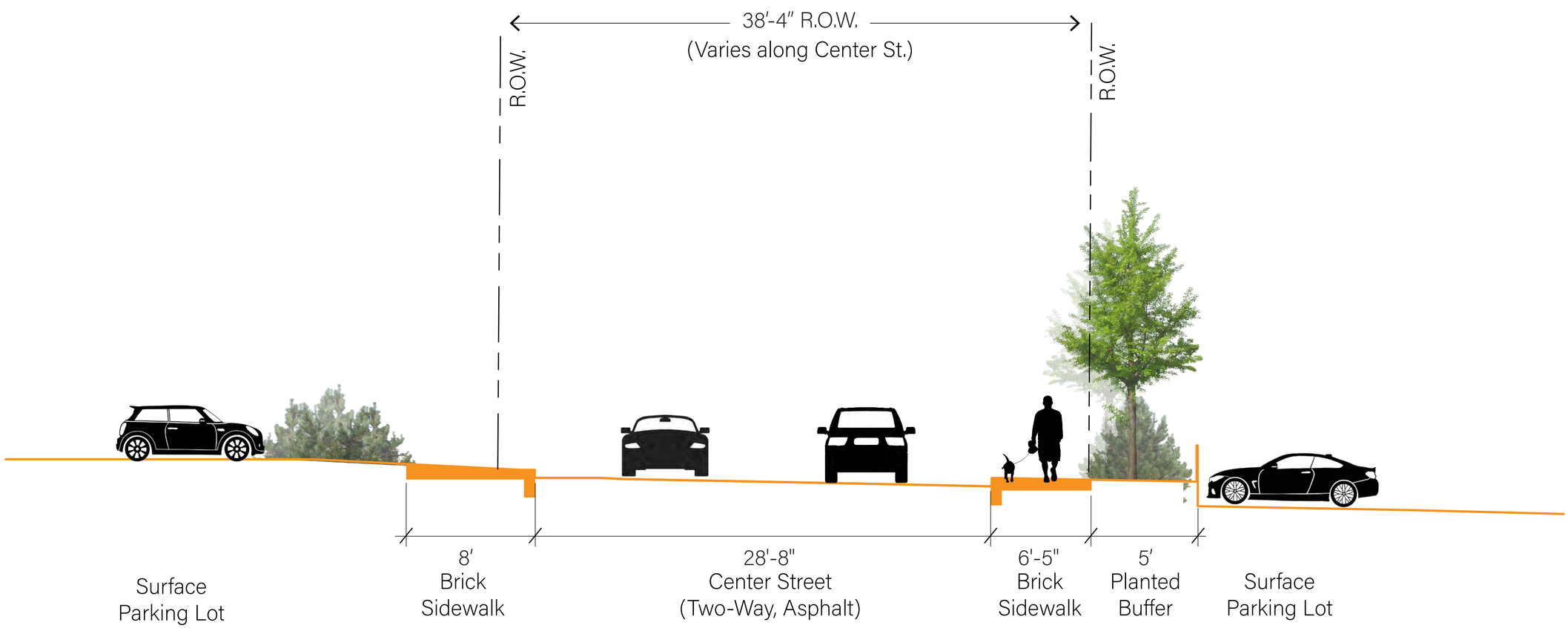
CENTER STREET SECTION



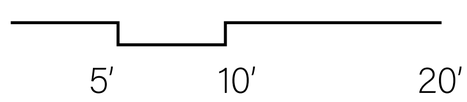
SECTION KEY (NTS)

PROPOSED DESIGN
CENTER ST.



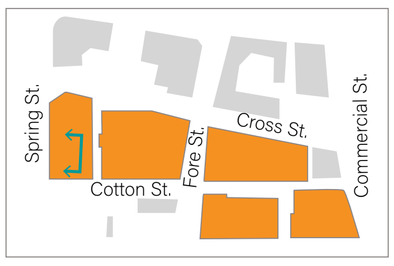


EXISTING CONDITIONS
CENTER ST.



PORTLAND SQUARE
MASTER DEVELOPMENT PLAN
12/20/19

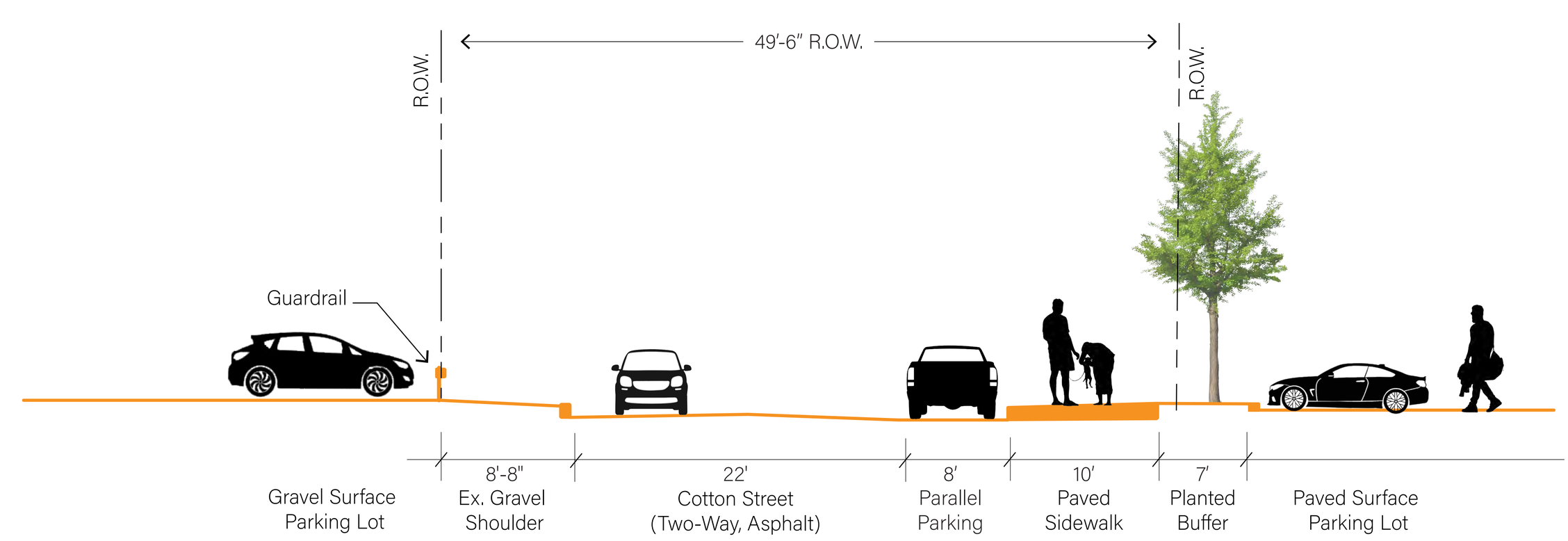
COTTON STREET (NORTH) SECTION



SECTION KEY (NTS)

PROPOSED CONDITION
COTTON ST.

5′ 10′ 20′



EXISTING CONDITION
COTTON ST.

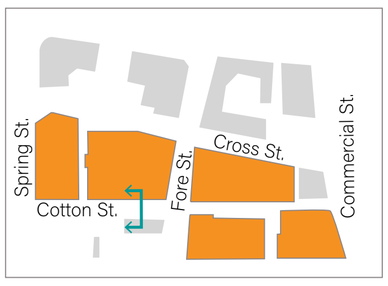
5′ 10′ 20′

PORTLAND SQUARE

MASTER DEVELOPMENT PLAN

12/20/19

COTTON STREET (SOUTH) SECTION

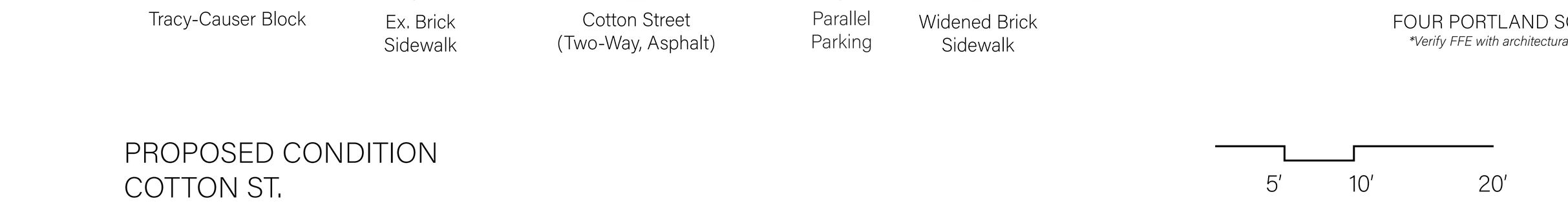


SECTION KEY (NTS)

Max. Allow. Height = 85.00′
Max. Bldg. Height +/- 8478′ *

FOUR PORTLAND SQUARE
**Verify FFE with architectural drawings*

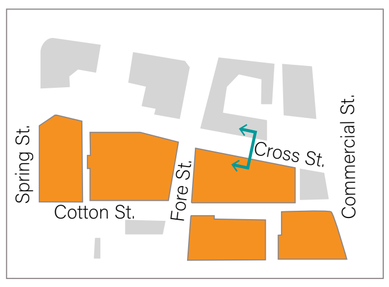
PROPOSED CONDITION
COTTON ST.



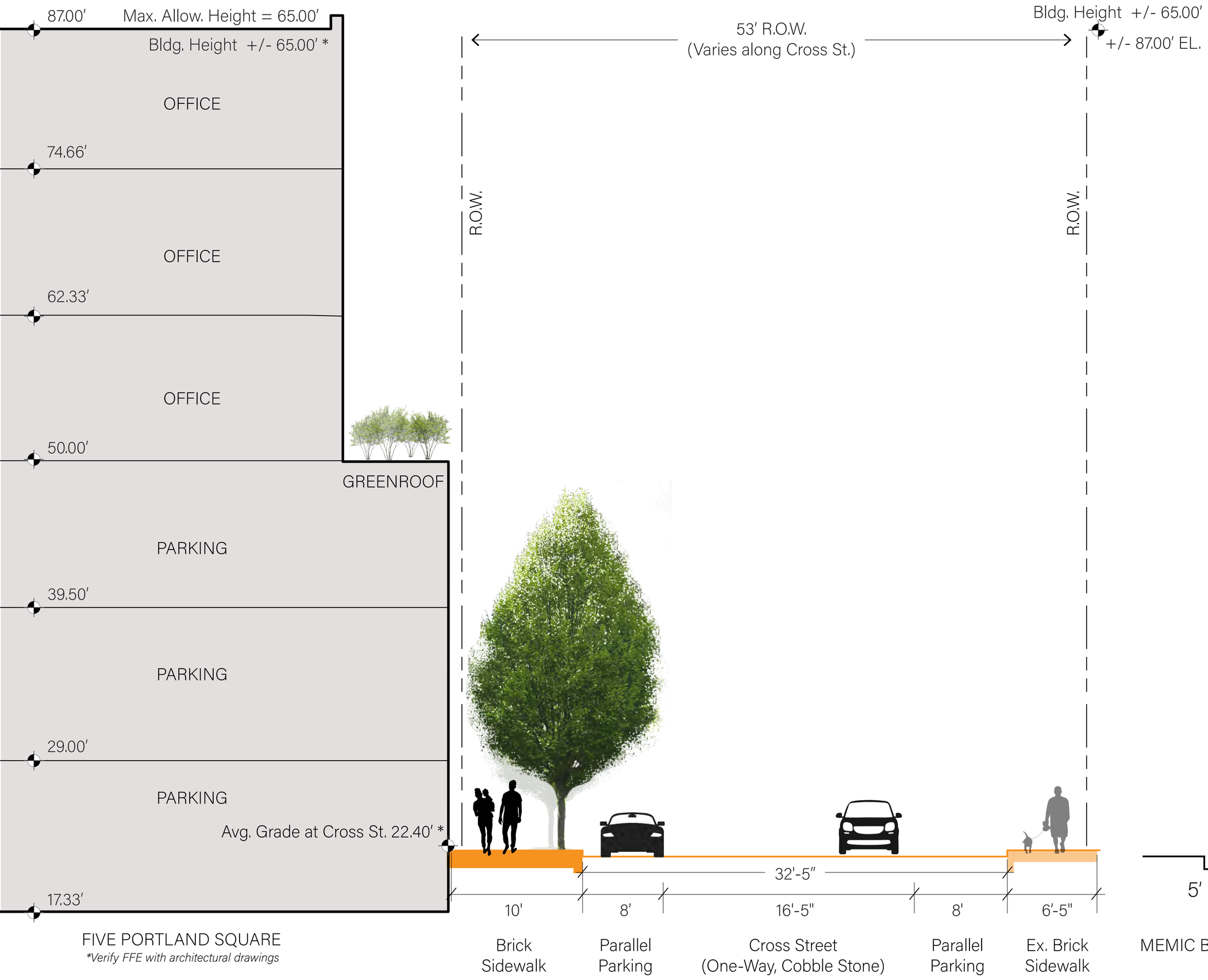
EXISTING CONDITION
COTTON ST.

PORTLAND SQUARE - *MASTER DEVELOPMENT PLAN* - 12/20/19

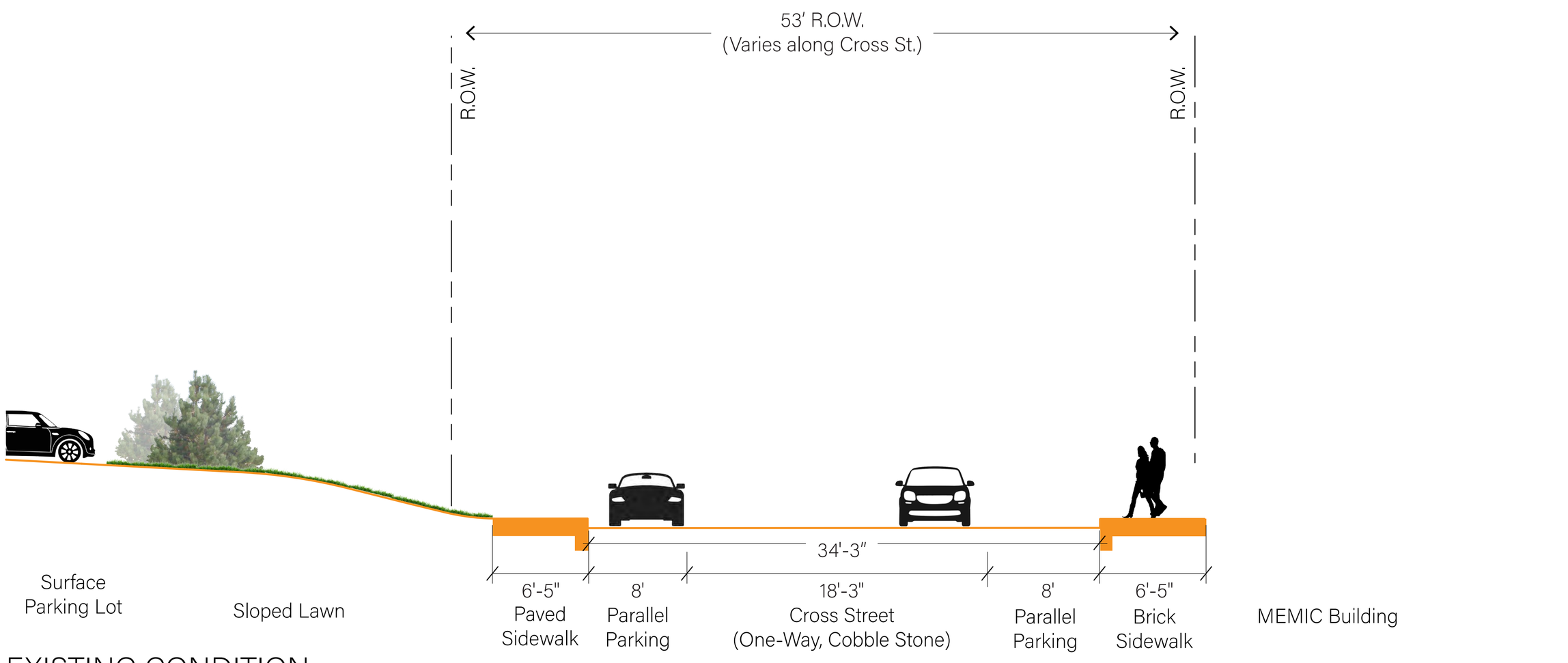
CROSS STREET SECTION



SECTION KEY (NTS)



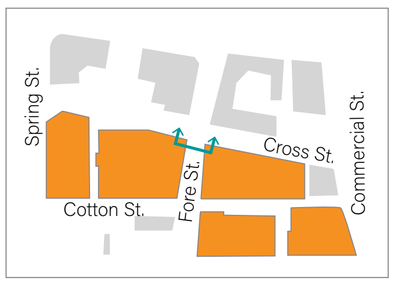
PROPOSED CONDITION
CROSS ST.



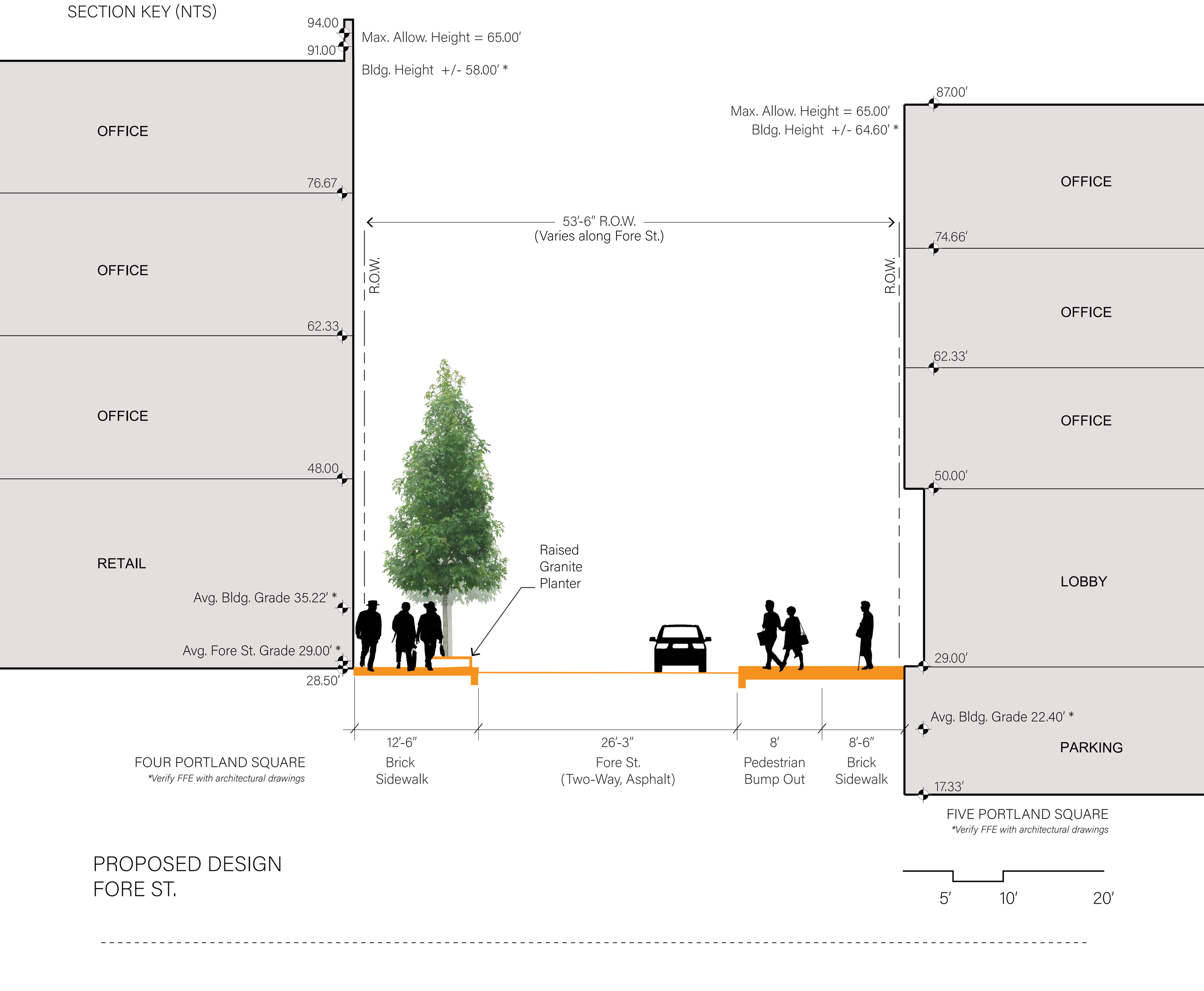
EXISTING CONDITION
CROSS ST.

PORTLAND SQUARE
MASTER DEVELOPMENT PLAN
12/20/19

FORE STREET SECTION

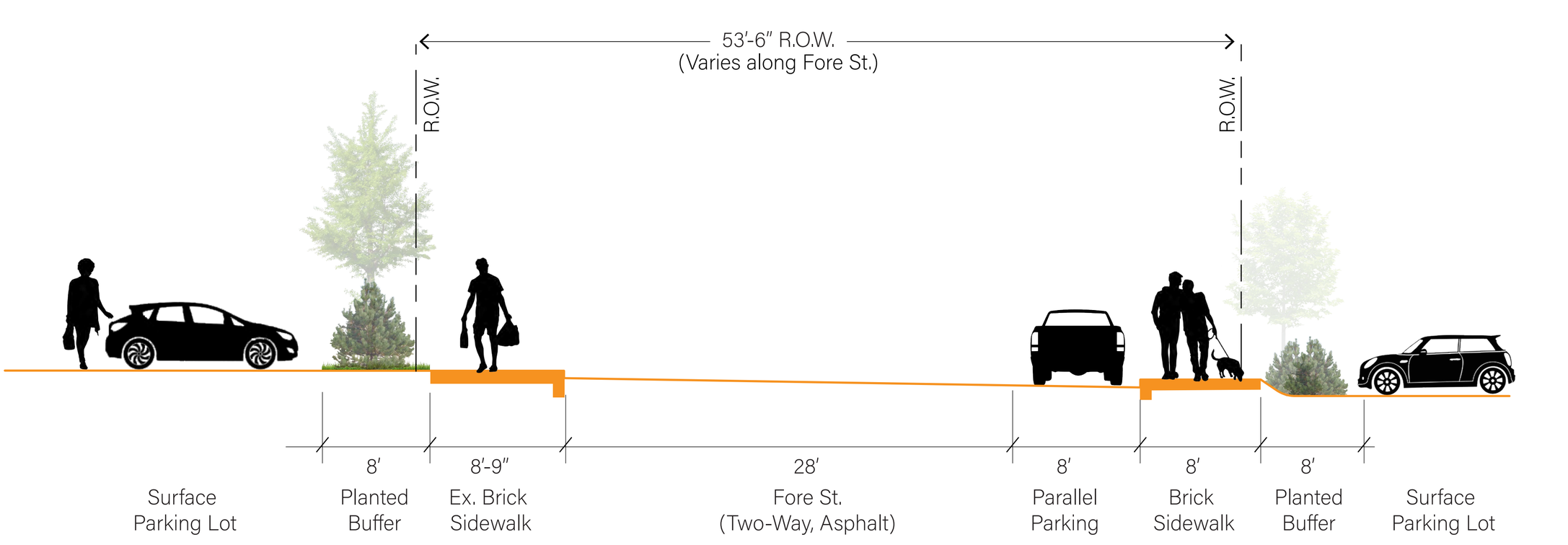


SECTION KEY (NTS)



PROPOSED DESIGN
FORE ST.

5′ 10′ 20′



EXISTING CONDITIONS
FORE ST.

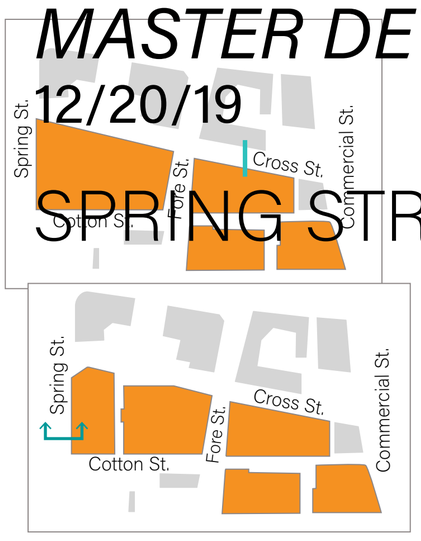
5′ 10′ 20′

PORTLAND SQUARE

MASTER DEVELOPMENT PLAN

12/20/19

SPRING STREET SECTION



SECTION KEY (NTS)

Wall Height Limit at Street = 90.00′ *
Bldg. Height +/- 88.20′

153.33′
OFFICE
139.00′
OFFICE
124.67′
OFFICE
111.00′
OFFICE
97.33′
OFFICE
83.67′
OFFICE
OFFICE
70.00′
RETAIL
52.00′ *
Avg. Street Grade 50.80′

94′ R.O.W.
Spring St.
(Three Lanes, Asphalt)
R.O.W.
R.O.W.

Staggered Planters w/ Benches

57′-9″

Ex. Concrete Sidewalk & Esplanade	9′ Parallel Parking	5′-9″ Ex. Bike Lane	10′ Turn Lane	10′ Travel Lane	10′ Travel Lane	5′ Prpsd. Bike Lane	8′ Parallel Parking	Varies Brick Sidewalk	5′ Planter Bench	10′ Brick Sidewalk

THREE PORTLAND SQUARE
**Verify FFE with architectural drawings*

PROPOSED DESIGN
SPRING ST.

5′ 10′ 20′

94′ R.O.W.
Spring St.
(Three Lanes, Asphalt)
R.O.W.
R.O.W.

64′-1″

16′-4″ Concrete Sidewalk & Esplanade	9′ Parallel Parking	5′-9″ Bike Lane	10′ Turn Lane	10′ Travel Lane	10′ Travel Lane	19′-4″ Angle Parking	5′-6″ Esplanade	8′ Concrete Sidewalk	12′ Sloped Grass	Surface Parking Lot

EXISTING CONDITIONS
SPRING ST.

5′ 10′ 20′

Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

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Revisions		
1	12.20.19	SITE PLAN APPLICATION REVISIONS

Drawing Title:	Scale: 1" = 20'

EXISTING CONDITIONS PLAN

STATE OF MAINE
LAUREN JANE SWETT
12284
LICENSED PROFESSIONAL ENGINEER
12/20/2019

Date:	DECEMBER 20, 2019
Phase:	PERMITTING

C-100

BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

PERMIT SET - NOT FOR CONSTRUCTION



Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

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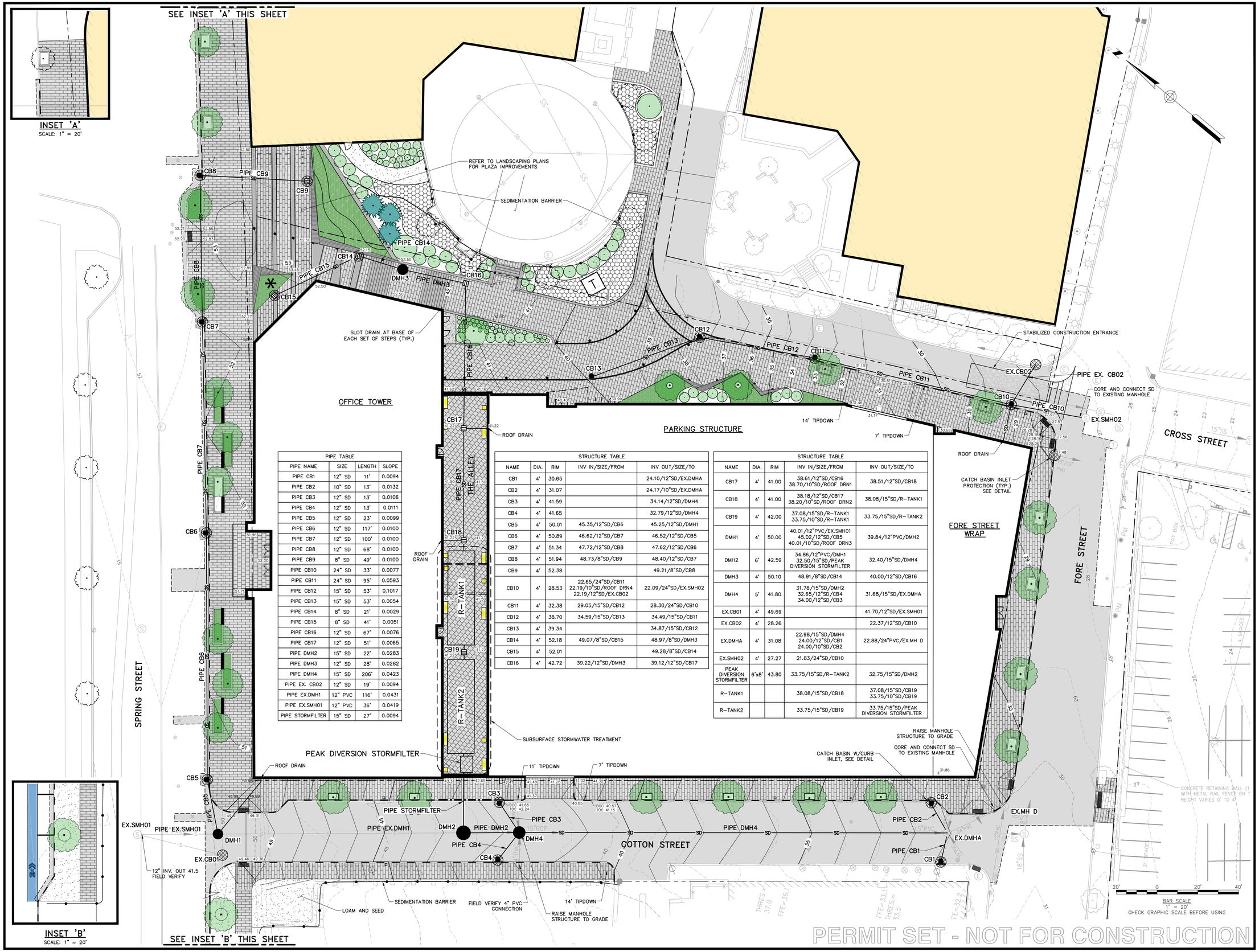
Revisions		
1	2.7.2020	SITE PLAN RESPONSE TO COMMENTS
2	2.20.2020	DESIGN DEVELOPMENT

Drawing Title: **SITE PLAN** | Scale: 1" = 20'

STATE OF MAINE
LAUREN JANE SWETT
12284
REGISTERED PROFESSIONAL ENGINEER
2/19/2020

Date: FEBRUARY 19, 2020
Phase: PERMITTING

C-200



PIPE TABLE			
PIPE NAME	SIZE	LENGTH	SLOPE
PIPE CB1	12" SD	11'	0.0094
PIPE CB2	10" SD	13'	0.0132
PIPE CB3	12" SD	13'	0.0106
PIPE CB4	12" SD	13'	0.0111
PIPE CB5	12" SD	23'	0.0099
PIPE CB6	12" SD	117'	0.0100
PIPE CB7	12" SD	100'	0.0100
PIPE CB8	12" SD	68'	0.0100
PIPE CB9	8" SD	49'	0.0100
PIPE CB10	24" SD	33'	0.0077
PIPE CB11	24" SD	95'	0.0593
PIPE CB12	15" SD	53'	0.1017
PIPE CB13	15" SD	53'	0.0054
PIPE CB14	8" SD	21'	0.0029
PIPE CB15	8" SD	41'	0.0051
PIPE CB16	12" SD	67'	0.0076
PIPE CB17	12" SD	51'	0.0065
PIPE DMH2	15" SD	22'	0.0283
PIPE DMH3	12" SD	28'	0.0282
PIPE DMH4	15" SD	206'	0.0423
PIPE EX. CB02	12" SD	19'	0.0094
PIPE EX.DMH1	12" PVC	116'	0.0431
PIPE EX.SMH01	12" PVC	36'	0.0419
PIPE STORMFILTER	15" SD	27'	0.0094

STRUCTURE TABLE				
NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO
CB1	4'	30.65		24.10/12"SD/EX.DMHA
CB2	4'	31.07		24.17/10"SD/EX.DMHA
CB3	4'	41.59		34.14/12"SD/DMH4
CB4	4'	41.65		32.79/12"SD/DMH4
CB5	4'	50.01	45.35/12"SD/CB6	45.25/12"SD/DMH1
CB6	4'	50.89	46.62/12"SD/CB7	46.52/12"SD/CB5
CB7	4'	51.34	47.72/12"SD/CB8	47.62/12"SD/CB6
CB8	4'	51.94	48.73/8"SD/CB9	48.40/12"SD/CB7
CB9	4'	52.38		49.21/8"SD/CB8
CB10	4'	28.53	22.65/24"SD/CB11 22.19/10"SD/ROOF DRN4 22.19/12"SD/EX.CB02	22.09/24"SD/EX.SMH02
CB11	4'	32.38	29.05/15"SD/CB12	28.30/24"SD/CB10
CB12	4'	38.70	34.59/15"SD/CB13	34.49/15"SD/CB11
CB13	4'	39.34		34.87/15"SD/CB12
CB14	4'	52.18	49.07/8"SD/CB15	48.97/8"SD/DMH3
CB15	4'	52.01		49.28/8"SD/CB14
CB16	4'	42.72	39.22/12"SD/DMH3	39.12/12"SD/CB17

STRUCTURE TABLE				
NAME	DIA.	RIM	INV IN/SIZE/FROM	INV OUT/SIZE/TO
CB17	4'	41.00	38.61/12"SD/CB16 38.70/10"SD/ROOF DRN1	38.51/12"SD/CB18
CB18	4'	41.00	38.18/12"SD/CB17 38.20/10"SD/ROOF DRN2	38.08/15"SD/R-TANK1
CB19	4'	42.00	37.08/15"SD/R-TANK1 33.75/10"SD/R-TANK1	33.75/15"SD/R-TANK2
DMH1	4'	50.00	40.01/12"PVC/EX.SMH01 45.02/12"SD/CB5 40.01/10"SD/ROOF DRN3	39.84/12"PVC/DMH2
DMH2	6'	42.59	34.86/12"PVC/DMH1 32.50/15"SD/PEAK DIVERSION STORMFILTER	32.40/15"SD/DMH4
DMH3	4'	50.10	48.91/8"SD/CB14	40.00/12"SD/CB16
DMH4	5'	41.80	31.78/15"SD/DMH2 32.65/12"SD/CB4 34.00/12"SD/CB3	31.68/15"SD/EX.DMHA
EX.CB01	4'	49.69		41.70/12"SD/EX.SMH01
EX.CB02	4'	28.26		22.37/12"SD/CB10
EX.DMHA	4'	31.08	22.98/15"SD/DMH4 24.00/12"SD/CB1 24.00/10"SD/CB2	22.88/24"PVC/EX.MH D
EX.SMH02	4'	27.27	21.83/24"SD/CB10	
PEAK DIVERSION STORMFILTER	6'x8'	43.80	33.75/15"SD/R-TANK2	32.75/15"SD/DMH2
R-TANK1			38.08/15"SD/CB18	37.08/15"SD/CB19 33.75/10"SD/CB19
R-TANK2			33.75/15"SD/CB19	33.75/15"SD/PEAK DIVERSION STORMFILTER

PERMIT SET - NOT FOR CONSTRUCTION

Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

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Revisions		
1	2.7.2020	SITE PLAN RESPONSE TO COMMENTS
2	2.20.2020	DESIGN DEVELOPMENT

Drawing Title: **GRADING, DRAINAGE AND EROSION CONTROL PLAN**

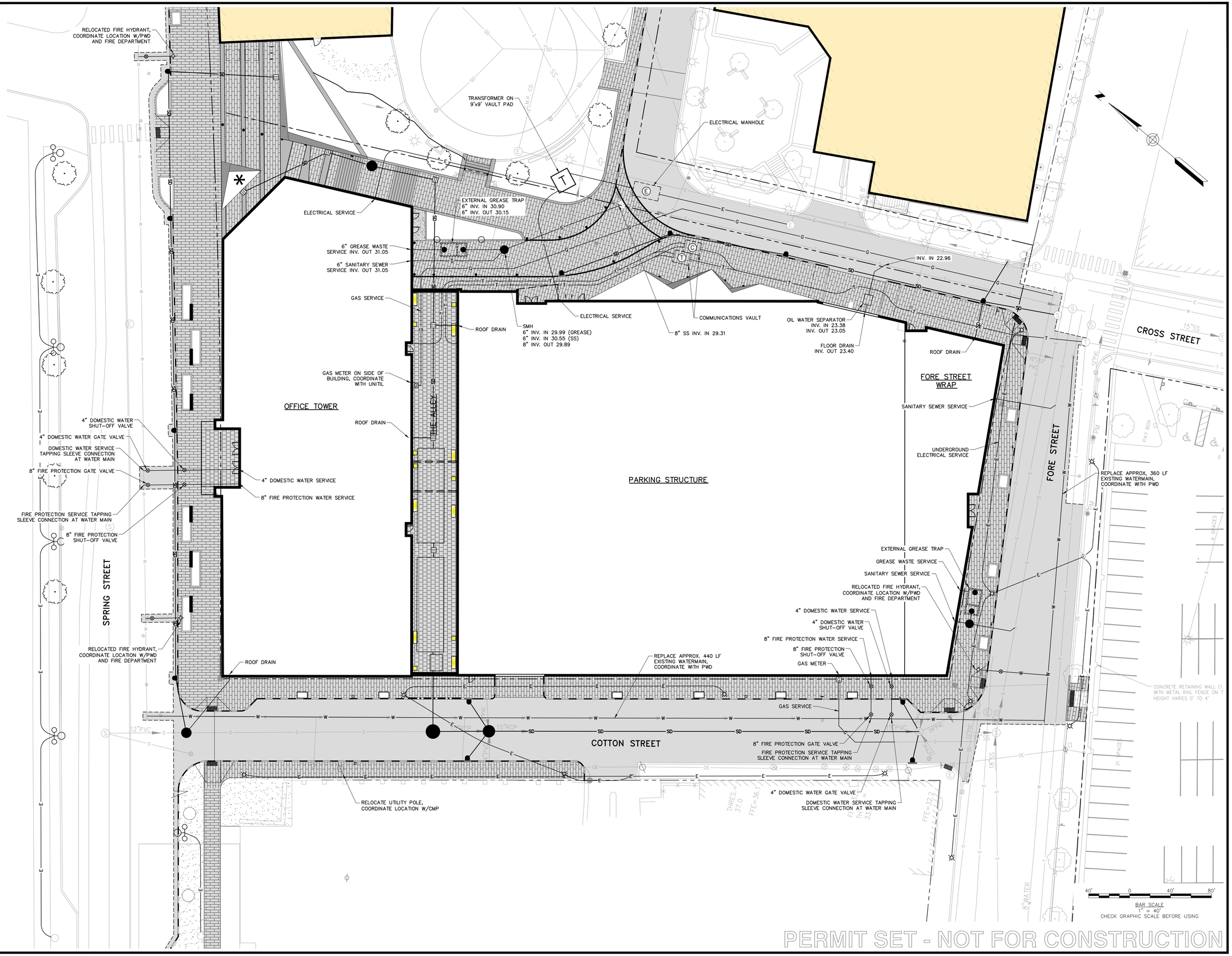
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STATE OF MAINE
LAUREN JANE SWETT
12284
REGISTERED PROFESSIONAL ENGINEER
2/19/2020

Date: FEBRUARY 19, 2020

Phase: PERMITTING

C-201



Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

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Revisions		
1	2.7.2020	SITE PLAN RESPONSE TO COMMENTS
2	2.20.2020	DESIGN DEVELOPMENT

Drawing Title: UTILITY PLAN

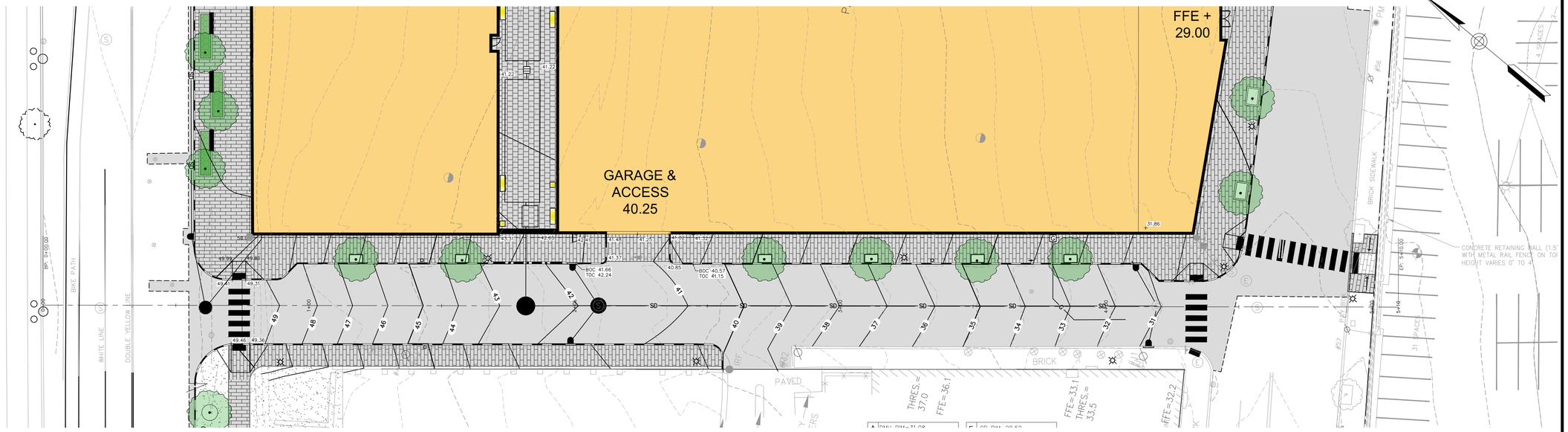
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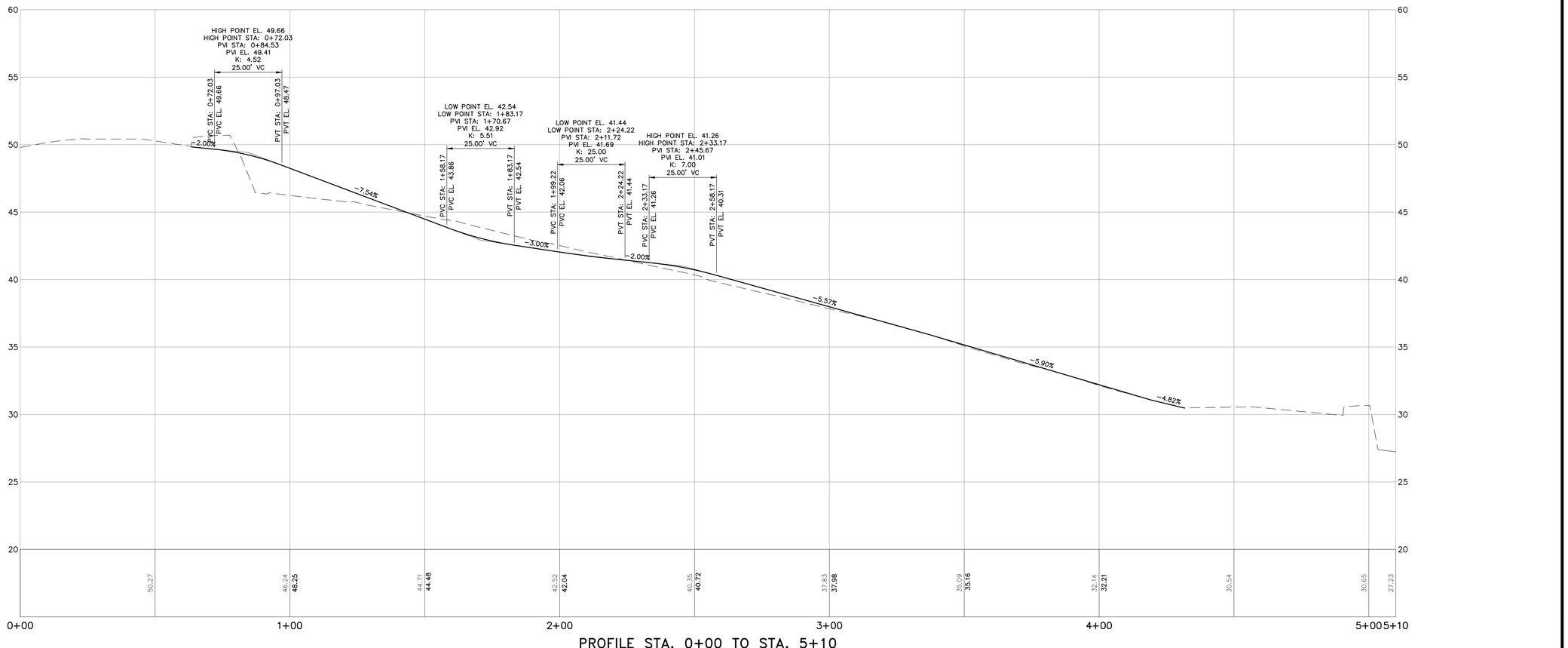
STATE OF MAINE
LAUREN JANE SWETT
12284
PROFESSIONAL ENGINEER
LICENSED
2/19/2020

Date: FEBRUARY 19, 2020

Phase: PERMITTING

C-202





PROFILE STA. 0+00 TO STA. 5+10

HORIZONTAL SCALE: 1" = 20'
VERTICAL SCALE: 1" = 4'

20' 0 20' 40'

BAR SCALE
1" = 20'
CHECK GRAPHIC SCALE BEFORE USING

PERMIT SET - NOT FOR CONSTRUCTION

Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

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Revisions		
1	2.7.2020	SITE PLAN RESPONSE TO COMMENTS
2	2.20.2020	DESIGN DEVELOPMENT

Drawing Title:	Scale: 1" = 20'

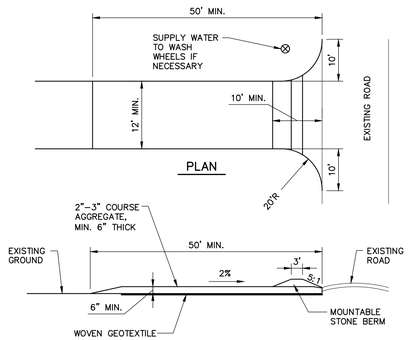
COTTON STREET PLAN & PROFILE

STATE OF MAINE
LAUREN JANE SWETT
12284
REGISTERED PROFESSIONAL ENGINEER
2/19/2020

Date:	FEBRUARY 19, 2020
Phase:	PERMITTING

C-203

\\woodardcurran.net\shares\Projects\Q231886.00 carroll assoc - port square redev\wip\Drawings\Civil\Plan & Profile Cotton Street.dwg, Feb 19, 2020 - 12:03pm



NOTES:

- CONSTRUCTION ENTRANCES MAY BE RELOCATED AS CONSTRUCTION PROGRESSES.
- WHEEL WASH PITS MAY ALSO BE USED, IF APPROVED.
- WHEN WASHING IS REQUIRED, IT SHALL BE DONE ON AN AREA STABILIZED WITH CRUSHED STONE THAT DRAINS INTO AN APPROVED SEDIMENT TRAP OR SEDIMENT BASIN

MAINTENANCE: INSPECT FOR EFFECTIVE REMOVAL OF SOIL FROM VEHICLES PRIOR TO LEAVING THE SITE. SWEEP ANY SOIL FROM ADJACENT ROADWAYS.

REMOVAL: AT LEAST ONE CONSTRUCTION ENTRANCE SHALL BE MAINTAINED UNTIL ALL AREAS OF THE SITE ARE STABILIZED.

STABILIZED CONSTRUCTION ENTRANCE DETAIL

N.T.S.

NOTES:

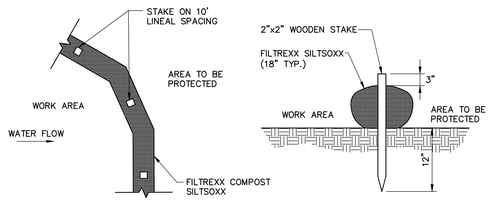
- INSTALL FABRIC ON UPHILL SIDE OF SUPPORT POSTS
- INSTALL SILT FENCE ACROSS SLOPES
- SILT FENCE SHALL NOT BE USED IN DRAINAGE WAYS

MAINTENANCE: INSPECT FOR TEARS IN THE FABRIC OR DAMAGE TO SUPPORTS. REPAIR AS NECESSARY. REMOVE ACCUMULATED SEDIMENT WHEN IT REACHES A DEPTH OF SIX-INCHES OR LESS.

REMOVAL: WHEN UPSLOPE AREAS ARE STABILIZED, THE STRUCTURE AND ANY ACCUMULATED SEDIMENT WILL BE REMOVED.

SEDIMENT BARRIER – SILTATION FENCE DETAIL CONTRACTOR OPTION

N.T.S.



PLAN VIEW SECTION

NOTE:

WHEN STAKING IS NOT POSSIBLE, HEAVY CONCRETE BLOCKS SHALL BE USED BEHIND THE SEDIMENT CONTROL TO HELP STABILIZE DURING RAINFALL/RUNOFF EVENTS.

SEDIMENTATION BARRIER – SILTSOXX CONTRACTOR OPTION

N.T.S.

EROSION AND SEDIMENT CONTROL NOTES

Temporary Erosion Control

Contractor shall prepare and submit a soil erosion and water pollution control plan to engineer in accordance with section 656.

Measure	Dates For Use	Timing, Activity, and Location
Sedimentation Barrier	ALL	Before soil disturbance, install downhill of areas to be disturbed and around material stockpiles.
Up-slope Diversion	ALL	Before soil disturbance, install uphill of areas to be disturbed and material stockpiles.
Catch Basin Protection	ALL	Before soil or pavement disturbance, install ACF Environmental, Inc. High Flow Siltsack, Siltsaver Inlet Filter. or equal, installed per manufacturer's requirements.
Dust Control	ALL	During dry weather, apply water and calcium chloride to control dust.
Temporary Seeding	April 15 to Oct. 1	Soil stockpiles that are not covered and disturbed areas that will not be disturbed again within 14 days. If grass growth provides less than 95% soil coverage by Nov. 1, apply mulch and anchor with erosion control blanket.
Mulch	April 15 to Sept. 15	On all areas of exposed soil prior to rain events or every 7 days, apply 100–150 lbs (2.5 bales) per 1,000 sq ft. by mechanical blower.
Winter Mulch	Sept. 16 to Oct. 31	On all areas of exposed soil prior to precipitation or every 7 days, apply 150 to 170 lbs. mulch (4 bales) per 1,000 sq. ft. by mechanical blower, Erosion control blanket may be used as a substitute for winter mulch.
	Nov. 1 to April 14	On all areas of exposed soil, apply 150 to 170 lbs. mulch (4 bales) per 1,000 sq. ft. and anchor with netting at the end of each working day. Erosion control blanket may be used as a substitute for winter mulch.
Inspections	Until site is permanently stabilized	Inspect the erosion and sedimentation control measures per inspections table below, and maintain and repair as necessary.

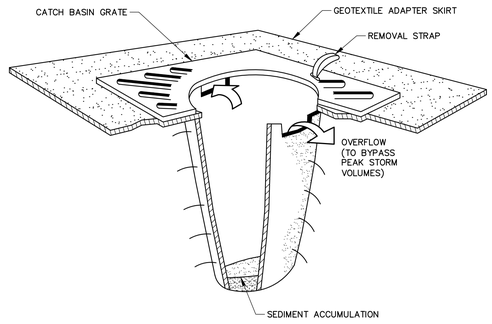
Permanent Erosion Control:

Measure	Dates For Use	Timing, Activity, and Location
Pavement – Base Course – Final Course	When no frost is in ground	Install only in areas shown on the plan, shortly after pavement base is brought to final grade. Install near completion of project.
Permanent Seeding	April 15 to Sept. 15	On final grade areas, within 7 days of grade preparation, prepare topsoil, followed by seed and mulch application.
Dormant Seeding	Sept. 16 to April 15	On final grade areas, with prepared topsoil. Apply seed at double the specified rate on bare soil, and follow with an application of winter mulch.
Ground Cover, Trees, Shrubs	April 15 to Nov. 1	Install with final landscaping.
Permanent Mulch	ALL	Install with final landscaping.

Inspections:

Regular inspections of all erosion and sedimentation controls shall be made at least weekly and prior to and following storm events. Minimum inspections shall be made as listed in the table below.

Inspected Item	Look For
Mulched Surfaces	Thin mulch or inadequate application. Wind movement.
Seeded Surfaces	Poor seed germination. Loss of mulch. Development of rivulets.
Sediment Barrier	Sediment build–up to one half the height of the barrier. Undermining of the barrier. Supporting stakes loose, toppled, or unmarked. Breaks in barrier.
Perimeter Diversion	Discharge is to stabilized area. Erosion or breaks in barrier. Supporting stakes loose, toppled or unmarked.
Catch Basin Protection	Sediment build–up and structure blockages. Slow flow/Ponding water. Breaks in fabric or voids in barrier.
Dewatering Filter	Breaks in fabric or supporting structure. Slow flow, indicating high sediment build–up.
Construction Entrance	Sedimentation of roadways. Off–site dust complaints.



NOTES:

CATCH BASIN PROTECTION TO BE "SILTSACK" (BY ACF ENVIRONMENTAL) OR "STREAM GUARD" (BY FOSS ENVIRONMENTAL SERVICES).

INSERT TO BE EMPTIED IN AN APPROVED MANNER WHEN IT IS 1/2 FULL OF SEDIMENT.

INSPECT INSERT AFTER ALL RAINFALL EVENTS, REPAIR AND MAINTAIN AS REQUIRED.

TEMPORARY INLET PROTECTION

N.T.S.

EROSION AND SEDIMENTATION CONTROL NOTES

TEMPORARY EROSION CONTROL MEASURES MAY INCLUDE THE USE OF STABILIZED CONSTRUCTION ENTRANCES, HYDRAULIC MULCH, HAY AND STRAW MULCH, EROSION CONTROL BLANKET, TURF REINFORCED MATTING, RIPRAP AND TEMPORARY SEEDING. TEMPORARY SEDIMENT CONTROL MEASURES INCLUDE THE USE OF SILT FENCE, EROSION CONTROL MIX BERMS, PLUNGE POOLS, CHECK DAMS, SEDIMENT TRAPS, CATCHBASIN SEDIMENT COLLECTION BAGS AND GEOTEXTILE FILTER BAGS. PERMANENT MEASURES INCLUDE THE USE OF RIPRAP AT EXPOSED STORMDRAIN AND CULVERT INLETS AND OUTLETS, ARMORED SWALES AND SLOPES AND PERMANENT VEGETATION.

GENERAL

A. THE PROJECT SHALL CONFORM WITH THE STANDARDS OF THE MAINE CONSTRUCTION GENERAL PERMIT, IF APPLICABLE.

B. ALL EROSION AND SEDIMENT CONTROL MEASURES SHALL BE CONSTRUCTED AND MAINTAINED IN ACCORDANCE WITH THE MAINE EROSION AND SEDIMENT CONTROL BMPS HANDBOOK PUBLISHED BY THE MAINE DEP UNLESS OTHERWISE NOTED IN THESE PLANS.

C. ANY ADDITIONAL EROSION AND SEDIMENT CONTROL MEASURES DEEMED NECESSARY BY THE OWNER'S REPRESENTATIVE, DEPARTMENT OF ENVIRONMENTAL PROTECTION, AND/OR MUNICIPAL OFFICIALS SHALL BE INSTALLED BY THE CONTRACTOR.

D. THE CONTRACTOR IS RESPONSIBLE FOR ALL FINES RESULTING FROM EROSION OR SEDIMENTATION FROM THE SITE TO SURROUNDING PROPERTIES, WATER BODIES, OR WETLANDS AS A RESULT OF THIS PROJECT.

E. THE CONTRACTOR SHALL MINIMIZE DISTURBANCE TO THE SITE WHENEVER POSSIBLE WHILE ALLOWING PROPER SITE DEVELOPMENT.

F. CONSTRUCTION STAGING SHALL BE CONDUCTED IN A WAY TO MINIMIZE THE POTENTIAL FOR STORMWATER RUN–ON TO DISTURBED AREAS.

G. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE REPAIR/REPLACEMENT/MAINTENANCE OF ALL EROSION CONTROL MEASURES UNTIL ALL DISTURBED AREAS ARE STABILIZED TO THE SATISFACTION OF THE ABOVE PERSONNEL. DESCRIPTIONS OF PERMANENT STABILIZATION FOR VARIOUS COVER TYPES FOLLOWS:

i. FOR SEEDED AREAS, PERMANENT STABILIZATION MEANS THAT 90% OF THE DISTURBED AREA IS COVERED WITH REASONABLY THICK UNIFORM STAND OF PERMANENT GRASS SPECIES, FREE FROM SIZABLE THIN OR BARE SPOTS.
ii. FOR SODDED AREAS, PERMANENT STABILIZATION MEANS THAT COMPLETE BINDING OF THE SOD ROOTS INTO THE UNDERLYING SOIL WITH NO SLUMPING OF THE SOD OR DIE OFF.
iii. FOR MULCHED AREAS, PERMANENT STABILIZATION MEANS TOTAL COVERAGE OF THE EXPOSED AREA WITH AN APPROVED MULCH MATERIAL.
iv. FOR AREAS STABILIZED WITH RIPRAP, PERMANENT STABILIZATION MEANS THAT SLOPES STABILIZED WITH RIPRAP HAVE AN APPROPRIATE BACKING OF A WELL–GRADED GRAVEL OR APPROVED GEOTEXTILE. STONE MUST BE SIZED APPROPRIATELY AND IN ACCORDANCE WITH SECTION E–6 OF THE MAINE EROSION AND SEDIMENT CONTROL BMP MANUAL.
v. FOR PAVED AREAS, PERMANENT STABILIZATION MEANS THE PLACEMENT OF THE ASPHALT BINDER COURSE.
vi. FOR OPEN CHANNELS, LEVEL SPREADERS, ENGINEERED BUFFERS OR OTHER DESIGNED STORMWATER CONVEYANCE STRUCTURE, PERMANENT STABILIZATION MEANS THE CHANNELIZED AREA(S) IS STABILIZED WITH MATURE VEGETATION AT LEAST THREE INCHES IN HEIGHT, WITH APPROVED RIPRAP, OR WITH OTHER NON–EROSIVE LINING CAPABLE OF WITHSTANDING THE ANTICIPATED FLOW VELOCITIES AND FLOW DEPTHS WITHOUT RELIANCE ON CHECK DAMS TO SLOW FLOW. THERE SHALL BE NO EVIDENCE OF SLUMPING, UNDERCUTTING OR DOWNCUTTING OF THE DESIGNED CHANNEL.

H. IF THE AREA WILL REMAIN UNWORKED FOR MORE THAN ONE YEAR OR HAS BEEN BROUGHT TO FINAL GRADE, AND WILL NOT BE BUILT ON, THEN IMMEDIATELY PROVIDE PERMANENT STABILIZATION USING VEGETATION THROUGH PLANTING, SEEDING, SOD OR THROUGH THE USE OF PERMANENT MULCH OR RIPRAP. IF USING VEGETATION FOR STABILIZATION, SELECT THE PROPER VEGETATION FOR THE LIGHT, MOISTURE, AND SOIL CONDITIONS. AMEND AREAS OF DISTURBED, OVERLY–COMPACTED SUBSOIL WITH TOPSOIL OR COMPOST AND LIGHTLY TILL 2–3" OF SOIL AMENDMENTS INTO THE TOP 8" OF SOIL.

I. PERMANENT SEEDING SPECIFICATION: IT IS RECOMMENDED THAT PERMANENT SEEDING BE COMPLETED BETWEEN APRIL 1 AND AUGUST 15 OF EACH YEAR. LATE SEASON SEEDING MAY BE DONE BETWEEN AUGUST 15 AND SEPTEMBER 15. AREAS NOT SEEDED OR WHICH DO NOT OBTAIN A SATISFACTORY GROWTH BY OCTOBER 1 SHALL BE SEEDED WITH AROOSTOCK WINTER RYE OR MULCHED AT SPECIFIED RATES. SEE WINTER SEEDING AND MULCHING SPECIFICATIONS FOR STABILIZATION AFTER NOVEMBER 1.

i. APPLY TOPSOIL TO A DEPTH OF 4 INCHES. IN COMPACTED AREAS TILL 2–3" OF COMPOST INTO UPPER 8" OF DISTURBED SOIL AND THEN APPLY 4 INCHES OF TOPSOIL.
ii. APPLY LIME AND FERTILIZER ACCORDING TO SOIL TESTS. IN LIEU OF SOIL TESTS, APPLY GROUND LIMESTONE AT A RATE OF 33 LBS PER 1000 SQUARE FEET AND GRANULAR, COMMERCIAL–GRADE FERTILIZER 10–10–10 AT A RATE OF 18 LBS PER 1000 SQUARE FEET.
iii. UNIFORMLY APPLY SEED MIXTURE AT THE RECOMMENDED SEEDING RATES AND DATES, APPLY HAY OR STRAW MULCH AT A RATE OF 2.5 BALES PER 1000 SQUARE FEET AND ANCHOR AS NECESSARY.

J. PROTECT ALL SEEDED AREAS WITH MULCH OR EROSION CONTROL BLANKET IN AREAS OF SHEET OR CONCENTRATED FLOWS. MULCH ALL AREAS SO THAT SOIL IS NOT VISIBLE THROUGH THE MULCH REGARDLESS OF THE APPLICATION RATE. SCHEDULE SEEDING OR SODDING TO AVOID FAILURE DUE TO SUMMER DROUGHT AND FALL FROST. NEWLY SEEDED AREAS SHOULD BE PROTECTED FROM VEHICLE TRAFFIC, PEDESTRIAN TRAFFIC AND CONCENTRATED RUNOFF UNTIL THE VEGETATION IS WELL ESTABLISHED. AREAS MUST BE REWORKED AND RESTABILIZED IF GERMINATION IS SPARSE OR SURFACE EROSION IS EVIDENT.

K. DITCH LININGS AND RIPRAP INLET AND OUTLET PROTECTION SHALL BE INSTALLED WITHIN 48 HOURS OF COMPLETING THE GRADING OF THAT SECTION OF DITCH OR INSTALLATION OF THE CULVERT.

L. EROSION CONTROL BLANKET SHALL BE INSTALLED ON ALL PERMANENT SLOPES STEEPER THAN 3:1, IN THE BASE OF DITCHES AND ANY DISTURBED AREAS WITHIN 100 FEET OF A PROTECTED NATURAL RESOURCE (WETLANDS AND WATER RESOURCES). EROSION CONTROL BLANKET SHALL BE NORTH AMERICAN GREEN S150BN OR APPROVED EQUAL. EROSION CONTROL BLANKET SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.

M. THE CONTRACTOR IS RESPONSIBLE FOR REMOVAL OF ALL TEMPORARY EROSION CONTROL MEASURE UPON STABILIZATION OF PROJECT AREA & COST SHALL BE INCIDENTAL TO CONTRACT.

WINTER CONDITIONS

A. WINTER CONSTRUCTION IS CONSTRUCTION ACTIVITY PERFORMED DURING THE PERIOD FROM NOVEMBER 1 THROUGH APRIL 1. IF AREAS WITHIN THE CONSTRUCTION AREA ARE NOT STABILIZED WITH TEMPORARY OR PERMANENT MEASURES OUTLINED ABOVE BY NOVEMBER 15 THEN THE SITE MUST BE PROTECTED WITH ADDITIONAL STABILIZATION MEASURES THAT ARE SPECIFIC TO WINTER CONDITIONS.

GOOD HOUSEKEEPING AND POLLUTION PREVENTION

A. SPILL PREVENTION CONTROLS MUST BE USED TO PREVENT POLLUTANTS FROM BEING DISCHARGED FROM MATERIALS ON SITE, INCLUDING STORAGE PRACTICES TO MINIMIZE EXPOSURE OF THE MATERIALS TO STORMWATER RUNOFF AND APPROPRIATE SPILL PREVENTION, CONTAINMENT AND RESPONSE PLANNING AND IMPLEMENTATION.

B. DURING CONSTRUCTION, PETROLEUM PRODUCTS AND OTHER HAZARDOUS MATERIALS WITH THE POTENTIAL TO CONTAMINATE GROUND OR SURFACE WATERS MAY NOT BE STORED OR HANDLED IN AREAS OF THE SITE DRAINING TO INFILTRATION AREAS. AN "INFILTRATION AREA" IS ANY ARE OF THE SITE THAT BY DESIGN, OR AS A RESULTS OF SOIL AND TOPOGRAPHY, ACCUMULATES RUNOFF THAT INFILTRATES IN THE SOIL. DIKES, BERMS, SUMPS AND OTHER FORMS OF TEMPORARY SECONDARY CONTAINMENT THAT PREVENT DISCHARGE TO GROUNDWATER MAY BE USED TO ISOLATE PORTIONS OF THE SITE FOR THE PURPOSES OF STORAGE AND HANDLING OF THESE MATERIALS.

C. LOCATE ALL MATERIAL STOCKPILES WITH CONSIDERATION FOR STORMWATER DRAINAGE PATTERNS AND INFRASTRUCTURE.

D. TAKE ALL REASONABLE MEASURES TO MINIMIZE DUST RESULTING FROM THE PROJECT. OIL MAY NOT BE USED FOR DUST CONTROL.

E. LOCATE ALL LITTER, CONSTRUCTION DEBRIS AND CONSTRUCTION CHEMICALS WITH CONSIDERATION FOR STORMWATER DRAINAGE PATTERNS AND INFRASTRUCTURE.

F. TRENCH OR FOUNDATION DE–WATERING MUST BE SPREAD THROUGH SUFFICIENT NATURAL BUFFERS THAT HAVE CAPACITY TO INFILTRATE THE PUMPED WATER OR SHOULD BE PUMPED TO DESIGNED CONSTRUCTION DEWATERING DEVICES AS DESCRIBED IN THE MAINE EROSION AND SEDIMENT CONTROL BMPS HANDBOOK.

G. SEDIMENTS AND SOIL MATERIALS SHOULD BE SWEPT FROM PAVED SURFACES AT THE END OF EACH WORKDAY OR PRIOR TO RAIN EVENTS, WHENEVER POSSIBLE.

INSPECTION AND MAINTENANCE

A. A PERSON WITH KNOWLEDGE OF EROSION AND STORMWATER CONTROLS, INCLUDING THE STANDARDS IN THE MAINE CONSTRUCTION GENERAL PERMIT, THE MAINE EROSION AND SEDIMENT CONTROL BMPS HANDBOOK OR ANY MUNICIPAL REQUIREMENTS MUST CONDUCT THE INSPECTION. THIS PERSON MUST BE IDENTIFIED IN THE INSPECTION LOG. IF ADDITIONAL BMPS OR MODIFICATIONS TO BMPS ARE NECESSARY, THE MODIFICATIONS MUST BE IMPLEMENTED WITH 7 CALENDAR DAYS OR PRIOR TO ANY PRECIPITATION EVENT. ALL MEASURES MUST BE MAINTAINED IN EFFECTIVE OPERATING CONDITION UNTIL AREAS ARE PERMANENTLY STABILIZED.

B. AN INSPECTION AND MAINTENANCE LOG MUST BE KEPT BY THE CONTRACTOR, SUMMARIZING THE SCOPE OF THE INSPECTION, DATE, AND MAJOR OBSERVATIONS RELATING TO THE OPERATION OF EROSION AND SEDIMENT CONTROL BMPS, MATERIAL STORAGE AREAS, AND VEHICLE ACCESS POINTS TO THE CONSTRUCTION AREA. THE INSPECTION LOG SHOULD BE DELIVERED TO THE PROPERTY OWNER OR RESPONSIBLE CONTRACTING ENTITY UPON COMPLETION OF THE PROJECT.

DEWATERING

A. ANY DEWATERING FLOW DIRECTED TO THE CITY'S COMBINED SEWER SYSTEM SHALL BE REVIEWED AND APPROVED BY THE DEPARTMENT OF PUBLIC SERVICES AND/OR THE PORTLAND WATER DISTRICT PRIOR TO COMMENCING DEWATERING ACTIVITIES.

Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

CARROLL ASSOCIATES LANDSCAPE ARCHITECTS
217 Commercial St, Suite 200
Portland, ME 04101
207.772.1552
www.carroll-assoc.com

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Portland, ME 04101
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BECKER STRUCTURAL ENGINEERS, INC.
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Portland, ME 04101
207.879.1838
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WOODARD & CURRAN
41 Hutchins Dr.
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GORRILL PALMER
707 Sable Oaks Drive, Suite 30
South Portland, ME 04106
207.239.7470
www.gorrillpalmer.com

Revisions		
1	12.20.19	SITE PLAN APPLICATION REVISIONS

Drawing Title:	Scale: AS NOTED

CIVIL DETAILS - 1

STATE OF MAINE
LAUREN JANE SWETT
12284
PROFESSIONAL LICENSED ENGINEER

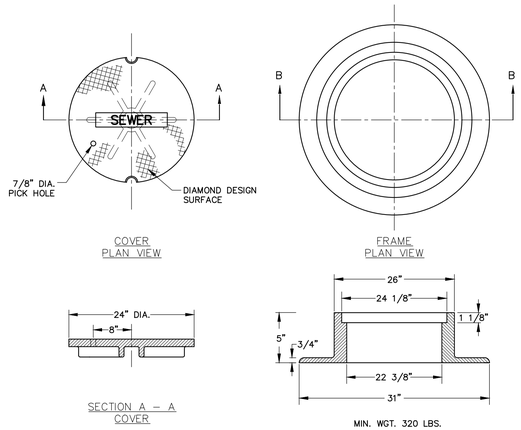
12/20/2019

Date:	DECEMBER 20, 2019
Phase:	PERMITTING

C-300

PERMIT SET - NOT FOR CONSTRUCTION

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COVER PLAN VIEW

FRAME PLAN VIEW

SECTION A – A COVER

MIN. WGT. 320 LBS.

SECTION B – B FRAME

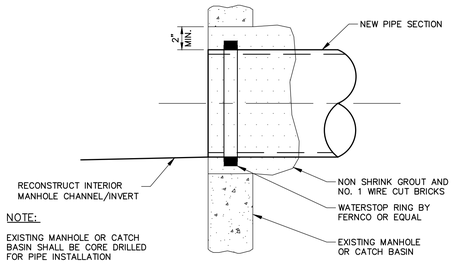
NOTE:

ALL MANHOLE COVERS SHALL BE SOLID AND SHALL HAVE ONE 7/8" DIAMETER DRILLED PICK HOLE, LOCATED 8" FROM THE CENTER OF THE COVER.

ALL SANITARY MANHOLE COVERS SHALL HAVE "SEWER" CAST INTO THE COVER. ALL STORMWATER/DRAIN MANHOLE COVERS SHALL HAVE "DRAIN" CAST INTO THE COVER.

CAST IRON MANHOLE FRAME AND COVER

N.T.S.

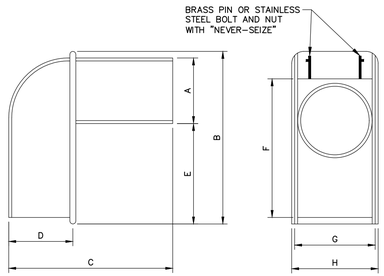


NOTE:

EXISTING MANHOLE OR CATCH BASIN SHALL BE CORE DRILLED FOR PIPE INSTALLATION

NEW PIPE TO EXISTING STRUCTURE

N.T.S.



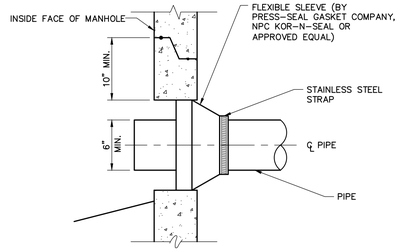
SIZE	A	B	C	D	E	F	G	H
10"	9 1/2"	16"	16 1/4"	6"	4 1/2"	14 1/8"	11 1/2"	12 3/8"
12"	11 1/2"	17"	22"	8"	3 1/2"	17"	12 1/2"	13 3/8"
15"	14 1/2"	22 1/2"	23"	10 1/4"	5 3/4"	21"	14 1/2"	15 3/4"

NOTE:

1. CASCO TRAP SHALL BE CAST IRON CASCO TRAP BY ETHERIDGE FOUNDRY OR APPROVED EQUAL.
2. BOLT AND NUT REQUIRED WHERE HOOD WILL NOT OPEN COMPLETELY.
3. CASCO TRAP SHALL BE INSTALLED ON ALL CATCH BASIN OUTLET PIPES, INCIDENTAL TO COST OF CATCH BASIN

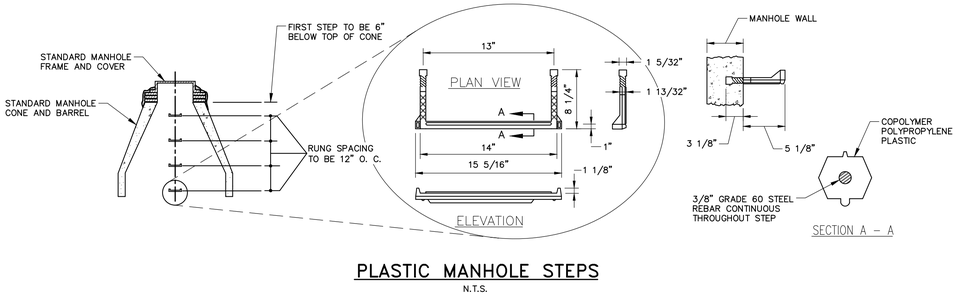
CASCO TRAP DETAIL

N.T.S.



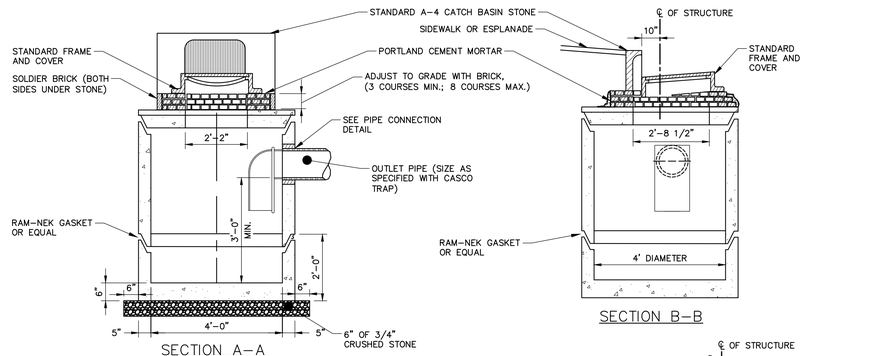
NEW PIPE TO NEW STRUCTURE CONNECTION DETAIL

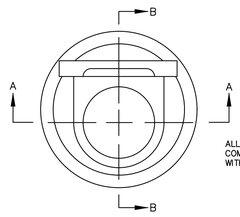
N.T.S.



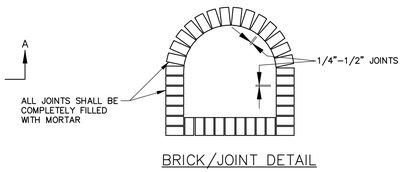
PLASTIC MANHOLE STEPS

N.T.S.

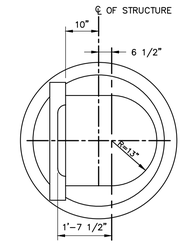




PLAN VIEW
COVER, FRAME AND STONE



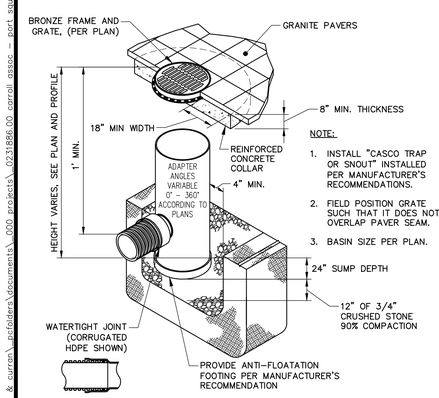
BRICK/JOINT DETAIL



PLAN VIEW
TOP SLAB

PRECAST CONCRETE CATCH BASIN

N.T.S.



NOTE:

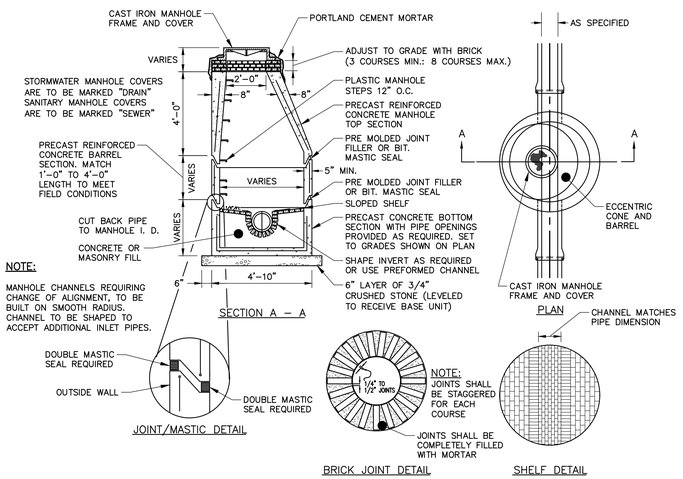
1. INSTALL "CASCO TRAP OR SNOUT" INSTALLED PER MANUFACTURER'S RECOMMENDATIONS.
2. FIELD POSITION GRATE SUCH THAT IT DOES NOT OVERLAP PAVER SEAM.
3. BASIN SIZE PER PLAN.

DRAIN BASIN DETAIL

N.T.S.

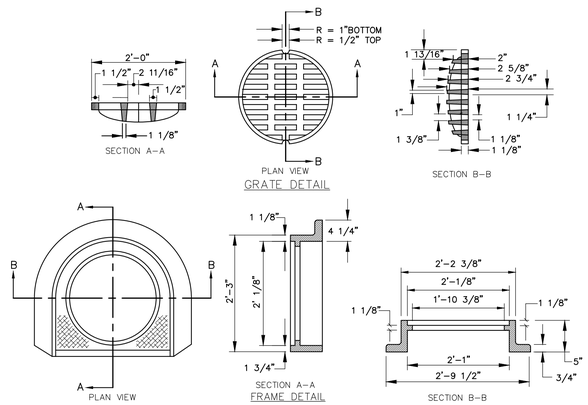
GENERAL NOTES FOR MANHOLES AND CATCH BASINS

1. ALL CONCRETE SHALL BE CLASS "A" AND HAVE A MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF 4000 LBS. PER SQ. INCH AT THE END OF 28 DAYS, UNLESS OTHERWISE NOTED.
2. PRECAST REINFORCED CONE BARREL MANUFACTURED PER ASTM SPEC. C–478.
3. ALL MANHOLES SHALL HAVE A BITUMINOUS WATERPROOFING APPLIED TO THE EXTERIOR SURFACE. IF CONSTRUCTED OF BRICK MASONRY, SURFACE SHALL BE PLASTERED WITH A SMOOTH MORTAR FINISH 3/8" THICK. AFTER THE MORTAR HAS SET, THE SURFACE SHALL BE WATERPROOFED AS REQUIRED BY SUPPLEMENTAL SPECIFICATIONS SECTION 604.
4. CASTINGS SHALL CONFORM TO ASTM DESIGNATION A48–CLASS 35. ALL PARTS OF CASTINGS, EXCEPT FINISHED SURFACE, SHALL RECEIVE A COAT OF COAL TAR PITCH VARNISH OR ASPHALTUM PAINT WHICH SHALL BE SMOOTH AND TOUGH BUT NOT BRITTLE.
5. MANHOLES MAY BE CONSTRUCTED OF MASONRY, PRECAST REINFORCED CONCRETE, OR CAST IN PLACE.
6. CONTRACTOR SHALL SUBMIT ANTIFLOATATION CALCULATIONS FOR ALL MANHOLE AND CATCH BASIN STRUCTURES.
7. ALL PRECAST MANHOLES AND CATCH BASINS SHALL BE IDENTIFIED BY STATION, OFFSET, AND STRUCTURE ID PAINTED ON THE SIDE OF THE STRUCTURE BY THE MANUFACTURER.
8. STORM AND SEWER MANHOLES SHALL HAVE SOLID COVERS WITH ONE DRILLED PICK HOLE.
9. EXISTING MANHOLES, CATCH BASINS, FRAMES, AND COVERS SHALL BE SALVAGED BY THE CONTRACTOR, AND SHALL REMAIN THE PROPERTY OF THE CITY OF PORTLAND.
10. WHEN THE FLOW CHANGES DIRECTION IN A MANHOLE, THE CHANNEL ALIGNMENT SHALL FOLLOW A SMOOTH RADIUS. CHANNELS SHALL BE FORMED TO ACCEPT ALL INLET PIPES.
11. ON STORM AND SEWER MANHOLES, THE SHELF AND CHANNEL SHALL BE FORMED BY BRICK SET IN CEMENT MORTAR OR BY FACTORY PRE–CAST CONCRETE. SUCH PRE–CAST CONCRETE SHALL BE EPOXY COATED AND THE SHELF SHALL HAVE A PERMANENT NON–SKID SURFACE.



PRECAST CONCRETE MANHOLE

N.T.S.



CATCH BASIN TYPE "D" – FRAME & COVER DETAIL

N.T.S.

GENERAL NOTES:

1. ALL WORK SHALL CONFORM TO THE CITY OF PORTLAND TECHNICAL MANUAL AND THE MAINE DEPARTMENT OF TRANSPORTATION STANDARD SPECIFICATIONS, LATEST EDITION.
2. CONTRACTOR SHALL CONTACT DIGSAFE (1-888-DIGSAFE) AT LEAST 72 HOURS PRIOR TO EXCAVATION.
3. CONTRACTOR SHALL CONTACT THE CITY OF PORTLAND DEPARTMENT OF PUBLIC SERVICES AT LEAST 48 HOURS PRIOR TO CONSTRUCTION.
4. CONTRACTOR SHALL OBTAIN ALL PERMITS AND PAY ALL FEES REQUIRED FOR THE PERFORMANCE OF THE WORK.
5. CONTRACTOR SHALL PROVIDE ALL NECESSARY SAFETY MEASURES REQUIRED TO PROTECT THE PUBLIC AND WORKMEN DURING CONSTRUCTION.
6. CONTRACTOR SHALL PROTECT ALL EXISTING UTILITIES AND STRUCTURES NOT SCHEDULED FOR REMOVAL. ANY DAMAGE CAUSED BY CONSTRUCTION SHALL BE REPAIRED OR REPLACED AT THE CONTRACTOR'S EXPENSE.
7. CONTRACTOR SHALL MAINTAIN ACCESS TO ALL ADJACENT PROPERTIES AT ALL TIMES.
8. CONTRACTOR SHALL PROVIDE AS-BUILT PLANS TO THE OWNER AND THE CITY OF PORTLAND UPON COMPLETION OF THE WORK.

PERMIT SET - NOT FOR CONSTRUCTION

Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

CARROLL ASSOCIATES LANDSCAPE ARCHITECTS
217 Commercial St, Suite 200
Portland, ME 04101
207.772.1552
www.carroll-assoc.com

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GORRILL PALMER
707 Sable Oaks Drive, Suite 30
South Portland, ME 04106
207.239.7470
www.gorrillpalmer.com

Revisions		
1	12.20.19	SITE PLAN APPLICATION REVISIONS

Drawing Title: CIVIL DETAILS - 2

Scale: AS NOTED

STATE OF MAINE · LAUREN JANE SWETT · 12284 · PROFESSIONAL ENGINEER · LICENSED

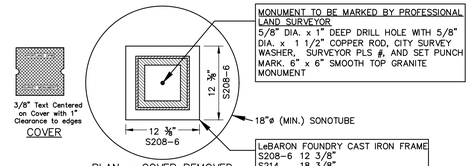
12/20/2019

Date: DECEMBER 20, 2019

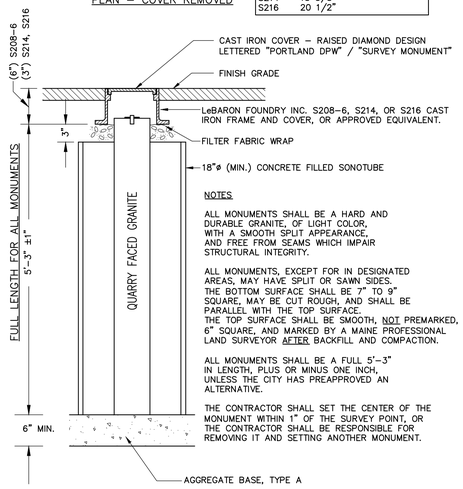
Phase: PERMITTING

C-301

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PLAN – COVER REMOVED



NOTES

ALL MONUMENTS SHALL BE A HARD AND DURABLE GRANITE, OF LIGHT COLOR, WITH A SMOOTH SPLIT APPEARANCE, AND FREE FROM SEAMS WHICH IMPAIR STRUCTURAL INTEGRITY.

ALL MONUMENTS, EXCEPT FOR IN DESIGNATED AREAS, MAY HAVE SPLIT OR SAWN SIDES. THE BOTTOM SURFACE SHALL BE 7" TO 9" SQUARE, MAY BE CUT ROUGH, AND SHALL BE PARALLEL WITH THE TOP SURFACE. THE TOP SURFACE SHALL BE SMOOTH, NOT PREMARKED, 6" SQUARE, AND MARKED BY A MAINE PROFESSIONAL LAND SURVEYOR AFTER BACKFILL AND COMPACTION.

ALL MONUMENTS SHALL BE A FULL 5'–3" IN LENGTH, PLUS OR MINUS ONE INCH, UNLESS THE CITY HAS PREAPPROVED AN ALTERNATIVE.

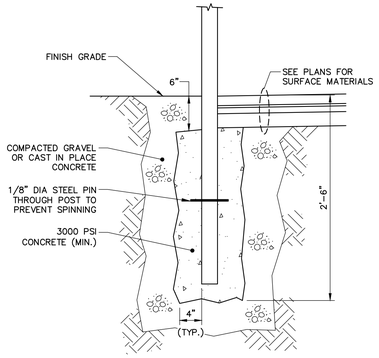
THE CONTRACTOR SHALL SET THE CENTER OF THE MONUMENT WITHIN 1" OF THE SURVEY POINT, OR THE CONTRACTOR SHALL BE RESPONSIBLE FOR REMOVING IT AND SETTING ANOTHER MONUMENT.

GRANITE STREET MONUMENT
N.T.S.

NOTE: AGGREGATE TYPES PER MDOT SECTION 304.02

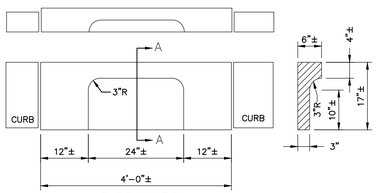
CONCRETE GRADE RING REINFORCEMENT PLAN
N.T.S.

CLEANOUT DETAIL
N.T.S.



POST SPECIFICATION			
TYPE	HEIGHT ABOVE FIN. GRADE	POST DIAMATER	POST MATERIAL
STREET SIGNAGE	7'–0"	2 3/8" (O.D.)	GALV. STEEL

TYPICAL SIGN POST DETAIL
N.T.S.

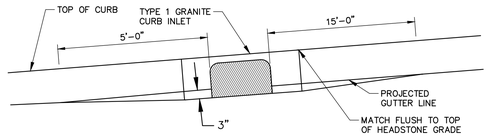


CURB INLET SECTION A–A

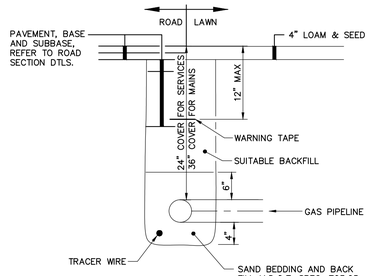
TYPE 1 GRANITE CURB INLET
N.T.S.

NOTE:

DISH 10' EITHER SIDE OF HEADSTONE FOR CATCH BASIN AT LOW POINT.



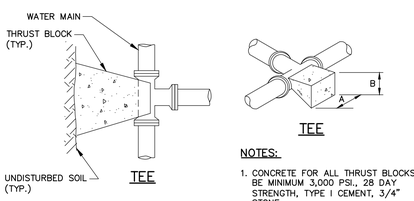
TYPICAL PAVEMENT GRADING ON SLOPES FOR CATCH BASIN AND INLETS
N.T.S.



NOTE:

CONTRACTOR SHALL PERFORM EXCAVATION AND PROVIDE BEDDING, BACKFILL, AND SURFACE RESTORATION; UNITIL SHALL PROVIDE PIPING, VALVES AND FITTINGS. CONTRACTOR SHALL COORDINATE ALL WORK WITH UNITIL. INC.

NATURAL GAS PIPE
N.T.S.



TEE

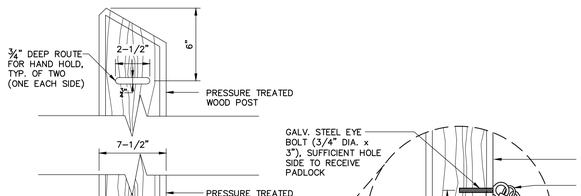
TEE

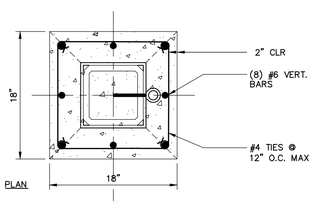
NOTES:

1. CONCRETE FOR ALL THRUST BLOCKS TO BE MINIMUM 3,000 PSI., 28 DAY STRENGTH, TYPE I CEMENT, 3/4" STONE.
2. WHERE POSSIBLE, CONSTRUCT THRUST BLOCKS AGAINST UNDISTURBED SOIL. WHERE NOT POSSIBLE, PLACE FILL BETWEEN THE THRUST BLOCK AND THE UNDISTURBED SOIL COMPACTED TO 90% STANDARD PROCTOR DENSITY.
3. WRAP FITTINGS WITH POLYETHYLENE PRIOR TO CONSTRUCTING THRUST BLOCKS. NO JOINTS SHALL BE COVERED WITH CONCRETE.
4. THRUST BLOCK DIMENSIONS ARE BASED ON A MAXIMUM WATER MAIN PRESSURE OF 150 PSI.

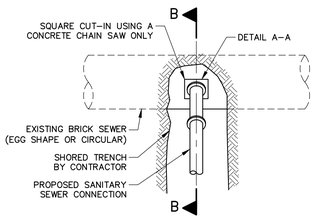
TABLE 1: 4" THRU 10" FITTINGS				
SOIL TYPE	TEES		BENDS	
	A	B	A	B
SOFT CLAY	48"	24"	48"	24"
SAND	24"	24"	24"	24"
GRAVEL	24"	18"	24"	18"

TYPICAL THRUST BLOCK DETAIL
N.T.S.

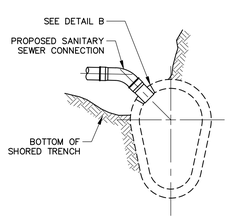




REMOVABLE WOOD BOLLARD
N.T.S.



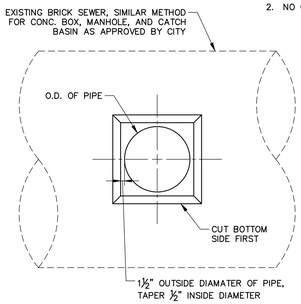
PLAN VIEW



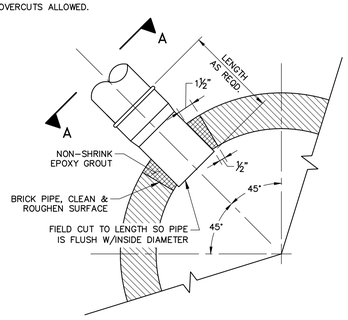
SECTION B–B

NOTES:

1. USE CONCRETE CHAIN SAW FOR CUTS.
2. NO OVERCUTS ALLOWED.

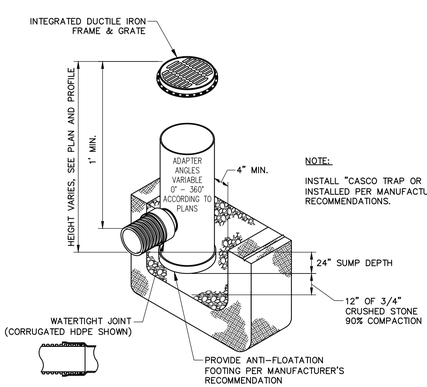


DETAIL A–A



DETAIL B

SANITARY SEWER SERVICE CONNECTION TO EXISTING BRICK SEWER
N.T.S.



24" DIAMETER CATCH BASIN
N.T.S.

PERMIT SET - NOT FOR CONSTRUCTION

Three Portland Square

Portland, Maine

Owner / Developers
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New York, NY

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Revisions		
1	12.20.19	SITE PLAN APPLICATION REVISIONS

Drawing Title: CIVIL DETAILS - 3

Scale: AS NOTED

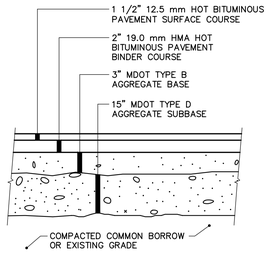
STATE OF MAINE — LAUREN JANE SWETT — 12284 — REGISTERED PROFESSIONAL ENGINEER
12/20/2019

Date: DECEMBER 20, 2019

Phase: PERMITTING

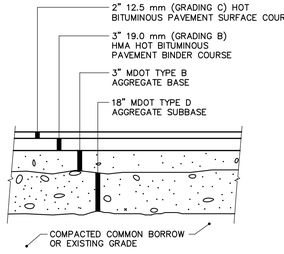
C-302

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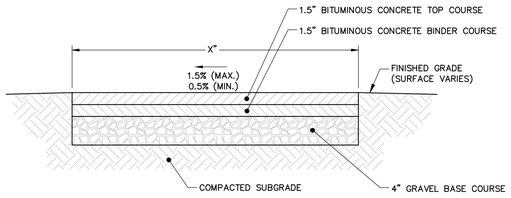
BITUMINOUS PAVEMENT REPAIR SECTION (LOCAL)

N.T.S.



BITUMINOUS PAVEMENT REPAIR SECTION (MINOR ARTERIAL)

N.T.S.



BITUMINOUS CONCRETE SIDEWALK

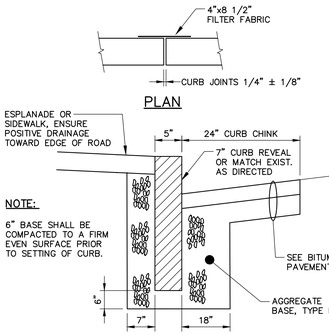
NOT TO SCALE

NOTE:

TRENCH DRAIN K100-KUASSIKDRAIN LOAD CLASS - OR APPROVED EQUAL. GRATE TYPE 447Q/448Q LONGITUDINAL STAINLESS STEEL OR APPROVED EQUAL.

TRENCH DRAIN DETAIL

N.T.S.



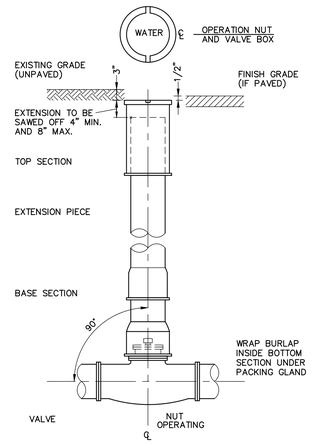
SECTION

CURB TYPE 1 ON CURVES			
TYPE	RADIUS OF CURVE	LENGTH	STONE IS CUT OR CAST
1	0' TO 60' INCL.	4' MIN.	ARC TO FIT CURVE
	OVER 60' TO 160'	4' TO 6'	STRAIGHT PIECES

TYPICAL NEW AND RESET CURB INSTALLATION

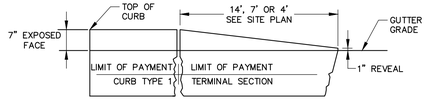
N.T.S.

NOTE: AGGREGATE TYPES PER MDOT SECTION 304.02



GATE VALVE WITH VALVE BOX

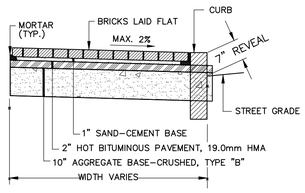
N.T.S.



TERMINAL SECTION TYPE "1"

TERMINAL CURB SECTION

N.T.S.



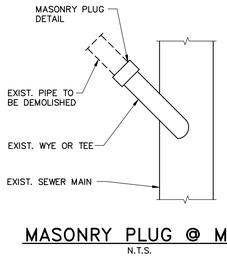
SECTION

NOTE:

SEE LANDSCAPE PLANS FOR GRANITE PAVER SECTIONS.

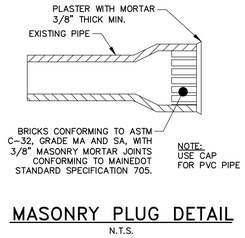
BRICK SIDEWALK DETAIL

N.T.S.



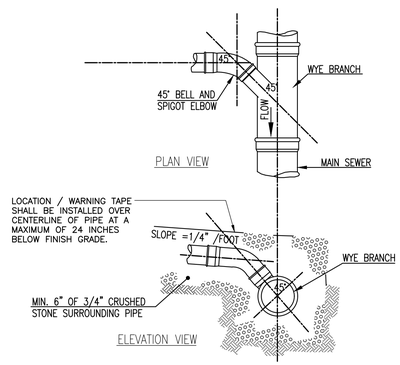
MASONRY PLUG @ MAIN

N.T.S.



MASONRY PLUG DETAIL

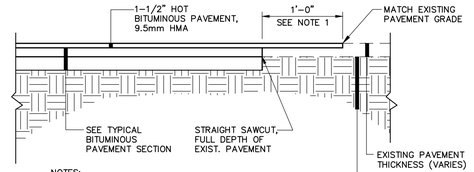
N.T.S.



TYPICAL SEWER LATERAL WYE CONNECTION DETAILS

N.T.S.

NOTE: FOR INSERTA TEE CONNECTIONS TO SEWER AND STORMDRAIN MAINS, REFER TO MANUFACTURER'S INSTALLATION INSTRUCTIONS.



NOTES:

1. GRIND EXISTING PAVEMENT, TO 1 ½" DEPTH.
2. PROVIDE BITUMINOUS TACK COAT ON VERTICAL AND HORIZONTAL SURFACES PRIOR TO PAVING.
3. DETAIL APPLICABLE TO PAVEMENT BUTT JOINTS AT ROADWAY WORK LIMITS. REFER TO PIPE INSTALLATION DTL. OR BITUMINOUS PAVEMENT SECTION DTLS. FOR TRENCH REPAIR REQUIREMENTS.

PAVEMENT BUTT JOINT DETAIL

N.T.S.

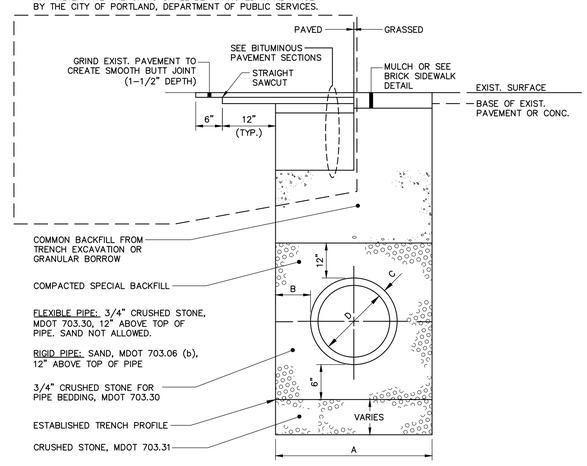
PIPE INSTALLATION DETAIL - NOTES

1. IN PAVED AREAS, DEPTHS OF GRAVEL AND HOT MIX ASPHALT PAVEMENT SHALL MATCH THE GREATER OF EXISTING CONDITIONS OR THE REQUIREMENTS FOR THE CORRESPONDING STREET CLASSIFICATION.
2. DIMENSION "B" SHALL BE SUFFICIENT TO ALLOW CRUSHED STONE BEDDING TO BE PLACED AND COMPACTED UNDER THE HAUNCHES OF THE PIPE; BUT IN ALL CASES "B" SHALL BE AT LEAST 9".
3. DIMENSION "A" SHALL BE BASED ON PIPE DIAMETER, AS SET FORTH IN THE FOLLOWING TABLE.

PIPE DIAMETER, "D" (INCHES)	MAX. TRENCH WIDTH, "A" (FEET)
6	4.0
8	4.0
10	4.0
12	4.0
15	4.0
18	5.0
21	5.0
24	5.5
27	6.0
30	6.0
36	7.0
42	8.0
48	8.0

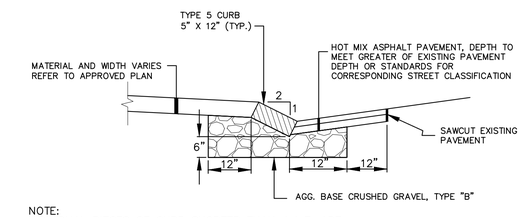
NOTES:

ANY ALTERNATE TRENCHING SHALL BE APPROVED IN ADVANCE BY THE CITY OF PORTLAND, DEPARTMENT OF PUBLIC SERVICES.



PIPE INSTALLATION DETAIL

N.T.S.



NOTE:
INDIVIDUAL PIECES OF CURB SHORTER THAN 4 L.F. ARE NOT ALLOWED, WITH THE EXCEPTION OF RADIAL CURB.

SLOPED GRANITE CURB

N.T.S.

PERMIT SET - NOT FOR CONSTRUCTION

Three Portland Square

Portland, Maine

Owner / Developers
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New York, NY

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Revisions		
1	12.20.19	SITE PLAN APPLICATION REVISIONS

Drawing Title:	Scale: AS NOTED

CIVIL DETAILS - 4

STATE OF MAINE
LAUREN JANE SWETT
12284
PROFESSIONAL ENGINEER
LICENSED
Lauren J. Swett
12/20/2019

Date:	DECEMBER 20, 2019
Phase:	PERMITTING

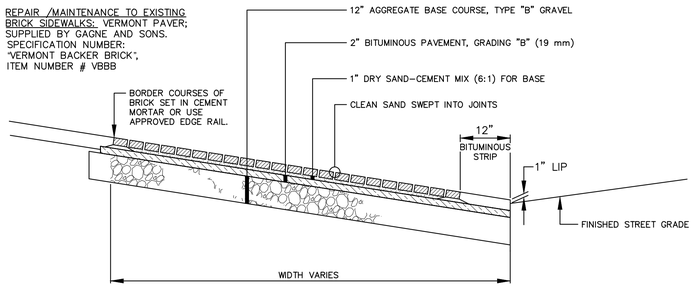
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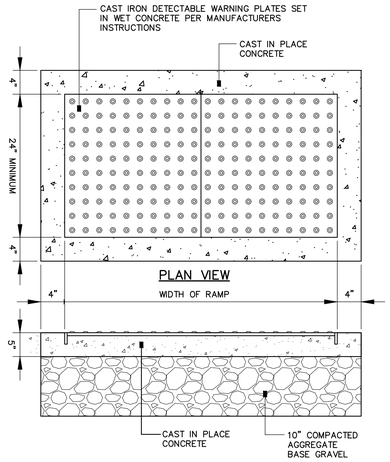
BRICKS TO BE USED:

NEW CONSTRUCTION:
4"x8" PINE HALL PATHWAY PAVER BRICK; MFG. BY PINE HALL BRICK CO., MADISON, NORTH CAROLINA. LACHANCE ITEM # 193623, PINE HALL PATHWAY PAVER BRICK.

REPAIR /MAINTENANCE TO EXISTING BRICK SIDEWALKS: VERMONT PAVER; SUPPLIED BY GAGNE AND SONS. SPECIFICATION NUMBER: "VERMONT BACKER BRICK", ITEM NUMBER # VBBB



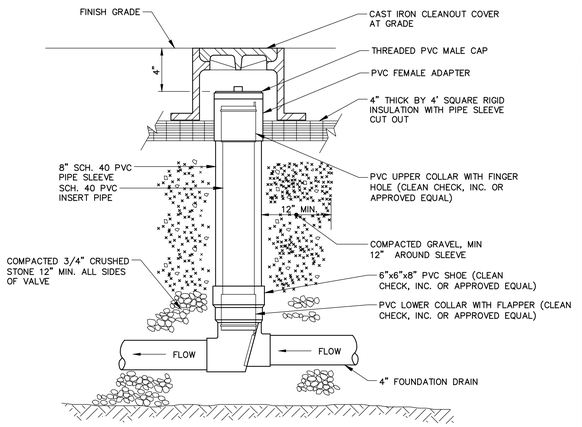
BRICK DRIVEWAY APRON
N.T.S.



SECTION VIEW

NOTES:
1. ALL DETECTABLE WARNING PLATES SHALL BE UNCOATED CAST IRON. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.
2. CAST IN PLACE CONCRETE SHALL MEET SPECIFICATIONS FOR MAINE D.O.T. CLASS A STRUCTURAL CONCRETE, MINIMUM COMPRESSIVE STRENGTH 4,000 PSI. THE EXPOSED CONCRETE BORDER SHALL RECEIVE A UNIFORM BROOM FINISH PERPENDICULAR TO THE FLOW OF PEDESTRIAN TRAFFIC.
3. TRUNCATED DOMES SHALL BE ALIGNED IN ROWS, PARALLEL AND PERPENDICULAR TO THE PREDOMINANT DIRECTION OF TRAVEL. TRUNCATED DOME BRICKS AND GRANITE PAVERS ARE NOT ALLOWED.
4. SIZE: THE DETECTABLE WARNING PLATES SHALL EXTEND 24 INCHES MINIMUM IN THE DIRECTION OF TRAVEL AND THE PLATE WIDTH + CONCRETE SHALL EXTEND THE WIDTH OF THE CURB RAMP, LANDING, OR BLENDED TRANSITION TO THE STREET.
5. ORIENTATION: THE DETECTABLE WARNING PANEL SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 INCHES MINIMUM AND 8 INCHES MAXIMUM FROM THE CURB LINE. THE PANEL SHALL BE ORIENTED TO THE DIRECTION OF TRAVEL AS IDENTIFIED BY THE POINT OF EGRESS.

SIDEWALK RAMP DETECTABLE WARNING
N.T.S.

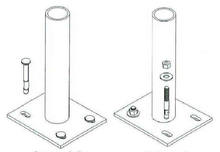


NOTES:
1. MATERIALS AND INSTALLATION PER MANUFACTURER'S INSTRUCTIONS.
2. SEE MECHANICAL PLANS FOR DETAIL OF BACK FLOW PREVENTOR LOCATED IN BELOW BUILDING PARKING LOT.

BACKFLOW PREVENTER
N.T.S.

Tools Needed for Installation

Tape Measure
Marker or Pencil
Masonry Drill Bit
Drill (Hammer drill recommended)
Hammer
Wrench 9/16"
Level
Washers (for leveling if necessary)

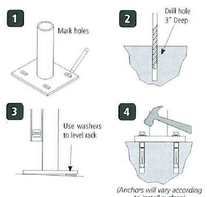


Recommended Base Materials:

Solid concrete is the best base material for installation. Ask your Dero Rack representative which anchor is appropriate for your application to ensure the proper anchors are shipped with your rack. Be sure nothing is underneath the base material that could be damaged by drilling.

Installation:

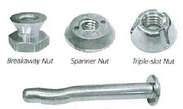
3/8" anchors are shipped with the rack. Place the rack in the desired location. Use a marker or pencil to outline the holes of the flange onto the base material. Drill the holes in accordance with the specifications shipped with the anchors. Make sure the holes are at least 6" away from any cracks in the base material.



Tamper Resistant Fasteners

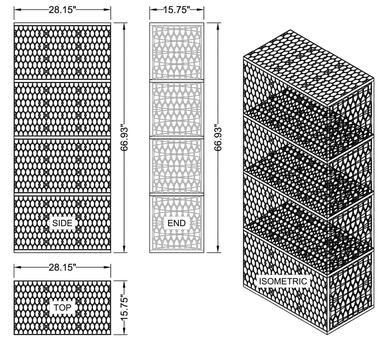
The concrete spike is a permanent anchor. The top of the wedge anchor can also be pounded sideways after installation so that it cannot be removed. Other tamper resistant fasteners are also available for purchase.

When using the special tamper resistant nuts, always set and first tighten the anchors. Once the rack is installed, replace two nuts from the bracket (opposite sides from each other) with the tamper resistant fastener. DO NOT OVERTIGHTEN the tamper resistant nut.



If you have any questions about installation or other features of the Bike Rack, please call us toll free at 1-800-298-4915

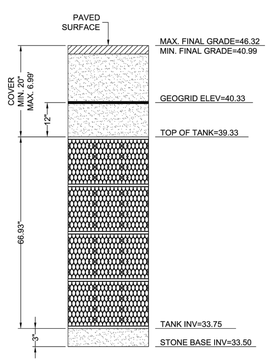
TYPICAL BIKE RACK DETAIL IN R.O.W.
N.T.S.



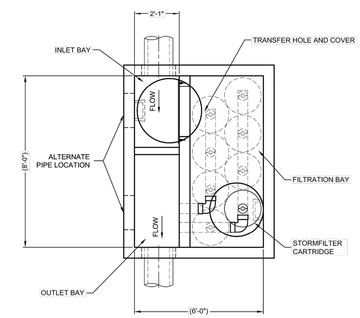
MODULE DATA

GEOMETRY:	**LOAD RATING:**
LENGTH = 28.15 IN. (715 MM)	33.4 PSI, (MODULE ONLY)
WIDTH = 15.75 IN. (400 MM)	HS20, (WITH ACF COVER SYSTEM)
HEIGHT = 66.93 IN. (1700 MM)	**MATERIAL:**
TANK VOLUME = 17.17 CF	100% RECYCLED POLYPROPYLENE
STORAGE VOLUME = 16.31 CF	**SMALL PLATES PER**
VOID INTERNAL VOLUME: 95%	**SEGMENT/TOTAL:**
VOID SURFACE AREA: 90%	5/20

R-TANKHD - QUAD MODULE
N.T.S.



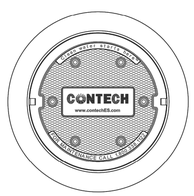
QUAD R-TANKHD-ELEVATION
N.T.S.



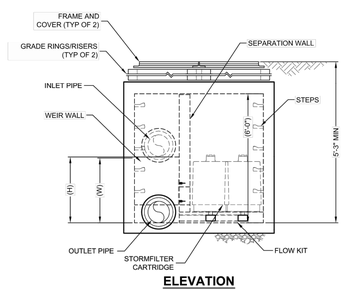
PLAN

STORMFILTER DESIGN NOTES									
• THE 8' x 6' PEAK DIVERSION STORMFILTER TREATMENT CAPACITY VARIES BY CARTRIDGE COUNT AND LOCALLY APPROVED SURFACE AREA SPECIFIC FLOW RATE. PEAK CONVEYANCE CAPACITY TO BE DETERMINED BY ENGINEER OF RECORD. • THE PEAK DIVERSION STORMFILTER IS AVAILABLE IN A LEFT INLET (AS SHOWN) OR RIGHT INLET CONFIGURATION. • ALL PARTS AND INTERNAL ASSEMBLY PROVIDED BY CONTECH UNLESS OTHERWISE NOTED.									
CARTRIDGE SELECTION									
CARTRIDGE HEIGHT	27"			18"			LOW DROP		
RECOMMENDED HYDRAULIC DROP (H)	3.05'			2.3'			1.8'		
HEIGHT OF WEIR (W)	3.00'			2.25'			1.75'		
SPECIFIC FLOW RATE (gpm/sf)	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf	2 gpm/sf	1.67* gpm/sf	1 gpm/sf
CARTRIDGE FLOW RATE (gpm)	22.5	18.79	11.25	15	12.53	7.5	10	8.35	5

* 1.67 gpm/sf SPECIFIC FLOW RATE IS APPROVED WITH PHOSPHOSORB® (PSORB) MEDIA ONLY



FRAME AND COVER
(DIAMETER VARIES)
N.T.S.



ELEVATION

PERFORMANCE SPECIFICATION
FILTER CARTRIDGES SHALL BE MEDIA-FILLED, PASSIVE, SIPHON ACTUATED, RADIAL FLOW, AND SELF CLEANING. **RADIAL MEDIA DEPTH SHALL BE 7 INCHES.** FILTER MEDIA CONTACT TIME SHALL BE AT LEAST **36 SECONDS.**
SPECIFIC FLOW RATE SHALL BE **2 GPM/SF (MAXIMUM)**. SPECIFIC FLOW RATE IS THE MEASURE OF THE FLOW (GPM) DIVIDED BY THE MEDIA SURFACE CONTACT AREA (SF). MEDIA VOLUMETRIC FLOW RATE SHALL BE **6 GPM/CF OF MEDIA (MAXIMUM).**

GENERAL NOTES
1. CONTECH TO PROVIDE ALL MATERIALS UNLESS NOTED OTHERWISE.
2. DIMENSIONS MARKED WITH ( ) ARE REFERENCE DIMENSIONS. ACTUAL DIMENSIONS MAY VARY.
3. FOR FABRICATION DRAWINGS WITH DETAILED STRUCTURE DIMENSIONS AND WEIGHTS, PLEASE CONTACT YOUR CONTECH REPRESENTATIVE. www.ContechES.com
4. STORMFILTER WATER QUALITY STRUCTURE SHALL BE IN ACCORDANCE WITH ALL DESIGN DATA AND INFORMATION CONTAINED IN THIS DRAWING. CONTRACTOR TO CONFIRM STRUCTURE MEETS REQUIREMENTS OF PROJECT.
5. STRUCTURE SHALL MEET AASHTO HS20 LOAD RATING, ASSUMING EARTH COVER OF 0' - 5' AND GROUNDWATER ELEVATION AT, OR BELOW, THE OUTLET PIPE INVERT ELEVATION. ENGINEER OF RECORD TO CONFIRM ACTUAL GROUNDWATER ELEVATION. CASTINGS SHALL MEET AASHTO M306 AND BE CAST WITH THE CONTECH LOGO.

INSTALLATION NOTES
A. ANY SUB-BASE, BACKFILL DEPTH, AND/OR ANTI-FLOTATION PROVISIONS ARE SITE-SPECIFIC DESIGN CONSIDERATIONS AND SHALL BE SPECIFIED BY ENGINEER OF RECORD.
B. CONTRACTOR TO PROVIDE EQUIPMENT WITH SUFFICIENT LIFTING AND REACH CAPACITY TO LIFT AND SET THE STORMFILTER STRUCTURE (LIFTING CLUTCHES PROVIDED).
C. CONTRACTOR TO INSTALL JOINT SEALANT BETWEEN ALL SECTIONS AND ASSEMBLE STRUCTURE.
D. CONTRACTOR TO PROVIDE, INSTALL, AND GROUT PIPES. MATCH OUTLET PIPE INVERT WITH OUTLET BAY FLOOR.
E. CONTRACTOR TO TAKE APPROPRIATE MEASURES TO PROTECT CARTRIDGES FROM CONSTRUCTION-RELATED EROSION RUNOFF.
F. CONTRACTOR TO REMOVE THE TRANSFER HOLE COVER WHEN THE SYSTEM IS BROUGHT ONLINE.

8'x6' PEAK DIVERSION STORMFILTER
N.T.S.

NOTES:
ALL RAMPS SHALL COMPLY WITH ADA STANDARDS.

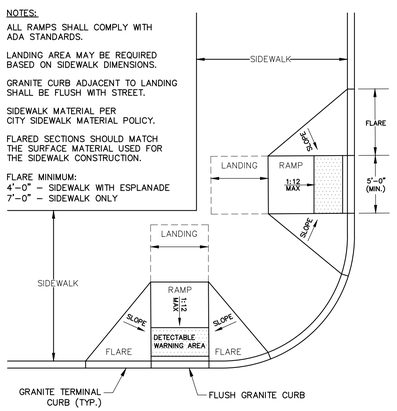
LANDING AREA MAY BE REQUIRED BASED ON SIDEWALK DIMENSIONS.

GRANITE CURB ADJACENT TO LANDING SHALL BE FLUSH WITH STREET.

SIDEWALK MATERIAL PER CITY SIDEWALK MATERIAL POLICY.

FLARED SECTIONS SHOULD MATCH THE SURFACE MATERIAL USED FOR THE SIDEWALK CONSTRUCTION.

FLARE MINIMUM:
4'-0" - SIDEWALK WITH ESPLANADE
7'-0" - SIDEWALK ONLY



SIDEWALK RAMP AT INTERSECTION

ADA ACCESSIBLE CURB RAMPS
N.T.S.

PERMIT SET - NOT FOR CONSTRUCTION

Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

CARROLL ASSOCIATES LANDSCAPE ARCHITECTS
217 Commercial St, Suite 200
Portland, ME 04101
207.772.1552
www.carroll-assoc.com

WINTON SCOTT ARCHITECTS, PA
5 Milk Street
Portland, ME 04101
774-4811
www.wintonscott.com

BECKER STRUCTURAL ENGINEERS, INC.
75 York Street, Suite 3
Portland, ME 04101
207.879.1838
www.beckerstructural.com

WOODARD & CURRAN
41 Hutchins Dr.
Portland, ME 04101
207.558.3785
www.woodardcurran.com

HALEY & ALDRICH, INC.
75 Washington Ave, Suite 1A
Portland, ME 04101
207.482.4609
www.haleyaldrich.com

GORRILL PALMER
707 Sable Oaks Drive, Suite 30
South Portland, ME 04106
207.239.7470
www.gorrillpalmer.com

Revisions		
1	2.7.2020	SITE PLAN RESPONSE TO COMMENTS

Drawing Title: CIVIL DETAILS - 5

Scale: AS NOTED



Date: FEBRUARY 7, 2020
Phase: PERMITTING

C-304

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NORTH

TM 22-I-30
N/F
PORTLAND
HOUSING AUTHORITY

MATCH EXISTING SIDEWALK

INSTALL 22° BEND
INV: 7.92

SNOW STORAGE AREA

8" SD
L=117' S=0.005

2' DIAMETER DMH
RIM ELEV: 14.03
6" INV. IN=8.42
6" INV. OUT=8.37

APPROXIMATE EXISTING 12" INV: 7.8', CONTRACTOR TO FIELD VERIFY

CONNECT 6" SD TO EXISTING 12" SD, INV: 8.07± CONTRACTOR SHALL PITCH SD TO MEET EXISTING 12" PIPE IN BOYD STREET

6"SD

EROSION CONTROL MIX BERM, INSTALL FILTER BARRIER AT TOE OF DISTURBED SLOPE, TYP.

15' CURB TRANSITION

EXISTING UNDERGROUND ELECTRIC AND COMMUNICATIONS TO BE REUSED

SAWCUT PAVEMENT, TYP.

BOYD STREET

REPLACE EXISTING SEWER ALONG EXISTING ALIGNMENT OR REUSE EXISTING SEWER SERVICE PENDING TELEVISING, MUST HAVE 10FT MINIMUM SEPARATION FROM WATER SERVICES

PROVIDE 10' CLEARANCE BETWEEN SEWER AND WATER SERVICES.

6" SS

RETIRE EXISTING 1" DOMESTIC SERVICE PER PWD STANDARDS

6"x4" TAPPING SLEEVE & 4" GATE VALVE

4" GATE VALVE

4" FIRE SERVICE

PROPOSED 1.5" DOMESTIC SERVICE MUST HAVE 3' MINIMUM SEPARATION FROM FIRE SERVICE, INSTALL CURB STOP

REUSE EXISTING GAS SERVICES, RESET METERS TO ACCOMMODATE NEW GRADES

ROOF DRAIN OUTLET
INV: 12.20

INSTALL 1.5" TAPPING SADDLE AT NEW 1.5" DOMESTIC SERVICE

REMOVE & RESET CURB AS NEEDED

MATCH EXISTING BRICK SIDEWALK

TRANSITION FROM ROADWAY/SIDEWALK, GRADE 1.5% OVER 5'

8" SD
L=50 S=0.007

RIVER STONE SWALE, SEE DETAIL

8" PERFORATED UNDERDRAIN

SNOW STORAGE AREA

RAIN GARDEN SURFACE: 11.75, SEE DETAIL

8" CLEANOUT INV: 8.67

LEVEL SPILLWAY: 12.25

INSTALL EROSION CONTROL BLANKET ON SPILLWAY

6" PERFORATED UNDERDRAIN INV=8.67 L=9 S=0.0

6" CLEANOUT INV: 8.67

8" ROOF DRAIN INV. OUT: 12.00

BAYSIDE ANCHOR ORNAMENTAL RAIN GARDEN, EXISTING

FIRE HYDRANT LOCATED 150' AWAY AT THE CORNER OF BOYD STREET & OXFORD STREET

TM 22-I-4, 1
N/F
BAYSIDE ANCHOR APARTMENTS LP
32826/44

SCALE

0 2.5 5 10

SCALE in FEET
1"=5'

UTILITY NOTES

1. CONTRACTOR SHALL COORDINATE WITH CITY OF PORTLAND FOR INSPECTION OF SEWER AND STORMDRAIN UTILITY CONNECTIONS.
2. ALL NEW UTILITY SERVICES SHALL BE UNDERGROUND.
3. ALL WORK IN THE RIGHT OF WAY SHALL BE IN COMPLIANCE WITH CITY OF PORTLAND TECHNICAL STANDARDS.
4. ALL WATER UTILITIES SHALL COMPLY WITH PORTLAND WATER DISTRICT'S STANDARDS AND SPECIFICATIONS, (https://www.pwd.org/document-library). FINAL SIZING OF DOMESTIC AND FIRE SERVICES TO BE DETERMINED BY MECHANICAL AND SPRINKLER SYSTEM DESIGNERS.
8. ALL UTILITY INSTALLATIONS SHALL MEET THE REQUIREMENTS OF THE CITY OF PORTLAND, AS WELL AS ANY OTHER LOCAL, STATE, FEDERAL CODES; AND THE UTILITY OWNER'S REQUIREMENTS/STANDARDS.
6. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND GRADES IN THE FIELD AND NOTIFY THE ENGINEER IMMEDIATELY OF ANY DISCREPANCIES.
7. UTILITY LOCATIONS ARE APPROXIMATE AND SHALL BE VERIFIED PRIOR TO CONSTRUCTION. ANY DISCREPANCIES OR CONFLICTS SHALL BE IMMEDIATELY REPORTED TO THE ARCHITECT/ENGINEER.

GRADING NOTES

1. ALL WALKWAYS, PEDESTRIAN AREAS, AND ACCESSIBLE PARKING AISLES SHALL CONFORM WITH THE APPROPRIATE ADA GUIDELINES. GRADING SHALL BE AS FOLLOWS:
2. WALKWAYS SHALL HAVE A MAXIMUM CROSS SLOPE (PERPENDICULAR TO THE DIRECTION OF TRAVEL)OF 2% AND A MAXIMUM RUNNING SLOPE(ALONG THE DIRECTION OF TRAVEL)OF 5%.
3. CURB RAMPS OR RAMPS WITH HANDRAILS MAY HAVE A RUNNING SLOPE OF UP TO 8.3% (1" PER FOOT); HOWEVER, THE MAXIMUM CROSS SLOPE IS STILL 2%.
4. LANDING AREAS, PATIO AREAS, ACCESSIBLE PARKING AISLES, AND AREAS WHERE PEDESTRIANS ARE TURNING SHALL HAVE A MAXIMUM SLOPE OF 2% IN ALL DIRECTIONS.
5. IF THE CONTRACTOR DETERMINES THAT ANY THE ABOVE STANDARDS ARE NOT COMPATIBLE WITH SITE CONDITIONS/PROPOSED GRADING THEY SHALL CONTACT THE ENGINEER/OWNER'S REP UPON DISCOVERY AND REQUEST GUIDANCE.
6. ANY WORK DONE OUTSIDE OF THESE GUIDELINES (WITHOUT FIRST REQUESTING GUIDANCE FROM THE ENGINEER/OWNER'S REP) SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE OWNER.

FOR PERMITTING

Site:

47-49 BOYD STREET APARTMENTS

PORTLAND, MAINE

Civil Engineer:

STATE OF MAINE · John I. Mahoney #12340 · LICENSED PROFESSIONAL ENGINEER

JOHN I. MAHONEY, P.E. 12430
RANSOM CONSULTING, INC.
400 COMMERCIAL ST., SUITE 400
PORTLAND, ME 04101

PORTLAND HOUSING MAINE

OWNER:

58 BOYD STREET, LP
14 BAXTER BLVD.
PORTLAND, ME 04101

Consultants:

25 YEARS CWS ARCHITECTS ARCHITECTURE | INTERIOR DESIGN

Architect:
CWS Architects
434 Cumberland Ave
Portland, ME 04101

CARROLL ASSOCIATES LANDSCAPE ARCHITECTS

Landscape Architect
Carroll Associates
217 Commercial Street
Portland, Maine 04101
207.772.1552

RANSOM Consulting, Inc.

Civil Engineer
Ransom Consulting, Inc.
400 Commercial Street, Suite 404
Portland, Maine 04101
207.772.2891

GRADING, DRAINAGE & UTILITIES

No.	Revision/Issue	Date
3	Revised per CITY Comments	10/22/19
2	Revised per PWD Comments	8/29/19
1	City Submission	8/9/19

Design by: SJH/JIM	Checked by: JIM
Drawn by: SJH	Approved by: JIM
Project: 191.06066	Date: AUGUST, 2019

Sheet No: C-1

Sheet 1 of 3

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EROSION AND SEDIMENTATION CONTROL NOTES

INSPECTION REQUIREMENTS

CONTRACTOR SHALL INSPECT ALL EROSION AND SEDIMENTATION CONTROL MEASURES ON A WEEKLY BASIS AND AFTER RAIN/STORM EVENTS AND SHALL KEEP A LOG OF THESE INSPECTIONS. ANY ISSUES IDENTIFIED SHALL BE ADDRESSED AS SOON AS POSSIBLE AND BEFORE ADDITIONAL PRECIPITATION.

EROSION CONTROL MEASURES AND SITE STABILIZATION

THE PRIMARY EMPHASIS OF THE EROSION & SEDIMENT CONTROL PLAN IS AS FOLLOWS:

- RAPID VEGETATION OF EXPOSED AREAS TO MINIMIZE THE PERIOD OF SOIL EXPOSURE.
- RAPID STABILIZATION OF DRAINAGE PATHS TO AVOID CHANNEL EROSION.
- THE USE OF ON-SITE MEASURES TO CAPTURE SEDIMENT (EROSION CONTROL BERM, STAKED HAY BALES ETC.)

THE FOLLOWING TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL DEVICES WILL BE IMPLEMENTED AS PART OF THE SITE DEVELOPMENT. THESE DEVICES SHALL BE INSTALLED AS INDICATED ON THE PLANS OR AS DESCRIBED WITHIN THIS REPORT. FOR FURTHER REFERENCE, SEE THE MAINE EROSION AND SEDIMENT CONTROL BMPS, (MOST RECENT REVISION).

TEMPORARY EROSION CONTROL MEASURES

THE FOLLOWING MEASURES ARE PLANNED AS TEMPORARY EROSION & SEDIMENTATION CONTROL MEASURES DURING CONSTRUCTION. THESE TEMPORARY EROSION CONTROL MEASURES SHOULD BE REMOVED WITHIN 30 DAYS AFTER PERMANENT STABILIZATION HAS BEEN ESTABLISHED.

1. CRUSHED STONE-STABILIZED CONSTRUCTION ENTRANCES SHALL BE PLACED AT SITE ENTRANCES.
2. WOOD WASTE COMPOST BERMS (EROSION CONTROL BERM) SHALL BE INSTALLED DOWNSTREAM OF ANY DISTURBED AREAS TO TRAP RUNOFF BORNE SEDIMENTS UNTIL THE TRIBUTARY AREAS ARE VEGETATED. THE EROSION CONTROL BERMS SHALL BE INSTALLED PER THE DETAILS PROVIDED AND INSPECTED REGULARLY, INCLUDING BEFORE AND AFTER A STORM EVENT OF 0.5 INCHES OR GREATER. REPAIRS SHALL BE MADE IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THE FENCE OR BERM LINE. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND FENCE OR BERM, THE BARRIER SHALL BE REPLACED WITH A STONE CHECK DAM.
3. STRAW, HAY MULCH AND HYDROSEEDING IS INTENDED TO PROVIDE COVER FOR BARE OR SEEDED AREAS UNTIL VEGETATION IS ESTABLISHED AND SHOULD BE APPLIED WITHIN 7 DAYS AT A RATE A 115 POUNDS PER 1000 SQUARE FEET. MULCH PLACED BETWEEN APRIL 15TH AND OCTOBER 15TH (ON SLOPES OF LESS THEN 15 PERCENT) SHALL BE ANCHORED BY APPLYING WATER. MULCH PLACED ON SLOPES OF EQUAL TO OR STEEPER THAN 15 PERCENT SHALL BE COVERED BY FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION. SLOPES STEEPER THAN 3:1 SHALL RECEIVE EROSION CONTROL BLANKETS OR RIP RAP.
4. USE STANDARD CONSERVATION SEED MIX OF 100% ANNUAL RYE GRASS OR FIELD BROMEGRASS. SEED APPLICATION RATE SHALL BE 40 LB/ACRE.
5. TEMPORARY STOCKPILES OF STUMPS, GRUBBINGS, OR COMMON EXCAVATION WILL BE PROTECTED AS FOLLOWS:

   STOCKPILES SHALL BE STABILIZED WITHIN SEVEN DAYS BY EITHER TEMPORARILY SEEDING THE STOCKPILE BY A HYDROSEED METHOD CONTAINING AN EMULSIFIED MULCH TACKIFIER OR BY COVERING THE STOCKPILE WITH MULCH, SUCH AS SHREDDED HAY, STRAW, OR EROSION CONTROL MIX.

   STOCKPILES SHALL BE SURROUNDED BY SEDIMENTATION BARRIER AT THE TIME OF FORMATION.
6. ALL DISTURBED AREAS THAT ARE WITHIN 75 FEET OF AN UNDISTURBED WETLAND SHALL RECEIVE MULCH OR EROSION CONTROL MESH FABRIC WITHIN 48 HOURS OF INITIAL DISTURBANCE OF SOIL. ALL AREAS WITHIN 75 FEET OF AN UNDISTURBED WETLAND SHALL BE MULCHED PRIOR TO ANY PREDICTED RAIN EVENT REGARDLESS OF THE 48 HOUR WINDOW. IN OTHER AREAS, THE TIME PERIOD MAY BE EXTENDED TO 7 DAYS.
7. STATE AND LOCAL ROADS SHALL BE SWEPT TO CONTROL MUD AND DUST AS NECESSARY. ADDITIONAL STONE SHALL BE ADDED TO THE STABILIZED CONSTRUCTION ENTRANCE TO MINIMIZE THE TRACKING OF MATERIAL OFF THE SITE AND ONTO THE SURROUNDING ROADWAYS.
8. STORMDRAIN CATCH BASIN INLET PROTECTION SHALL BE PROVIDED THROUGH THE USE OF STONE SEDIMENT BARRIERS OR APPROVED SEDIMENT BAGS (SUCH AS SILT SACK). INSTALLATION DETAILS ARE PROVIDED IN THE PLAN SET. THE BARRIERS SHALL BE INSPECTED AFTER EACH RAINFALL AND REPAIRS MADE AS NECESSARY. SEDIMENT SHALL BE REMOVED AND THE BARRIER RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO HALF THE DESIGN DEPTH OF THE BARRIER. THE BARRIER SHALL BE REMOVED WHEN THE TRIBUTARY DRAINAGE AREA HAS BEEN STABILIZED.
9. WATER AND/OR CALCIUM CHLORIDE SHALL BE FURNISHED AND APPLIED IN ACCORDANCE WITH MDOT SPECIFICATIONS--SECTION 637-DUST CONTROL.
10. LOAM AND SEED IS INTENDED TO SERVE AS THE PRIMARY PERMANENT VEGETATIVE MEASURE FOR ALL BARE AREAS NOT PROVIDED WITH OTHER EROSION CONTROL MEASURES, SUCH AS RIPRAP.
11. WATER FROM CONSTRUCTION TRENCH DEWATERING OR TEMPORARY STREAM DIVERSION SHALL PASS FIRST THROUGH A FILTER BAG OR SECONDARY CONTAINMENT STRUCTURE (E.G. HAY BALE LINED POOL) PRIOR TO DISCHARGE. THE DISCHARGE SITE SHALL BE SELECTED TO AVOID FLOODING, ICING, AND SEDIMENT DISCHARGES TO A PROTECTED RESOURCE. IN NO CASE SHALL THE FILTER BAG OR CONTAINMENT STRUCTURE BE LOCATED WITHIN 75 FEET OF A PROTECTED NATURAL RESOURCE.

PERMANENT EROSION CONTROL MEASURES

THE FOLLOWING PERMANENT EROSION CONTROL MEASURES HAVE BEEN DESIGNED AS PART OF THE EROSION/SEDIMENTATION CONTROL PLAN:

1. ALL AREAS DISTURBED DURING CONSTRUCTION, BUT NOT SUBJECT TO OTHER RESTORATION (PAVING, RIPRAP, ETC.) WILL BE LOAMED, LIMED, FERTILIZED, MULCHED, AND SEEDED.
2. PLEASE REFER TO THE TURF AND GRASSES SPECIFICATION (SECTION 329200) FOR SEED MIX AND APPLICATION RATE

IMPLEMENTATION SCHEDULE

THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE REQUIRED TO INSURE THE EFFECTIVENESS OF THE EROSION AND SEDIMENTATION CONTROL MEASURES ARE OPTIMIZED:

NOTE: FOR ALL GRADING ACTIVITIES, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION NOT TO OVEREXPOSE THE SITE BY LIMITING THE DISTURBED AREA. THE CONSTRUCTION OF BMPS SHOULD EITHER BE PERFORMED AFTER THE TRIBUTARY AREA IS STABILIZED OR TEMPORARY EROSION CONTROL MEASURES NEED TO BE IMPLEMENTED TO PROTECT THE BMPS FROM BEING CLOGGED WITH CONSTRUCTION SEDIMENT.

1. INSTALL CRUSHED STONE TO STABILIZED CONSTRUCTION ENTRANCES.
2. INSTALL PERIMETER EROSION CONTROL BERM.
3. CLEAR AND GRUB SITE WITHIN THE SPECIFIED CLEARING LIMITS.
4. COMMENCE EARTHWORK AND GRADING TO SUBGRADE.
5. COMMENCE CONSTRUCTION OF BUILDING FOUNDATION.
6. CONTINUE EARTHWORK AND GRADING TO SUBGRADE AS NECESSARY FOR CONSTRUCTION.
7. COMPLETE REMAINING EARTHWORK OPERATIONS.
8. COMPLETE INSTALLATION OF DRAINAGE INFRASTRUCTURE.
9. INSTALL SUBBASE AND BASE GRAVEL WITHIN PROPOSED PARKING EXPANSION.
10. LOAM, LIME, FERTILIZE, SEED AND MULCH DISTURBED AREAS.
11. ONCE THE SITE IS STABILIZED AND A 90% CATCH OF VEGETATION HAS BEEN OBTAINED, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.
12. TOUCH UP LOAM AND SEED.

NOTE: ALL BARE AREAS NOT SUBJECT TO FINAL PAVING, RIPRAP, OR GRAVEL; SHALL BE VEGETATED.

PRIOR TO CONSTRUCTION OF THE PROJECT, THE CONTRACTOR SHALL SUBMIT TO THE OWNER A SCHEDULE FOR THE COMPLETION OF THE WORK, WHICH WILL SATISFY THE ABOVE CONSTRUCTION SEQUENCE IN THE SPECIFIED ORDER, HOWEVER, SEVERAL SEPARATE ITEMS MAY BE CONSTRUCTED SIMULTANEOUSLY. WORK MUST ALSO BE SCHEDULED OR PHASED TO REDUCE THE EXTENT OF THE EXPOSED AREAS AS SPECIFIED BELOW. THE INTENT OF THIS SEQUENCE IS TO PROVIDE FOR EROSION CONTROL AND TO HAVE STRUCTURAL MEASURES SUCH AS EROSION CONTROL BERM AND CONSTRUCTION ENTRANCES IN PLACE BEFORE LARGE AREAS OF LAND ARE STRIPPED.

THE WORK SHALL BE CONDUCTED IN SECTIONS WHICH SHALL:

1. LIMIT THE AMOUNT OF EXPOSED AREA TO THOSE AREAS IN WHICH WORK IS EXPECTED TO BE UNDERTAKEN DURING THE PRECEDING 30 DAYS.
2. VEGETATE THE DISTURBED AREAS AS RAPIDLY AS POSSIBLE. ALL AREAS SHALL BE PERMANENTLY STABILIZED WITHIN SEVEN DAYS OF FINAL GRADING OR BEFORE A STORM EVENT; OR TEMPORARILY STABILIZED WITHIN 48 HOURS OF INITIAL DISTURBANCE OF SOIL FOR AREAS WITHIN 75 FEET OF AN UNDISTURBED WETLAND AND 7 DAYS FOR ALL OTHER AREAS.
3. INCORPORATE PLANNED INLETS AND DRAINAGE SYSTEM AS EARLY AS POSSIBLE INTO THE CONSTRUCTION PHASE.

WINTER STABILIZATION PLAN

THE WINTER CONSTRUCTION PERIOD IS FROM NOVEMBER 1 THROUGH APRIL 15. IF THE CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE, 75% MATURE VEGETATION COVER OR RIPRAP BY NOVEMBER 15TH, THEN THE SITE SHALL BE PROTECTED WITH OVER-WINTER STABILIZATION.

WINTER EXCAVATION AND EARTHWORK SHALL BE COMPLETED SUCH THAT ANY AREA LEFT EXPOSED CAN BE CONTROLLED BY THE CONTRACTOR. EXPOSED AREAS SHALL BE LIMITED TO THOSE AREAS IN WHICH WORK IS EXPECTED TO COMMENCE AND COMPLETE IN THE NEXT FIFTEEN (15) DAYS AND THAT CAN BE MULCHED WITHIN ONE DAY PRIOR TO ANY SNOW EVENT.

ALL AREAS SHALL BE CONSIDERED TO BE BARE UNTIL THE SUBBASE GRAVEL IS INSTALLED WITHIN PAVEMENT/BUILDING AREAS OR THE AREAS HAVE BEEN LOAMED, SEEDED AND MULCHED. HAY AND STRAW MULCH RATE SHALL BE A MINIMUM OF 150 POUNDS PER 1,000 SQUARE FEET (3 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED.

THE CONTRACTOR SHALL INSTALL ANY ADDED MEASURES, WHICH MAY BE NECESSARY TO CONTROL EROSION/SEDIMENTATION FROM THE SITE DEPENDENT UPON THE ACTUAL SITE AND WEATHER CONDITIONS. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE ON THE AREA BEING WORKED HAS BEEN STABILIZED, IN ORDER TO MINIMIZE AREAS WITHOUT EROSION CONTROL PROTECTION.

1. SOIL STOCKPILES

   STOCKPILES OF SOIL OR SUBSOIL SHALL BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE OR AT 150 LBS/1,000 SF. (3 TONS PER ACRE) OR WITH A FOUR-INCH LAYER OF WOODWASTE EROSION CONTROL MIX. THIS SHALL BE DONE WITHIN 24 HOURS OF STOCKING AND RE-ESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL. ANY SOIL STOCKPILE SHALL NOT BE PLACED (EVEN COVERED WITH HAY OR STRAW) WITHIN 100 FEET FROM ANY NATURAL RESOURCES.

1. SEDIMENT BARRIERS

   DURING FROZEN CONDITIONS, SEDIMENT BARRIERS SHALL CONSIST OF WOODWASTE FILTER BERMS AS FROZEN SOIL PREVENTS THE PROPER INSTALLATION OF HAY BALES AND SEDIMENT SILT FENCES.

2. MULCHING

   AN AREA SHALL BE CONSIDERED BARE UNTIL AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOAMED, SEEDED AND MULCHED. HAY AND STRAW MULCH SHALL BE APPLIED AT A RATE OF 150 LB. PER 1,000 SQUARE FEET OR 3 TONS/ACRE (TWICE THE NORMAL ACCEPTED RATE OF 75-LBS./1,000 SF. OR 1.5 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED. MULCH SHALL NOT BE SPREAD ON TOP OF SNOW. THE SNOW SHALL BE REMOVED DOWN TO A ONE-INCH DEPTH OR LESS PRIOR TO APPLICATION. AFTER EACH DAY OF FINAL GRADING, THE AREA SHALL BE PROPERLY STABILIZED WITH ANCHORED HAY OR STRAW OR EROSION CONTROL MATTING. AN AREA SHALL BE CONSIDERED TO HAVE BEEN STABILIZED WHEN EXPOSED SURFACES HAVE BEEN EITHER MULCHED WITH STRAW OR HAY AT A RATE OF 150 LB. PER 1,000 SQUARE FEET (3 TONS/ACRE) AND ADEQUATELY ANCHORED THAT GROUND SURFACE IS NOT VISIBLE THOUGH THE MULCH.

   BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 15TH ALL MULCH SHALL BE ANCHORED BY PEG LINE, MULCH NETTING, TRACKING, OR WOOD CELLULOSE FIBER. WHEN GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH THEN COVER IS SUFFICIENT. AFTER NOVEMBER 1ST, MULCH AND ANCHORING OF ALL BARE SOIL SHALL OCCUR AT THE END OF EACH FINAL GRADING WORKDAY.

3. MULCHING ON SLOPES AND DITCHES

   SLOPES SHALL NOT BE LEFT EXPOSED FOR ANY EXTENDED TIME OF WORK SUSPENSION UNLESS FULLY MULCHED AND ANCHORED WITH PEG AND NETTING OR WITH EROSION CONTROL BLANKETS. MULCHING SHALL BE APPLIED AT A RATE OF 230 LBS/1,000 S.F. ON ALL SLOPES GREATER THAN 8%.

   MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%. EROSION CONTROL BLANKETS SHALL BE USED IN LIEU OF MULCH IN ALL DRAINAGE WAYS WITH SLOPES GREATER THAN 8%. EROSION CONTROL MIX CAN BE USED TO SUBSTITUTE EROSION CONTROL BLANKETS ON ALL SLOPES EXCEPT DITCHES.

4. SEEDING

   BETWEEN THE DATES OF OCTOBER 15TH AND APRIL 1ST, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREEZING TEMPERATURES, FINISHED AREAS SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED WITH A UNIFORM SURFACE, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF THREE TIMES HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. DORMANT SEEDING MAY BE SELECTED TO BE PLACED PRIOR TO THE PLACEMENT OF MULCH AND FABRIC NETTING ANCHORED WITH STAPLES. IF DORMANT SEEDING IS USED FOR THE SITE, ALL DISTURBED AREAS SHALL RECEIVE 4" OF LOAM AND SEED AT AN APPLICATION RATE OF 5 LBS/1000 SF. ALL AREAS SEEDED DURING THE WINTER SHALL BE INSPECTED IN THE SPRING FOR ADEQUATE CATCH. ALL AREAS INSUFFICIENTLY VEGETATED (LESS THAN 90% CATCH) SHALL BE REVEGETATED BY REPLACING LOAM, SEED AND MULCH. IF DORMANT SEEDING IS NOT USED FOR THE SITE, ALL DISTURBED AREAS SHALL BE REVEGETATED IN THE SPRING.

   ALJDF

5. DEWATERING

   WATER FROM CONSTRUCTION TRENCH DEWATERING SHALL PASS FIRST THROUGH A FILTER BAG OR SECONDARY CONTAINMENT STRUCTURE (E.G. HAY BALE LINED POOL) PRIOR TO DISCHARGE. THE DISCHARGE SITE SHALL BE SELECTED TO AVOID FLOODING, ICING, AND SEDIMENT DISCHARGES TO A PROTECTED RESOURCE.

6. INSPECTION AND MONITORING

   MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION SEASON. AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, THE SITE CONTRACTOR SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES AND PERFORM REPAIRS AS NEEDED TO INSURE THEIR CONTINUOUS FUNCTION. FOLLOWING THE TEMPORARY AND/OR FINAL SEEDING AND MULCHING, THE CONTRACTOR SHALL IN THE SPRING INSPECT AND REPAIR ANY DAMAGES AND/OR UNESTABLISHED SPOTS. ESTABLISHED VEGETATIVE COVER MEANS A MINIMUM OF 85% TO 90% OF AREAS VEGETATED WITH VIGOROUS GROWTH.

STANDARDS FOR TIMELY STABILIZATION OF CONSTRUCTION SITES DURING WINTER

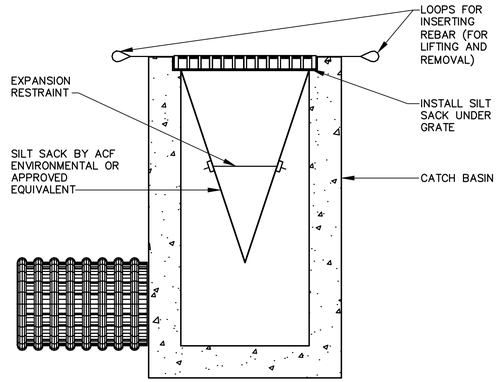
1. STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SOILS

BY SEPTEMBER 15TH THE APPLICANT SHALL SEED AND MULCH ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15%. IF THE APPLICANT FAILS TO STABILIZE THESE SOILS BY THIS DATE, THEN THE APPLICANT SHALL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SOIL FOR LATE FALL AND WINTER.

STABILIZE THE SOIL WITH TEMPORARY VEGETATION--BY OCTOBER 1ST THE APPLICANT SHALL SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF THREE POUNDS PER 1000 SQUARE FEET, LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 POUNDS PER 1000 SQUARE FEET, AND ANCHOR THE MULCH WITH PLASTIC NETTING. THE APPLICANT SHALL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER 15TH, THEN THE APPLICANT SHALL MULCH THE AREA FOR OVER-WINTER PROTECTION AS DESCRIBED ABOVE.

STABILIZE THE SOIL WITH SOD--THE APPLICANT SHALL STABILIZE THE DISTURBED SOIL WITH PROPERLY INSTALLED SOD BY OCTOBER 1ST. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SOIL WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL.

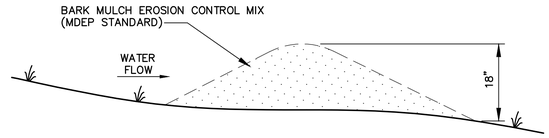
STABILIZE THE SOIL WITH MULCH--BY NOVEMBER 15TH THE APPLICANT SHALL MULCH THE DISTURBED SOIL BY SPREADING HAY OR STRAW AT A RATE OF AT LEAST 150 POUNDS PER 1000 SQUARE FEET ON THE AREA SO THAT NO SOIL IS VISIBLE THROUGH THE MULCH. PRIOR TO APPLYING THE MULCH, THE APPLICANT SHALL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED AREA. IMMEDIATELY AFTER APPLYING THE MULCH, THE APPLICANT WILL ANCHOR THE MULCH WITH PLASTIC NETTING TO PREVENT WIND FROM MOVING THE MULCH OFF THE DISTURBED SOIL.



NOTES:
1. INSTALL SILTSACK PER MANUFACTURER'S RECOMMENDATIONS.
2. SILTSACKS SHALL BE CHECKED FOR SEDIMENT LEVEL AND OVERALL CONDITION IMMEDIATELY AFTER EVERY RAIN EVENT AND AT LEAST EVERY DAY DURING PROLONGED RAINFALL..
3. SEDIMENT SHALL BE REMOVED WHEN THE SEDIMENT HAS ACCUMULATED TO 1/2 THE DESIGN DEPTH OF THE SILTSACK. REMOVED SEDIMENT SHALL BE DEPOSITED IN A SUITABLE AREA AND IN SUCH A MANNER THAT WILL NOT ERODE.
4. SEDIMENT SHALL ONLY BE REMOVED BY REMOVING THE SILTSACKS FROM THE CATCH BASINS ACCORDING TO MANUFACTURER RECOMMENDATIONS.
6. CARE SHALL BE TAKEN TO AVOID SPILLING SEDIMENT WHILE REMOVING THE SILTSACK.
7. ANY DAMAGED SILTSACK SHALL BE REPLACED WITH A NEW SILTSACK.

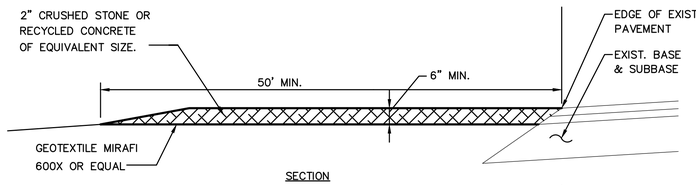
INLET PROTECTION - SILT SACK

NOT TO SCALE

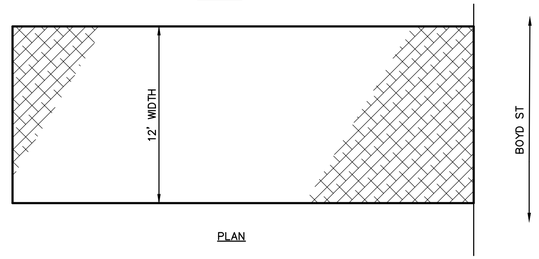


MULCH BERM DETAIL

NOT TO SCALE



SECTION



PLAN

NOTES:
1. MAINTAIN ENTRANCE IN A CONDITION THAT WILL PREVENT TRACKING OF SEDIMENT ONTO PUBLIC RIGHT OF WAY. IF WASHING IS REQUIRED PREVENT SEDIMENT FROM ENTERING WATERWAYS, DITCHES OR STORM DRAINS.
2. REMOVE STABILIZED CONSTRUCTION ENTRANCE TO FINISH ROAD CONSTRUCTION & PAVEMENT.

STABILIZED CONSTRUCTION ENTRANCE

NOT TO SCALE

FOR PERMITTING

Site:

47-49 BOYD STREET APARTMENTS

PORTLAND, MAINE

Civil Engineer:

STATE OF MAINE John I. Mahoney #12340 LICENSED PROFESSIONAL ENGINEER

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Consultants:

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RANSOM Consulting, Inc.

Civil Engineer
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Portland, Maine 04101
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GRADING, DRAINAGE & UTILITIES

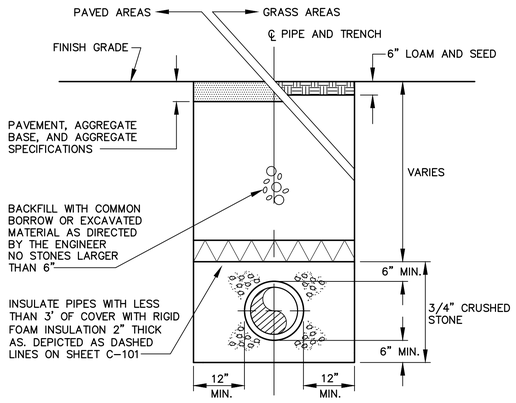
No.	Revision/Issue	Date
2	Revised per CITY Comments	10/22/19
1	City Submission	8/9/19

Design by: SJH/JIM	Checked by: JIM
Drawn by: SJH	Approved by: JIM
Project: 191.06066	Date: AUGUST, 2019

Sheet No: C-2

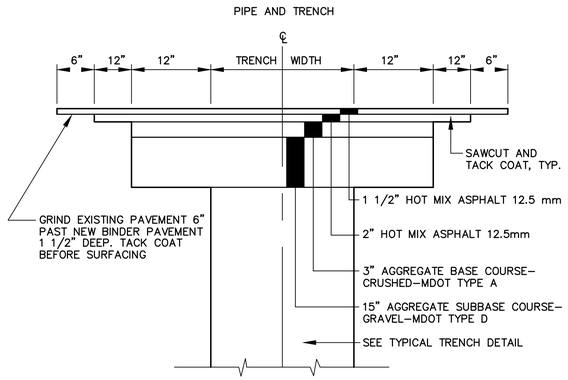
Sheet 2 of 3

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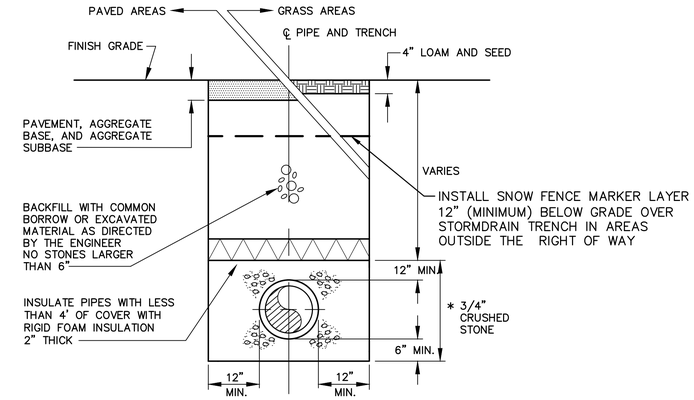
TYPICAL TRENCH - STORMDRAIN & SEWER

NOT TO SCALE



TYPICAL TRENCH PAVING DETAIL

NOT TO SCALE



* USE SAND BEDDING FOR WATER INFRASTRUCTURE

TYPICAL TRENCH REPAIR DETAIL

NOT TO SCALE

FIELD INLET

NOT TO SCALE

DRAIN CLEANOUT DETAIL

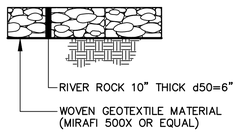
NOT TO SCALE

RAIN GARDEN DETAIL

NOT TO SCALE

NOTES

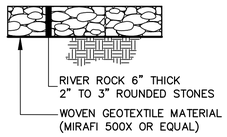
1. RAIN GARDEN SHALL BE CONSTRUCTED AND STABILIZED PRIOR TO RECIEVING RUNNOFF.
2. SEE LANDSCAPE PLANS FOR RAIN GARDEN PLANTINGS
3. PERMANENT EROSION CONTROL AROUND ALL DISTURBED AREAS SHALL BE STABILIZED BY THE END OF EACH WORKDAY. STABILIZATION SHALL BE MAINTAINED ON A DAILY BASIS. SEED AND HAY MULCH SHALL BE APPLIED TO ALL EXPOSED SOIL AREAS AT THE END OF EACH WORKDAY.
4. CONSTRUCTION STAGING SHALL BE CONDUCTED IN A WAY TO MINIMIZE THE POTENTIAL FOR STORM WATER RUN-ON TO EXCAVATED AREAS. ALL STORM WATER "BASINS" AND DOWNSPOUTS SHALL BE CONSTRUCTED AND STABILIZED PRIOR TO CONSTRUCTION IN ORDER TO REDUCE POTENTIAL FOR STORM WATER RUN-ON.
5. THE CONTRACTOR SHALL BLEND ALL SPECIFIED SOIL FILTER MEDIA MATERIALS OFF-SITE AND PRIOR TO PLACEMENT.
6. THE CONTRACTOR SHALL LIMIT COMPACTION OF SUBGRADE OR RAIN GARDEN AREAS DURING EXCAVATION. SUBGRADE SURFACE SHALL BE MECHANICALLY RAKED WITH A TOOTHED-EXCAVATOR BUCKET TO PROMOTE THE INFILTRATION OF WATER INTO PARENT SOILS PRIOR TO PLACEMENT OF UNDERDRAIN BACKFILL.
7. SOIL FILTER MEDIA SHALL BE PLACED AND NOT COMPACTED PRIOR TO PLACEMENT OF MULCH. THE SOIL FILTER MEDIA SURFACE SHALL BE FLAT IN ORDER TO REDUCE THE POTENTIAL FOR CHANNELING WATER ACROSS THE SURFACE MEDIA.
8. SURFACE SOIL FILTER SHALL BE SUOUROUNDED WITH A MULCH BERM UNTIL THE SITE HAS BEEN PERMENALTLY STABILIZED
9. THE CONTRACTOR IS STRONGLY ADVISED TO REVIEW THE SPECIFICATIONS FOR THE SURFACE SOIL FILTER MEDIA BEFORE BIDDING, SECTION 312000 EARTHWORK. THIS MATERIAL HAS SPECIAL PERMEABILITY TESTING REQUIREMENTS AND IS VERY SENSITIVE TO CONTAMINATION FROM EXPOSED SOILS DURING CONSTRUCTION.



* USE FOR ROOF DRAIN APRON INTO RAIN GARDEN

RIP RAP DETAIL

NOT TO SCALE



* USE FOR ENERGY DISSIPATION FROM PARKING ARE TO RAIN GARDEN

RIVER ROCK DETAIL

NOT TO SCALE

FOR PERMITTING

Site:

47-49 BOYD STREET APARTMENTS

PORTLAND, MAINE

Civil Engineer:

STATE OF MAINE John I. Mahoney #12340 LICENSED PROFESSIONAL ENGINEER

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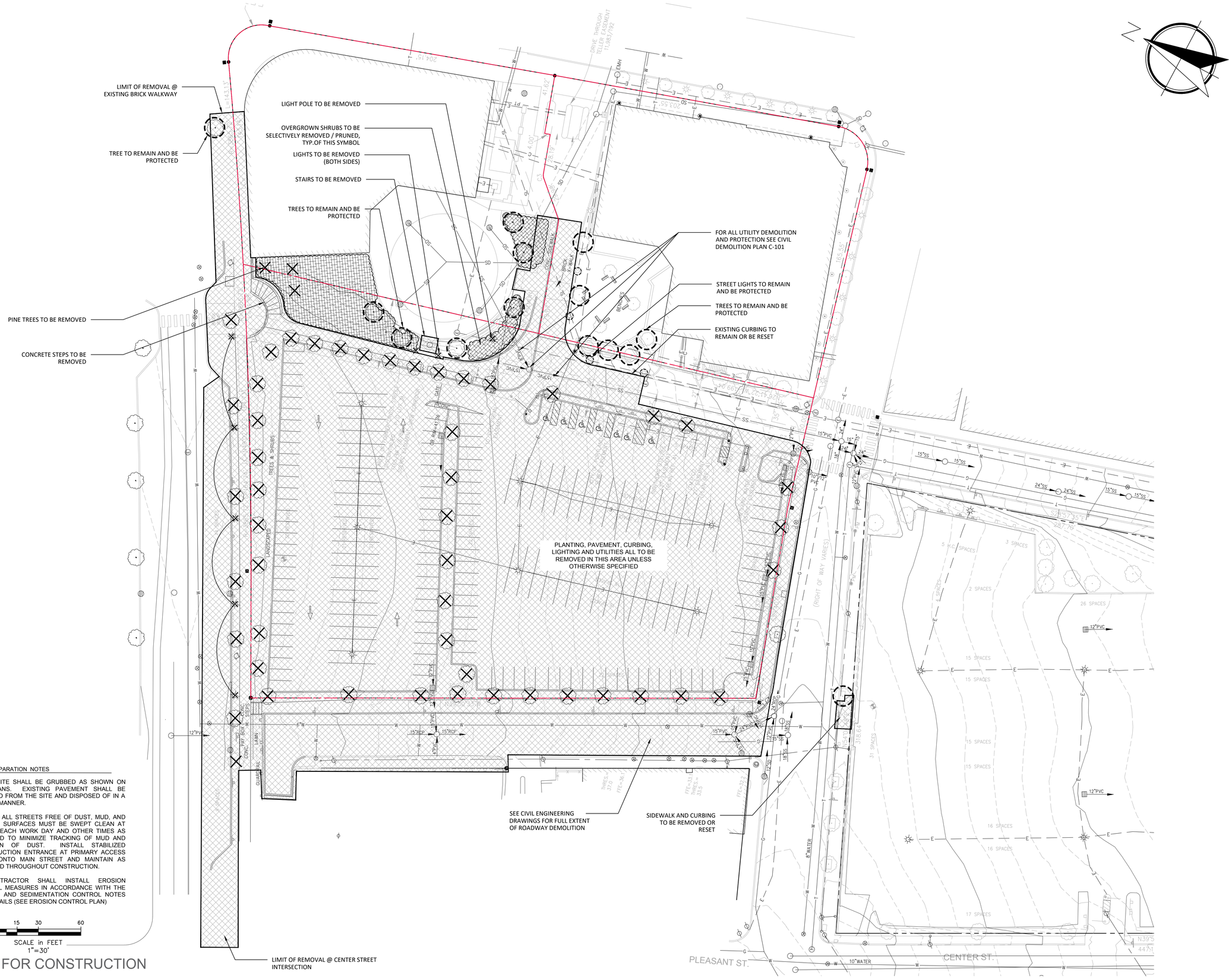
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Drawn by: SJH	Approved by: JIM
Project: 191.06066	Date: AUGUST, 2019

Sheet No: C-3

Sheet 3 of 3

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SITE PREPARATION NOTES

1. THE SITE SHALL BE GRUBBED AS SHOWN ON THE PLANS. EXISTING PAVEMENT SHALL BE REMOVED FROM THE SITE AND DISPOSED OF IN A LAWFUL MANNER.

2. KEEP ALL STREETS FREE OF DUST, MUD, AND DEBRIS. SURFACES MUST BE SWEPT CLEAN AT END OF EACH WORK DAY AND OTHER TIMES AS REQUIRED TO MINIMIZE TRACKING OF MUD AND CREATION OF DUST. INSTALL STABILIZED CONSTRUCTION ENTRANCE AT PRIMARY ACCESS ROUTE ONTO MAIN STREET AND MAINTAIN AS REQUIRED THROUGHOUT CONSTRUCTION.

3. CONTRACTOR SHALL INSTALL EROSION CONTROL MEASURES IN ACCORDANCE WITH THE EROSION AND SEDIMENTATION CONTROL NOTES AND DETAILS (SEE EROSION CONTROL PLAN)

0 15 30 60

SCALE in FEET
1"=30'

NOT FOR CONSTRUCTION

Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

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Revisions		
1	11.8.19	FOR PRICING
2	12.20.19	PERMITTING
3	2.19.20	50% DESIGN DEVELOPMENT

Drawing Title: **SITE PREP AND DEMOLITION PLAN**

Scale: 1"= 30'-0"

Date: NOVEMBER 17, 2019

Phase: DESIGN DEVELOPMENT

L1.0

TREE IN RAISED GRANITE PLANTER, TYP

STONE VENEER CONCRETE RETAINING WALL

BIKE RACK, DECORATIVE, THIS LOCATION ONLY (3 REQ'D)

FOOD CART AREA

BRICK PAVING

REMOVABLE TABLE AND CHAIRS

TREE IN RAISED GRANITE PLANTER, TYP

EXISTING CURB RAMP TO REMAIN

PRECAST CONCRETE WALL WITH WOOD TOP

BOLLARD LIGHTS (3 REQ'D)

TREE IN RAISED GRANITE PLANTER, TYP

PRECAST CONCRETE WALL WITH WOOD TOP

LANDSCAPE AREA WITH SCULPTURE

INTEGRATED BENCH AND PLANTER

SPECIAL PAVING

BRICK PAVING

INTEGRATED BENCH AND PLANTER

FINAL DESIGN TO BE COORDINATE WITH CITY STAFF

ADA CURB RAMP

CROSSWALK, TYP.

SEE SPRING STREET EAST INSET PLAN

LANDSCAPE AREA

GRANITE BANDING

WALL LIGHT (3 REQ'D AT THIS LOCATION)

MONUMENTAL GRANITE STEPS W/ STAINLES STEEL HANDRAIL

GRANITE STEPS WITH STONE CHEEKWALLS & STAINLESS STEEL HANDRAILS

GRANITE EDGING TO MATCH EXISTING

FLUSH CURBING

BRICK PAVING

CONCRETE PAVING, SEE CIVIL DWGS

DECORATIVE SCREEN

RAISED PLANTER W/ GRANITE EDGING/ WALL

BRICK PAVING

SLOPED GRANITE CURBING

GRANITE BANDING

BOLLARD, TYP

BIKE RACK, CITY STANDARD, TYP (4 TOTAL REQ'D)

FLUSH GRANITE CURBING

VERTICAL GRANITE CURBING

WALL LIGHTS (4 REQ'D AT THIS LOCATION)

LANDSCAPE AREA

PRECAST CONCRETE WALL WITH WOOD BENCH TOP

ILLUMINATED BENCH

SPECIAL PAVING

GRANITE BANDING, TYP

REMOVABLE BOLLARDS

PROPOSED BUILDING THREE PORTLAND SQUARE

PROPOSED BUILDING FOUR PORTLAND SQUARE

COTTON STREET

CROSS ST

FORE STREET

TREE IN RAISED GRANITE PLANTER

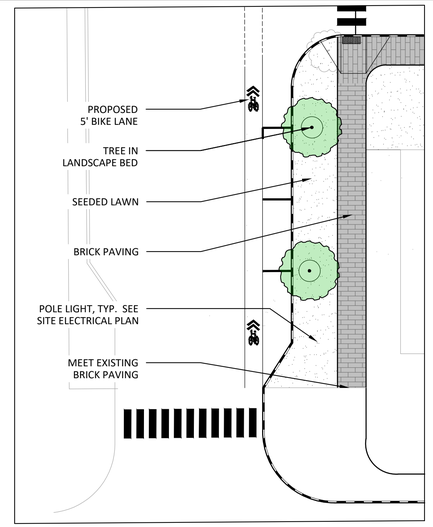
POLE LIGHT, TYP. SE SITE ELECTRICAL PLAN

BIKE RACK, CITY STANDARD, TYP (4 TOTAL REQ'D)

EXISTING TREE TO REMAIN AND BE PROTECTED

CURB RAMP, TYP

SCALE in FEET
1"=20'



SPRING STREET EAST INSET PLAN

SCALE: 1"=20'-0"

Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

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Revisions		
1	11.8.19	FOR PRICING
2	12.20.19	PERMITTING
3	2.14.20	50% DESIGN DEVELOPMENT

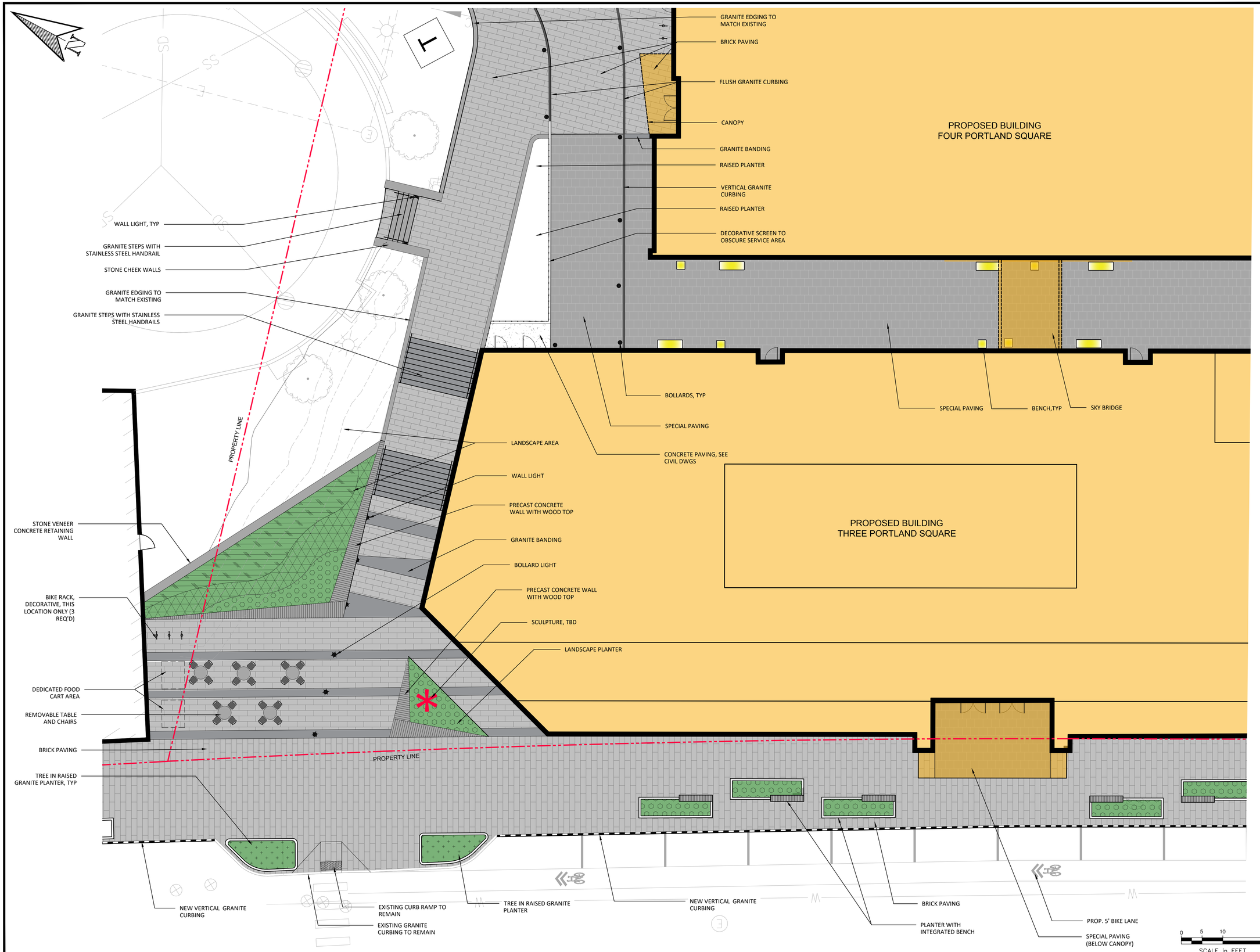
Drawing Title: SITE MATERIALS PLAN

Scale: 1"= 20'-0"

Date: NOVEMBER 17, 2019

Phase: DESIGN DEVELOPMENT

L2.0



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Revisions		
1	11.8.19	FOR PRICING
2	12.20.19	PERMITTING
3	2.19.20	50% DESIGN DEVELOPMENT

Drawing Title: PLAZA ENLARGEMENT PLAN

Scale: 1"= 10'-0"

Date: NOVEMBER 17, 2019

Phase: DESIGN DEVELOPMENT

L2.1



NOT FOR CONSTRUCTION

PLANT SCHEDULE -STREET TREES					
QUANT.	SYM.	BOTANICAL NAME	COMMON NAME	SIZE	NOTES
1	AC	AMELANCHIER CANADENSIS AUTUMN BRILLIANCE	SHADBLOW	6-7' MULTI, B&B	
8	AR	ACER RUBRUM 'KARPICK'	RED MAPLE	2.5-3" CAL, B&B	
2	CO	CELTIS OCCIDENTALIS	HACKBERRY	2.5-3" CAL, B&B	
4	GB	GINKGO BILOBA	GINKO	2.5-3" CAL, B&B	
8	GS	GLEDITSIA TRIACANTHOS F. INERMIS 'SKYCOLE' SKYLINE	SKYLINE HONEYLOCUS	2.5-3" CAL, B&B	
6	PS	PRUNUS SARGENTII 'PINK FLAIR'	FLOWERING CHERRY	2.5-3" CAL, B&B	
6	UA	ULMUS AMERICANA 'PRINCETON'	AMERICAN ELM	2.5-3" CAL, B&B	
4	PO	PICEA OMORIKA	SERBIAN SPRUCE	7-8' HT., B&B	
2	PL	PLATANUS OCCIDENTALIS	AMERICAN SYCAMORE	2.5-3" CAL, B&B	
1	SP	STEWARTIA PSEUDOCAMELLIA	JAPANESE STEWARTIA	3"-3.5" CAL, B&B	

PLANT SCHEDULE -SHRUBS, GROUNDCOVERS & HERBACEOUS'					
QUANT.	SYM.	BOTANICAL NAME	COMMON NAME	SIZE	NOTES
153	AH	AMSONIA HUBRICHTII	BLUESTAR	#1 CONT	24" O.C.
600	AS	ALLIUM SPHAEROCEPHALON	DRUMSTICK ALLIUM	BULBS	6" O.C.
8	CA	CLETHRA ALNIFOLIA 'SIXTEEN CANDLES'	SUMMERSWEET	#7 CONT	
49	CD	CAREX DIVULSA	GRASSLAND SEDGE	#2 CONT	
16	CS	CORNUS SERICEA 'ISANTI'	RED-OSIER DOGWOOD	3-3.5' B&B	
2,860	DP	DENNSTAEDTIA PUNCTILOBULA	HAY SCENTED FERN	SOD	
16	HA	HYDRANGEA ARBORESCENS 'ANNABEL'	SMOOTH HYDRANGEA	#7 CONT	
2	HV	HAMAMELIS X INTERMEDIA 'PALLIDA'	WITCH HAZEL	4-4.5' B&B	
460	LS	LIRIOPE SPICATA	LILYTURF	QT.	16" O.C.
45	MS	MISCANTHUS SINENSIS PURPURASCENS	FLAME GRASS	#5 CONT	36" O.C.
12	PA	PENNISETUM ALOPECUROIDES	DWARF FOUNTAIN GRASS	#3	
5	RB	RHODODENDRON 'BOULE DE NEIGE'	BOULE DE NEIGE RHODODENDRON	#5 CONT	
200	SA	SESLERIA AUTUMNALIS	AUTUMN MOOR GRASS	#1 CONT	16" O.C.

PLANTING NOTES

1. CONTRACTOR SHALL BEGIN MAINTENANCE IMMEDIATELY AFTER PLANTING AND SHALL CONTINUE UNTIL FINAL ACCEPTANCE BY OWNER. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL MEANS AND METHODS OF WATERING AND MAINTENANCE.
2. CONTRACTOR SHALL SUPPLY PLANTS IN QUANTITIES SUFFICIENT TO COMPLETE WORK SHOWN ON THE PLAN. ANY DISCREPANCY BETWEEN THE QUANTITIES SHOWN IN THE PLANT SCHEDULE AND THOSE REQUIRED ON THE PLAN SHALL NOT ENTITLE THE CONTRACTOR TO ADDITIONAL RENUMERATION. ANY DISCREPANCIES SHALL BE CLARIFIED WITH THE LANDSCAPE ARCHITECT PRIOR TO ORDERING PLANT MATERIAL.
3. ALL MATERIALS SHALL CONFORM TO SPECIFICATIONS OF THE AMERICAN STANDARDS FOR NURSERY STOCK (LATEST EDITION) AS SET FORTH BY THE AMERICAN ASSOCIATION OF NURSERYMEN.
4. ALL PLANTS SHALL BEAR THE SAME RELATIONSHIP TO FINISH GRADE AS THE ORIGINAL GRADES BEFORE DIGGING.
5. THE LANDSCAPE CONTRACTOR SHALL GUARANTEE ALL PLANT MATERIALS FOR ONE (1) FULL YEAR FROM DATE OF SUBSTANTIAL COMPLETION.
6. ALL PLANT MATERIALS ARE SUBJECT TO THE APPROVAL OF THE LANDSCAPE ARCHITECT AT THE NURSERY AND AT THE SITE.
7. ALL PLANT BEDS SHALL MEET MINIMUM TOPSOIL REQUIREMENTS (SEE SPECIFICATIONS + NOTE #19 BELOW).
8. NO PLANT MATERIAL SHALL BE INSTALLED UNTIL GRUBBING, BED PREPARATION, AND FINISH GRADING HAS BEEN COMPLETED IN THE IMMEDIATE AREA.
9. ALL PLANTS BEDS AND TREE WELLS SHALL HAVE A MINIMUM OF 3" OF UNIFORMLY DISTRIBUTED, DARK, SHREDDED BARK MULCH. ALL SHRUBS BED SHALL BE CONTINUOUS (WITH PLANTING SOIL MIX AND BARK MULCH).
10. CONTRACTOR SHALL SUBMIT SOIL SAMPLE AND TEST OF TOPSOIL TO LANDSCAPE ARCHITECT PRIOR TO INSTALLATION. SOIL ADMIXTURE SHALL BE ADDED TO EXISTING SOIL (BY CONTRACTOR) IF DEEMED NECESSARY BY SOIL TEST RESULTS.
11. ROUGH GRADING AND BED PREPARATION SHALL BE APPROVED BY LANDSCAPE ARCHITECT PRIOR TO PLANT INSTALLATION. CONTRACTOR SHALL NOTIFY LANDSCAPE ARCHITECT 48 HOURS PRIOR TO REQUIRED SITE VISIT.
12. ALL PLANTS SHALL BE BALLED AND WRAPPED OR CONTAINER GROWN AS SPECIFIED. ALL ROOT WRAPPING AND CONTAINER MATERIAL MADE OF SYNTHETICS OR PLASTICS SHALL BE REMOVED AT THE TIME OF PLANTING.
13. ALL BROAD LEAF EVERGREEN PLANTS SHALL BE SPRAYED WITH AN ANTI-DESSICANT AT THE BEGINNING OF THEIR FIRST WINTER.
14. ALL PLANTS SHALL BE INSTALLED AS PER DETAILS AND THE CONTRACT SPECIFICATIONS. THE LANDSCAPE CONTRACTOR SHALL REFER TO THE CONTRACT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
15. CONTRACTOR SHALL STAKE TREES.
16. THE LANDSCAPE CONTRACTOR SHALL PROVIDE TOPSOIL FILL AS PER THE CONTRACT SPECIFICATIONS + NOTE #19.
17. ALL PLANTS SHALL BE WATERED BY THE CONTRACTOR, AS NECESSARY TO INSURE HEALTH UNTIL FINAL ACCEPTANCE.
18. THE LANDSCAPE CONTRACTOR SHALL REFER TO THE PLANT LIST AND PLANTING SPECIFICATIONS FOR SEASONAL REQUIREMENTS AND OTHER RESTRICTIONS RELATED TO THE TIME AND SEASON OF PLANTING.
19. PLANTING SOIL MIX: 1 PART COMPOST, 8 PARTS TOPSOIL, 3 PARTS HUMUS.

    TOPSOIL: FERTILE, FRIABLE, NATURAL TOPSOIL OF LOAMY CHARACTER, WITHOUT ADMIXTURE OF SUBSOIL MATERIAL, FREE FROM CLAY, LUMPS, COARSE SANDS, STONES, PLANTS, ROOTS, STICKS, AND OTHER FOREIGN MATERIALS GREATER THAN 1" IN ANY DIMENSION, PH RANGE 5.0-7.0 , AND SHALL CONTAIN NOT LESS THAN 6% ORGANIC MATTER BY WEIGHT.

    SANDY LOAM OR LOAM SOIL AS DEFINED BY THE USDA SOIL CONSERVATION SERVICE, AND HAVE THE FOLLOWING MECHANICAL ANALYSIS:

TEXTURAL CLASS	% OF TOTAL WEIGHT	AVERAGE %
SAND (0.05- 2.0 MM)	45 TO 75%	60%
SILT (0.002- 0.05 MM)	15 TO 35%	25%
CLAY (< 0.002 MM)	5 TO 25%	15%

0 15 30 60
SCALE in FEET
1"=30'

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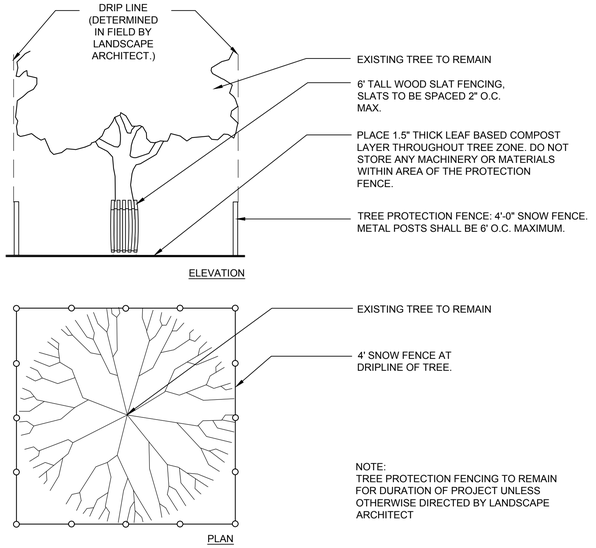
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Revisions		
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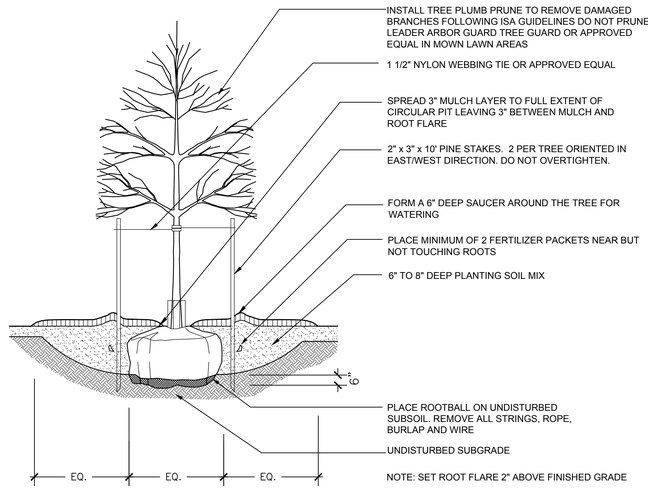
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Scale: 1"= 30'-0"

Date: NOVEMBER 17, 2019
Phase: DESIGN DEVELOPMENT

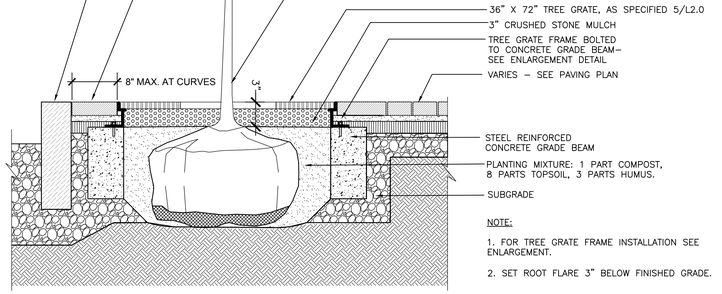
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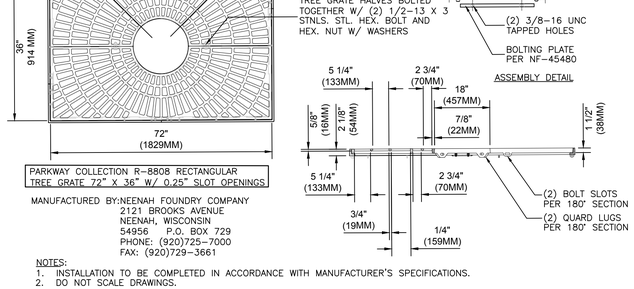
1 TREE PROTECTION
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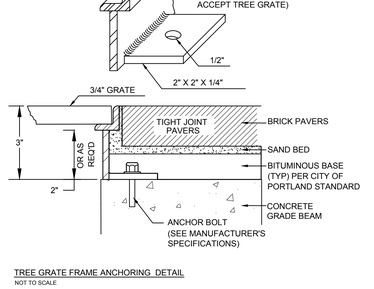


2 TREE PLANTING IN LANDSCAPE BED
SCALE: N.T.S

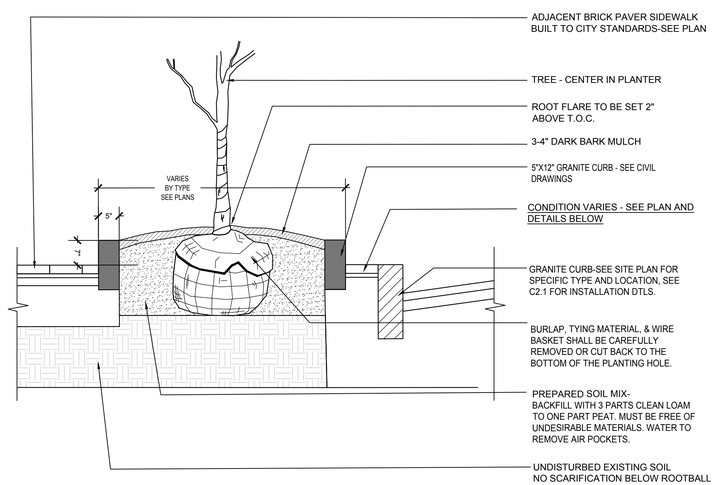


3 TREE IN TREE GRATE
SCALE: N.T.S

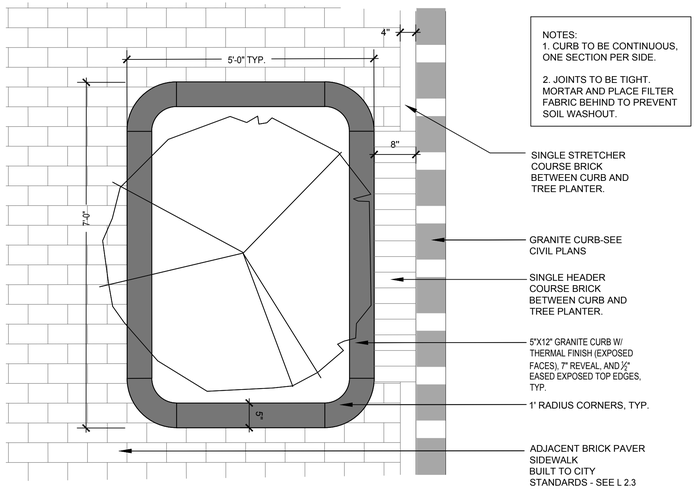


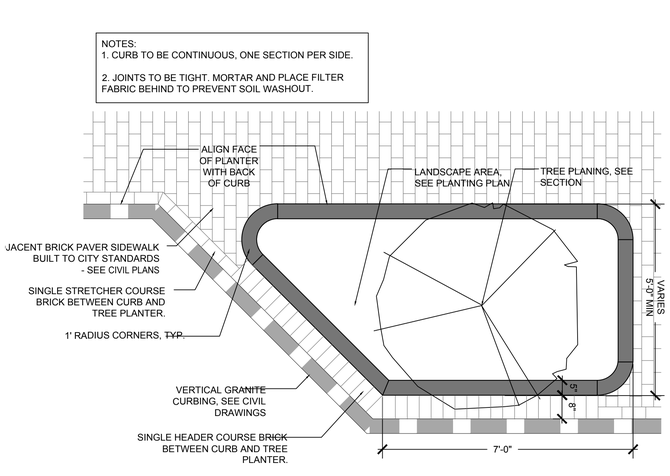


TREE GRATE FRAME ANCHORING DETAIL
NOT TO SCALE



4 TREE IN TREE GRATE
SCALE: N.T.S





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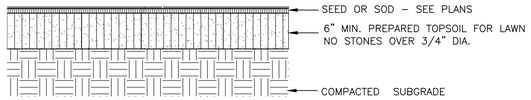
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1	11.8.19 FOR PRICING
2	12.20.19 PERMITTING

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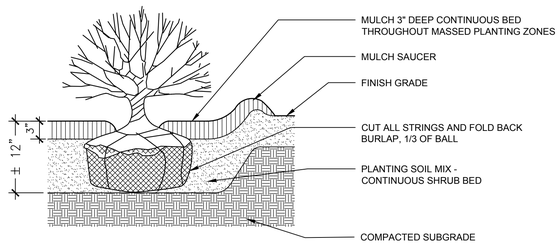
SITE DETAILS

Date:	NOVEMBER 17, 2019
Phase:	PERMITTING

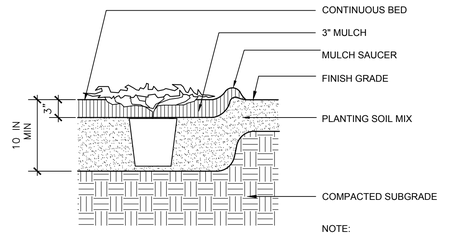
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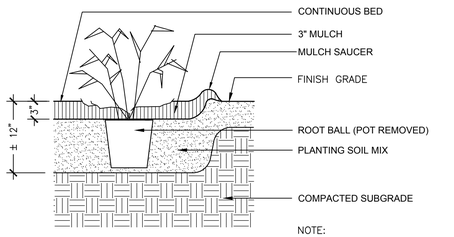
1 LAWN
SCALE: N.T.S



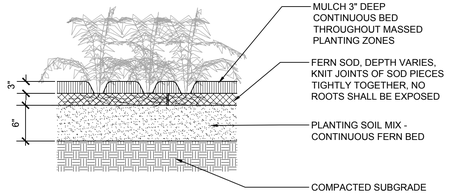
2 SHRUB PLANTING
SCALE: N.T.S



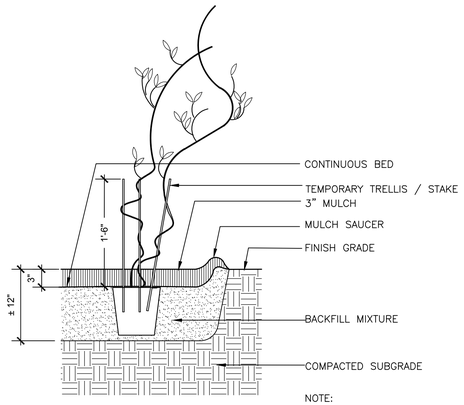
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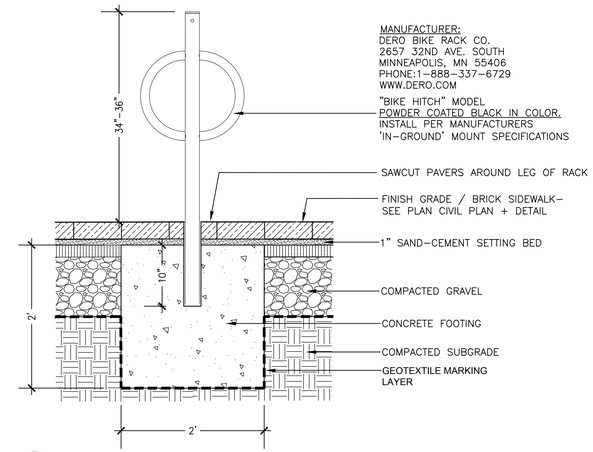
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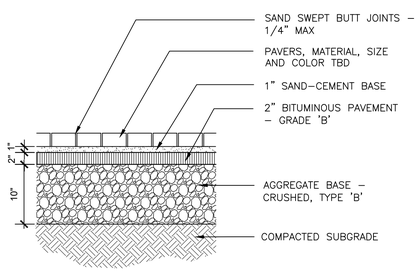
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SCALE: N.T.S



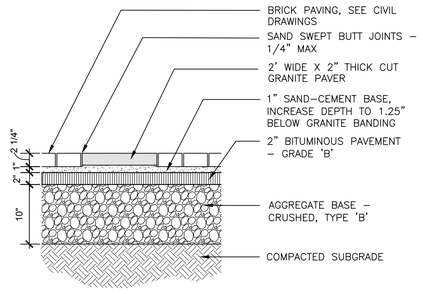
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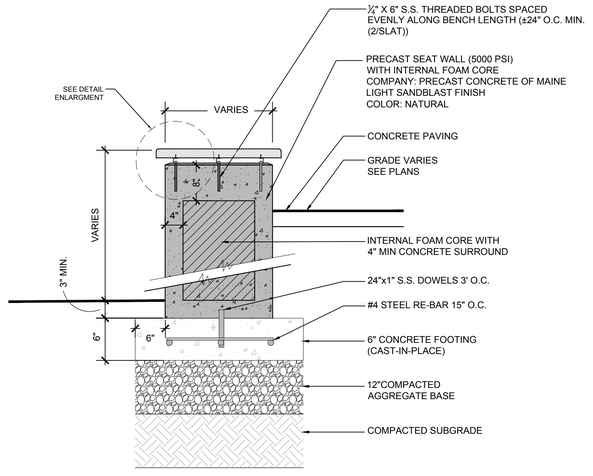
7 BIKE RACK
SCALE: N.T.S



8 SPECIAL PAVING
SCALE: 1"=1'-0"

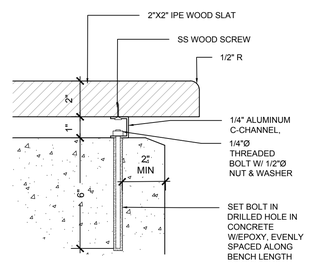


9 GRANITE BANDING
SCALE: 3/4"=1'-0"



SECTION:
SCALE: 3/4" =1'-0"

10 PRECAST CONCRETE WALL WITH WOOD TOP
SCALE: AS NOTED



DETAIL ENLARGEMENT
SCALE: 3" =1'-0"

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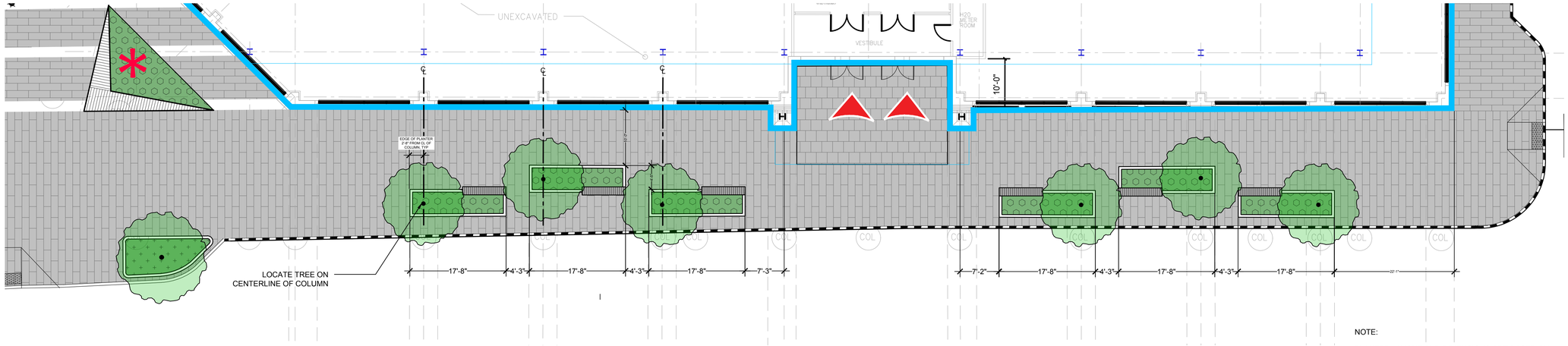
Revisions		
1	11.8.19	FOR PRICING
2	12.20.19	PERMITTING

Drawing Title:	Scale: 1"= 20'-0"

SITE DETAILS

Date:	NOVEMBER 17, 2019
Phase:	PERMITTING

L4.1



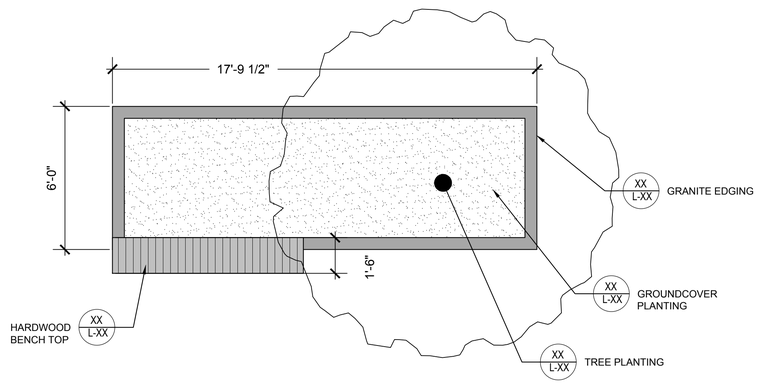
NOTE:

PLANTER LAYOUT AND DIMENSIONS ARE BASED ON ARCHITECTURAL LAYOUT, VERIFY DIMENSION WITH ARCHITECTURAL LAYOUT

1 OVERALL PLANTER LAYOUT (PLAN)
SCALE: 1"=10'-0"



2 PLANTER LAYOUT (ELEVATION)
SCALE: 1"=10'-0"



3 PLANTER LAYOUT (PLAN)
SCALE: 1"=3'-0"

4 DETAIL
SCALE: N.T.S

Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

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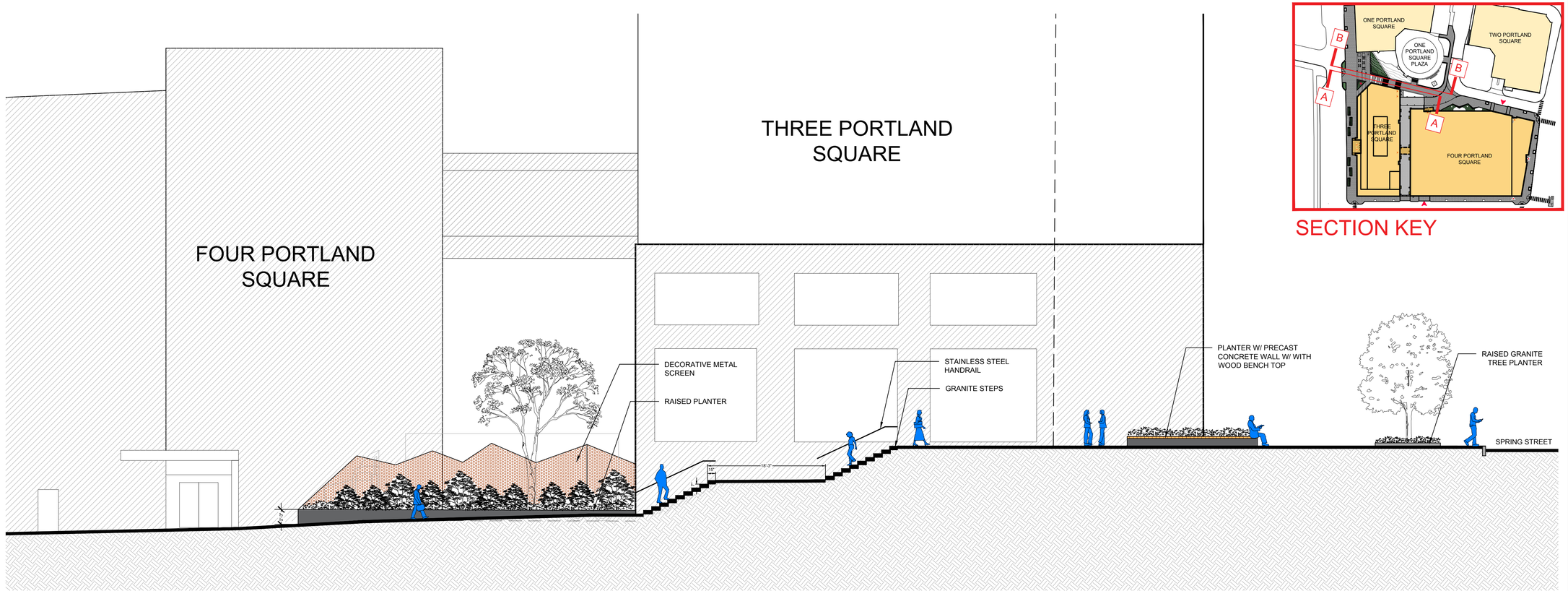
Revisions		
1	11.8.19	FOR PRICING
2	12.20.19	PERMITTING
3	2.14.20	50% DESIGN DEVELOPMENT

Drawing Title: | Scale: 1"=8'-0"

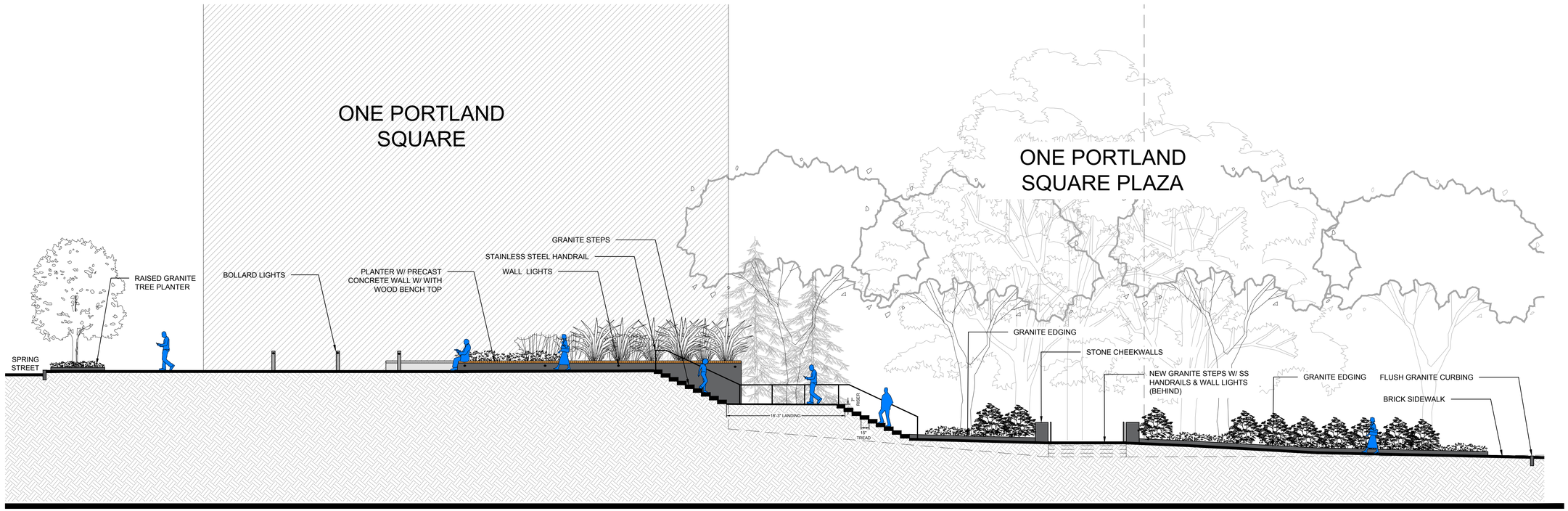
PLANTER WITH INTEGRATED BENCH

Date: NOVEMBER 17, 2019
Phase: DESIGN DEVELOPMENT

L4.3



PROFILE 'A' - UPPER CROSS STREET PEDESTRIAN WAY - view towards Three & Four Portland Square



PROFILE 'B' - UPPER CROSS STREET PEDESTRIAN WAY - view towards One Portland Square

SECTION KEY

Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

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Revisions		
1	11.8.19	FOR PRICING
2	12.20.19	PERMITTING
3	2.19.20	50% DESIGN DEVELOPMENT

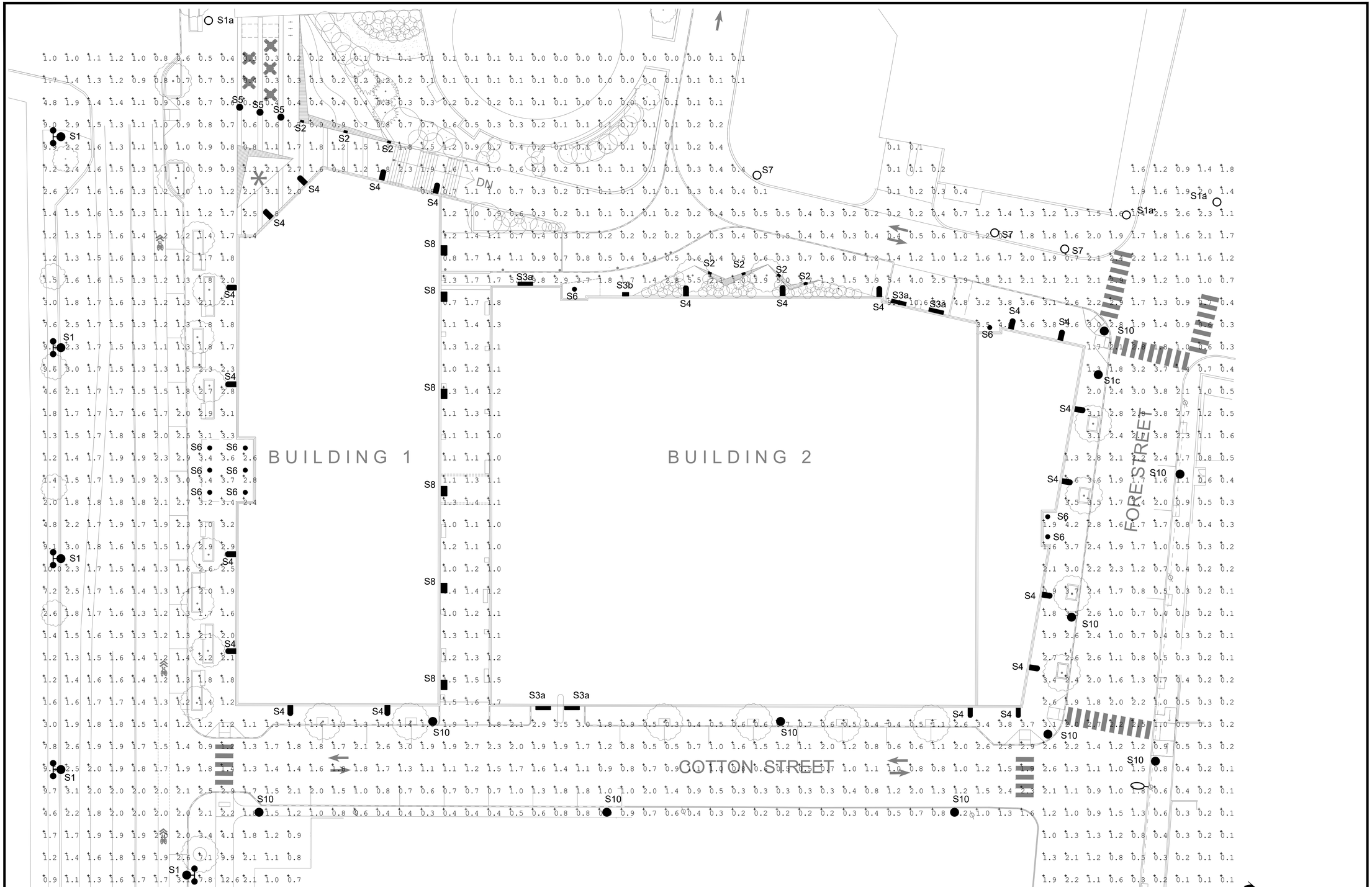
Drawing Title: **MONUMENTAL STAIR PROFILES**

Scale: 1"=8'-0"

Date: NOVEMBER 17, 2019

Phase: DESIGN DEVELOPMENT

L5.0



1. ALL PROPOSED LIGHTING FIXTURES UTILIZE LED LAMPS.
   - TYPE S1a AND S1b: 56.0 WATTS 5,300 LUMENS
   - TYPE S2: 6.0 WATTS 21 LUMENS
   - TYPE S3a: 36.7 WATTS 3,047.3 LUMENS
   - TYPE S3c: 36.7 WATTS 3,047.3 LUMENS
   - TYPE S4: 50.0 WATTS 2,005.3 LUMENS
   - TYPE S5: 36.0 WATTS 336 LUMENS
   - TYPE S6: 20 WATTS 2,399 LUMENS
   - TYPE S8: 39 WATTS 2,117 LUMENS
2. EXTERIOR BUILDING MOUNTED LIGHTS WILL OPERATE FROM DUSK UNTIL DAWN, CONTROLLED BY PHOTOCELL.
3. ALL PROPOSED LIGHTS HAVE "CUT-OFF" OPTICS.

4. PROPOSED LIGHTING FIXTURES:
   - TYPE S1: HOLOPHANE # ESL2-P20S-30K-AS-CMC-TG3-S-P7-NL2X2-BHDF13-200CMC
     PD42-CA-RAL6012 / PD69-CA-RAL6012 / WLLF200S-CA-RAL6012
     PM-18-CSB-CA-RAL6012 / PM18CSB-CA-RAL6012
     (TYPE X-5F PER PORTLAND TECHNICAL MANUAL)
   - TYPE S1c: EXISTING POLE LIGHT TO REMAIN.
     (TYPE X-1 PER PORTLAND TECHNICAL MANUAL)
   - TYPE S2: BETA-CALCO # 820 7610/30/AG/DB RIH6503
   - TYPE S3a: ARCHITECTURAL AREA LIGHTING # RN-D-6-5-3K8-AS-DL-UNV-W-PC-MG
   - TYPE S3b: ARCHITECTURAL AREA LIGHTING # RN-D-3-5-3K8-AS-DL-UNV-W-PC-MG
   - TYPE S4: LANDSCAPE FORMS # AH-004L3-100F-30K-UV1-MW1
   - TYPE S5: LANDSCAPE FORMS # AG-400L4-035F-30K-UNV
   - TYPE S6: BEACON LIGHTING # SRT1-20-3K8-SC-UNV-GYS
   - TYPE S8: ECLIPSE # DK-Q-L-40W-4K-EBU-BK-SG
   - TYPE S10: HOLOPHANE # WAUE2-P20-30K-AS-BK-3-BK-6-P7-F-PCLL
     NYA-11-FTJ-17-P07-ABG-BK-R126A

5. CALCULATED ILLUMINANCE RESULTS (FOOTCANDLES AT GRADE):

	AVE.	MAX.	MIN.	AVE-TO-MIN UNIFORMITY
SPRING ST./COTTON ST. INTERSECTION:	1.8 FC	2.5 FC	0.9 FC	2.0-TO-1
FORE ST./COTTON ST. INTERSECTION:	1.6 FC	2.7 FC	0.9 FC	1.8-TO-1
FORE ST./CROSS ST. INTERSECTION:	1.7 FC	2.9 FC	0.6 FC	4.8-TO-1
SPRING STREET:	1.6 FC	2.3 FC	0.9 FC	1.7-TO-1
FORE STREET:	1.9 FC	3.8 FC	0.7 FC	2.7-TO-1
COTTON STREET:	1.3 FC	3.0 FC	0.3 FC	4.2-TO-1

GRAPHIC SCALE
0 10' 20' 40' 80'
CHECK GRAPHIC SCALE BEFORE USING

Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

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Revisions		
1	1/30/20	Revised per City Comments

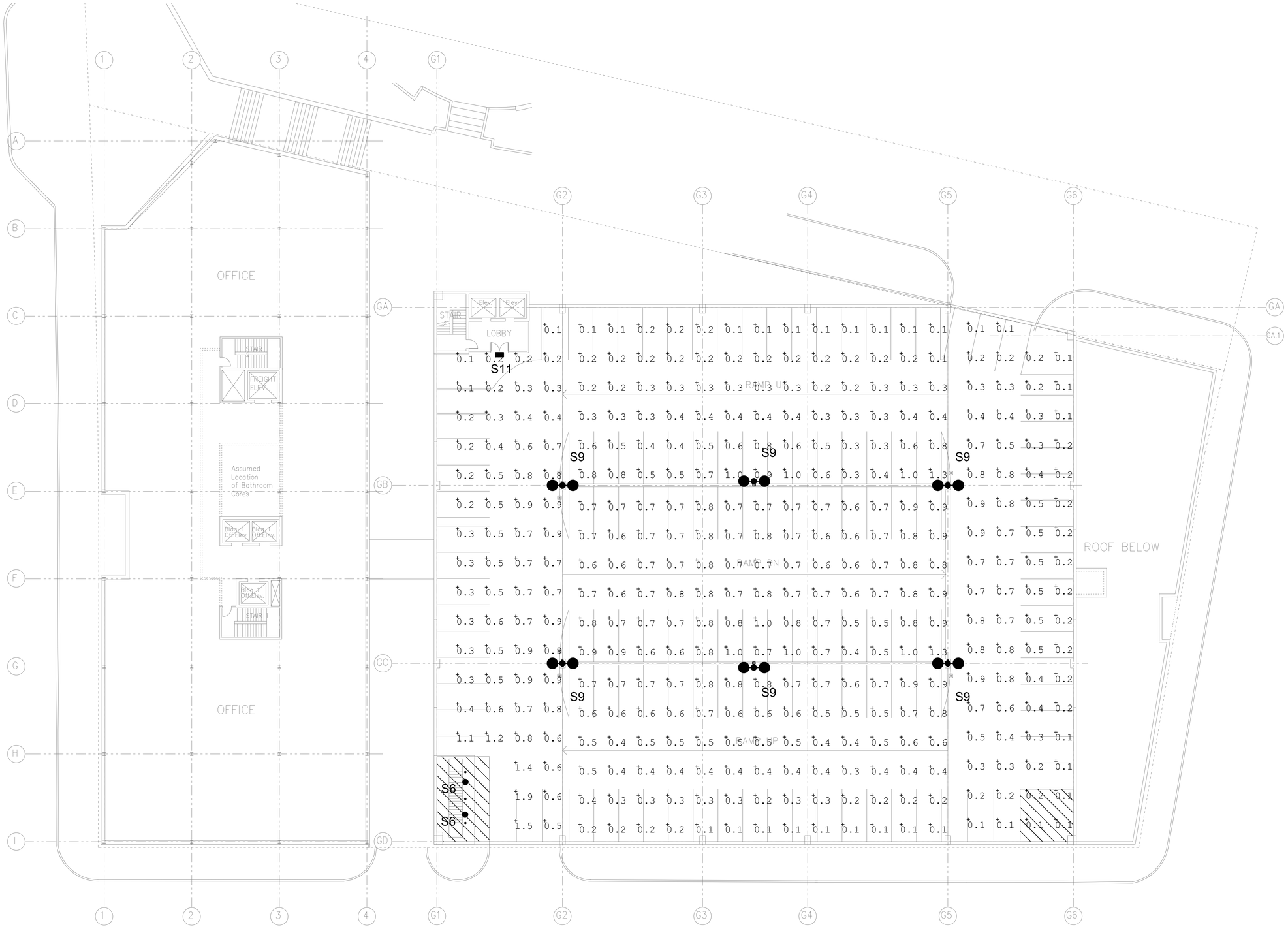
Drawing Title: SITE LIGHTING CALCULATION PLAN

Scale: 1" = 20'-0"

STATE OF MAINE
LAWRENCE E. BARTLETT
No. 7928
LICENSED
PROFESSIONAL ENGINEER
1/30/20

Date: DECEMBER 20, 2019
Phase: LEVEL III SUBMISSION

E0.1



1. ALL PROPOSED LIGHTS HAVE "CUT-OFF" OPTICS.
2. PROPOSED LIGHTING FIXTURES:
   - TYPE S6: BEACON LIGHTING # SRT1-20-3K8-SC-UNV-GYS INSTALLED UNDER STAIR CANOPY.
   - TYPE S9: BEACON # VPS-24L-55-3K7-3-UNV-AD3-BL-SCP/_F PROVIDE 16'-0" TALL, 4" DIAMETER ALUMINUM POLE TO BE INSTALLED ON A 30" RAISED CONCRETE BASE
   - TYPE S11: BETA-CALCO # 830 8140 INSTALLED ON WALL 8'-0" ABOVE PARKING DECK.
3. ALL PROPOSED LIGHTING FIXTURES UTILIZE LED LAMPS.
   - TYPE S6: 20 WATTS 2,399 LUMENS
   - TYPE S9: 55 WATTS 6,034 LUMENS (EACH LUMINAIRE)
   - TYPE S11: 6 WATTS 31 LUMENS (EACH LUMINAIRE)
4. EXTERIOR LIGHTING WILL OPERATE FROM DUSK UNTIL DAWN BY PHOTOCELL.
5. LIGHTS WILL OPERATE FROM DUSK UNTIL DAWN, CONTROLLED BY PHOTOCELL.
6. CALCULATED ILLUMINANCE IN FOOTCANDLES ARE INDICATED AT THE PARKING DECK SURFACES.
7. CALCULATED ILLUMINANCE RESULTS (FOOTCANDLES AT GRADE):

	AVE.	MAX.	MIN.	MAX-TO-MIN UNIFORMITY
PARKING DECK:	0.5 FC	1.9 FC	0.1 FC	19.0-TO-1

GRAPHIC SCALE
0 8' 16' 32' 64'
CHECK GRAPHIC SCALE BEFORE USING

Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

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Revisions		
1	1/30/20	Revised per City Comments

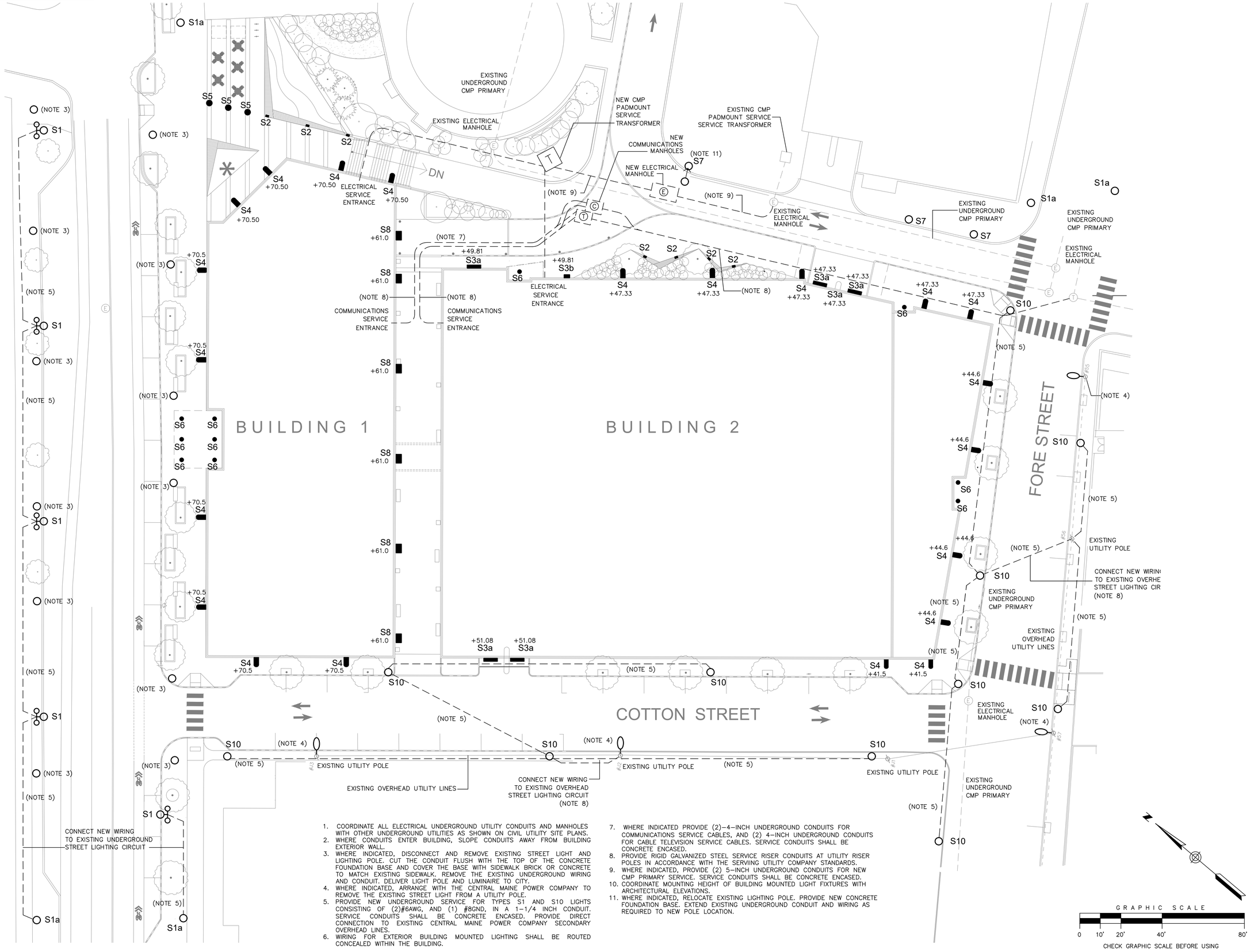
Drawing Title: ROOF LIGHTING CALCULATION PLAN

Scale: 1" = 16'-0"

STATE OF MAINE
LAWRENCE E. BARTLETT
No. 7928
LICENSED PROFESSIONAL ENGINEER
Lawrence E. Bartlett
1/30/20

Date: DECEMBER 20, 2019
Phase: LEVEL III SUBMISSION

E0.2



1. COORDINATE ALL ELECTRICAL UNDERGROUND UTILITY CONDUITS AND MANHOLES WITH OTHER UNDERGROUND UTILITIES AS SHOWN ON CIVIL UTILITY SITE PLANS.
2. WHERE CONDUITS ENTER BUILDING, SLOPE CONDUITS AWAY FROM BUILDING EXTERIOR WALL.
3. WHERE INDICATED, DISCONNECT AND REMOVE EXISTING STREET LIGHT AND LIGHTING POLE. CUT THE CONDUIT FLUSH WITH THE TOP OF THE CONCRETE FOUNDATION BASE AND COVER THE BASE WITH SIDEWALK BRICK OR CONCRETE TO MATCH EXISTING SIDEWALK. REMOVE THE EXISTING UNDERGROUND WIRING AND CONDUIT. DELIVER LIGHT POLE AND LUMINAIRE TO CITY.
4. WHERE INDICATED, ARRANGE WITH THE CENTRAL MAINE POWER COMPANY TO REMOVE THE EXISTING STREET LIGHT FROM A UTILITY POLE.
5. PROVIDE NEW UNDERGROUND SERVICE FOR TYPES S1 AND S10 LIGHTS CONSISTING OF (2)#6AWG, AND (1) #8GND, IN A 1–1/4 INCH CONDUIT. SERVICE CONDUITS SHALL BE CONCRETE ENCASED. PROVIDE DIRECT CONNECTION TO EXISTING CENTRAL MAINE POWER COMPANY SECONDARY OVERHEAD LINES.
6. WIRING FOR EXTERIOR BUILDING MOUNTED LIGHTING SHALL BE ROUTED CONCEALED WITHIN THE BUILDING.
7. WHERE INDICATED PROVIDE (2)–4–INCH UNDERGROUND CONDUITS FOR COMMUNICATIONS SERVICE CABLES, AND (2) 4–INCH UNDERGROUND CONDUITS FOR CABLE TELEVISION SERVICE CABLES. SERVICE CONDUITS SHALL BE CONCRETE ENCASED.
8. PROVIDE RIGID GALVANIZED STEEL SERVICE RISER CONDUITS AT UTILITY RISER POLES IN ACCORDANCE WITH THE SERVING UTILITY COMPANY STANDARDS.
9. WHERE INDICATED, PROVIDE (2) 5–INCH UNDERGROUND CONDUITS FOR NEW CMP PRIMARY SERVICE. SERVICE CONDUITS SHALL BE CONCRETE ENCASED.
10. COORDINATE MOUNTING HEIGHT OF BUILDING MOUNTED LIGHT FIXTURES WITH ARCHITECTURAL ELEVATIONS.
11. WHERE INDICATED, RELOCATE EXISTING LIGHTING POLE. PROVIDE NEW CONCRETE FOUNDATION BASE. EXTEND EXISTING UNDERGROUND CONDUIT AND WIRING AS REQUIRED TO NEW POLE LOCATION.

Three Portland Square

Portland, Maine

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Revisions		
1	1/30/20	Revised per City Comments

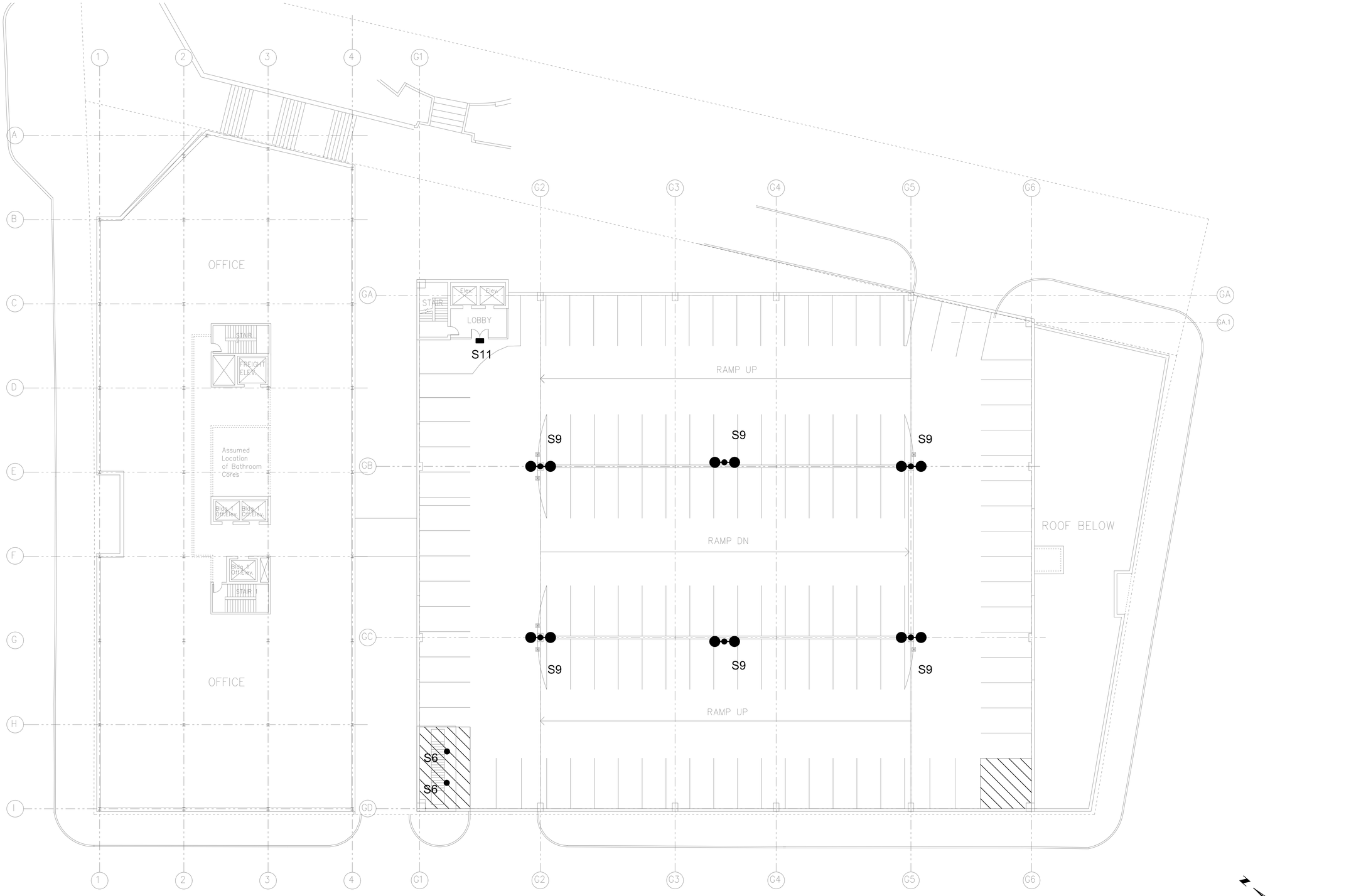
Drawing Title: **ELECTRICAL SITE PLAN**

Scale: 1" = 20'–0"

STATE OF MAINE
LAWRENCE E. BARTLETT
No. 7928
LICENSED PROFESSIONAL ENGINEER
1/30/20

Date: DECEMBER 20, 2019
Phase: LEVEL III SUBMISSION

E1.1



1. ALL PROPOSED LIGHTS HAVE "CUT-OFF" OPTICS.
2. PROPOSED LIGHTING FIXTURES:
   - TYPE S6: BEACON LIGHTING # SRT1-20-3K8-SC-UNV-GYS INSTALLED UNDER STAIR CANOPY.
   - TYPE S9: BEACON # VPS-24L-55-3K7-3-UNV-AD3-BL-SCP/_F PROVIDE 16'-0" TALL, 4" DIAMETER ALUMINUM POLE TO BE INSTALLED ON A 30" RAISED CONCRETE BASE
   - TYPE S11: BETA-CALCO # 830 8140 INSTALLED ON WALL 8'-0" ABOVE PARKING DECK.
3. ALL PROPOSED LIGHTING FIXTURES UTILIZE LED LAMPS.
   - TYPE S6: 20 WATTS 2,399 LUMENS
   - TYPE S9: 55 WATTS 6,034 LUMENS (EACH LUMINAIRE)
   - TYPE S11: 6 WATTS 31 LUMENS (EACH LUMINAIRE)
4. EXTERIOR LIGHTING WILL OPERATE FROM DUSK UNTIL DAWN BY PHOTOCELL.
5. LIGHTS WILL OPERATE FROM DUSK UNTIL DAWN, CONTROLLED BY PHOTOCELL.
6. CALCULATED ILLUMINANCE IN FOOTCANDLES ARE INDICATED AT THE PARKING DECK SURFACES.
7. CALCULATED ILLUMINANCE RESULTS (FOOTCANDLES AT GRADE):

	AVE.	MAX.	MIN.	MAX-TO-MIN UNIFORMITY
PARKING DECK:	0.5 FC	1.9 FC	0.1 FC	19.0-TO-1

GRAPHIC SCALE

0 8' 16' 32' 64'

CHECK GRAPHIC SCALE BEFORE USING

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Portland, Maine

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New York, NY

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Revisions		
1		
	1/30/20	Revised per City Comments

Drawing Title: | Scale: 1" = 16'-0"

ROOF PARKING LIGHTING PLAN

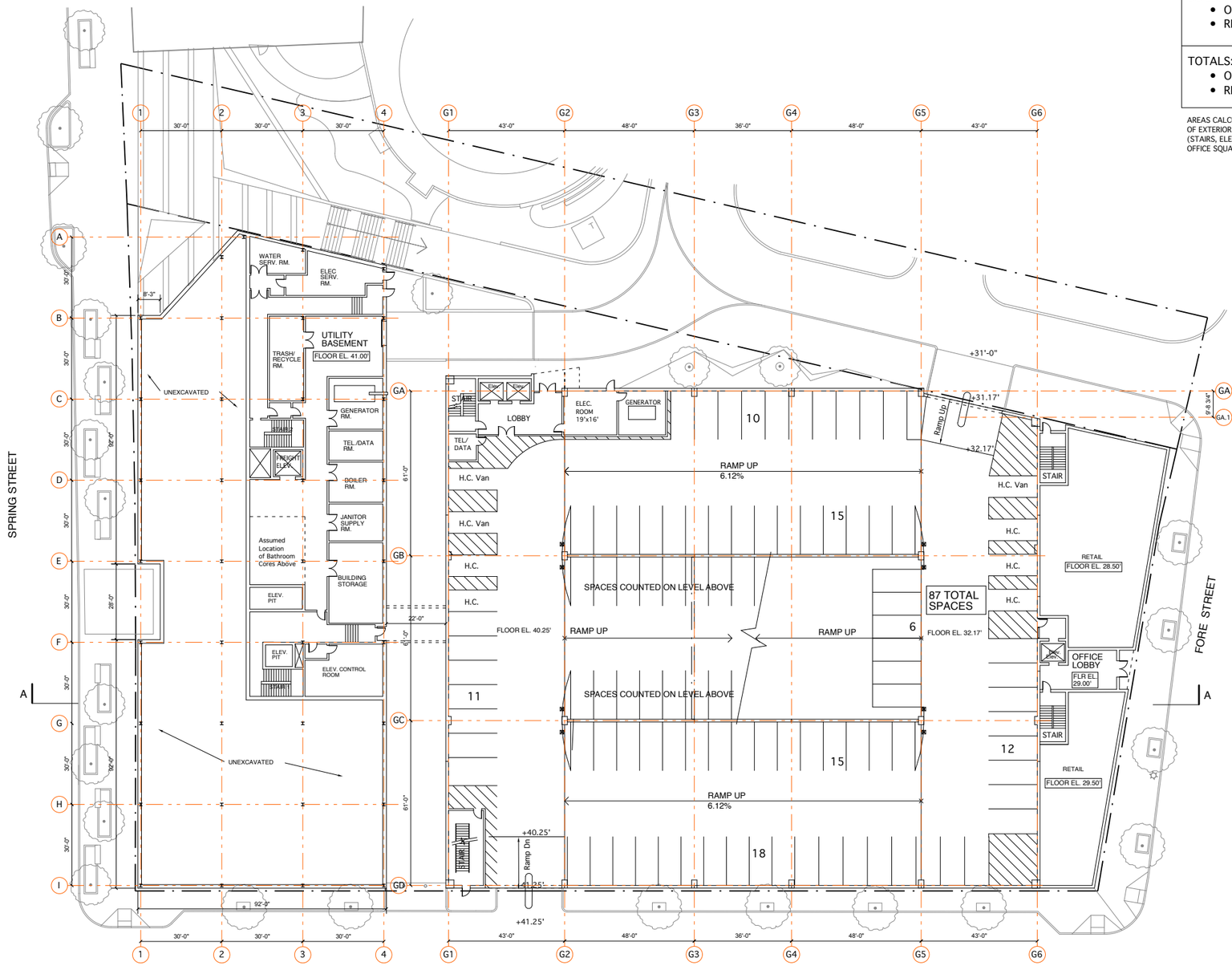
STATE OF MAINE
LAWRENCE E. BARTLETT
No. 7928
LICENSED PROFESSIONAL ENGINEER
1/30/20

Date: DECEMBER 20, 2019
Phase: LEVEL III SUBMISSION

E13.1

PROGRAMMING AREAS:	
PARKING:	851 SPACES
BUILDING 1:	
• OFFICE USE:	144,976 S.F.
• RETAIL USE:	17,795 S.F.
BUILDING 2:	
• OFFICE USE:	14,050 S.F.
• RETAIL USE:	3,750 S.F.
TOTALS:	
• OFFICE USE:	159,026 S.F.
• RETAIL USE:	21,545 S.F.

AREAS CALCULATED ABOVE ARE TO INSIDE FACE OF EXTERIOR WALLS. ALL COMMON CORE ELEMENTS (STAIRS, ELEVATORS, LOBBIES) ARE INCLUDED IN THE OFFICE SQUARE FOOTAGES



BUILDING 1 - Basement
1/16" = 1'-0"

GARAGE - Level G
1/16" = 1'-0"

BUILDING 2 - Level G
1/16" = 1'-0"

Three Portland Square

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MECHANICAL SYSTEMS ENGINEERS
Royal River Center, Unit 10
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Yarmouth, ME 04096
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BARTLETT DESIGN
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Revisions #	Date	Description

Drawing Title: Scale: 1/16"=1'-0"

BUILDING 1 - LEVEL B
El. 41.00'

GARAGE - LEVEL G
El. 32.17' / 40.25'

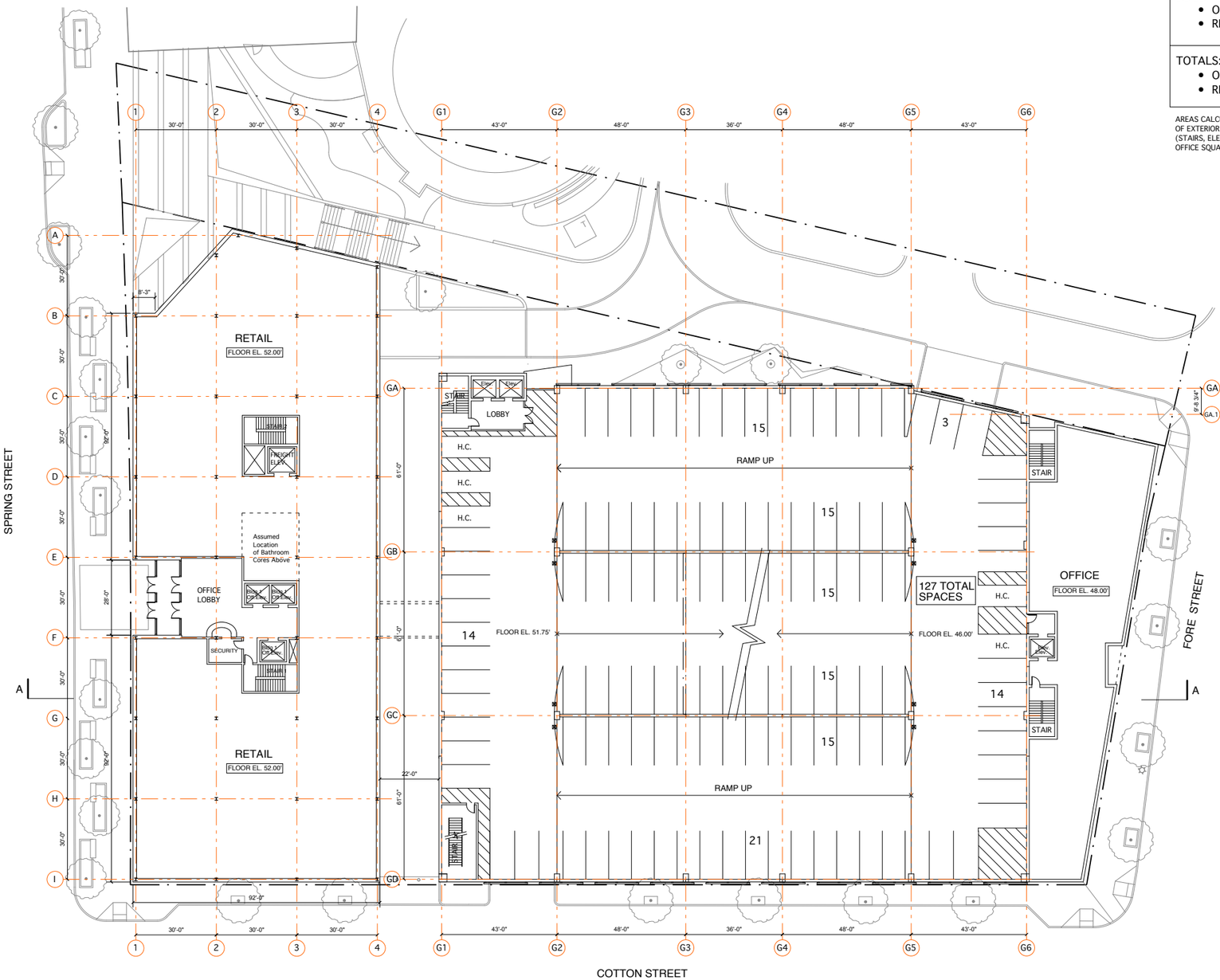
BUILDING 2 - LEVEL G
El. 28.50' / 29.00' / 29.50'

Date: DECEMBER 20, 2019
Phase: PERMITTING

A1.0

PROGRAMMING AREAS:	
PARKING:	851 SPACES
BUILDING 1:	
• OFFICE USE:	144,976 S.F.
• RETAIL USE:	17,795 S.F.
BUILDING 2:	
• OFFICE USE:	14,050 S.F.
• RETAIL USE:	3,750 S.F.
TOTALS:	
• OFFICE USE:	159,026 S.F.
• RETAIL USE:	21,545 S.F.

AREAS CALCULATED ABOVE ARE TO INSIDE FACE OF EXTERIOR WALLS. ALL COMMON CORE ELEMENTS (STAIRS, ELEVATORS, LOBBIES) ARE INCLUDED IN THE OFFICE SQUARE FOOTAGES



BUILDING 1- Level G
1/16" = 1'-0"

GARAGE - Level 1
1/16" = 1'-0"

BUILDING 2 - Level 1
1/16" = 1'-0"

Three Portland Square

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Revisions #	Date	Description

Drawing Title: Scale: 1/16"=1'-0"

BUILDING 1 - LEVEL G
El. 52.00'

GARAGE - LEVEL 1
El. 46.00' 51.75'

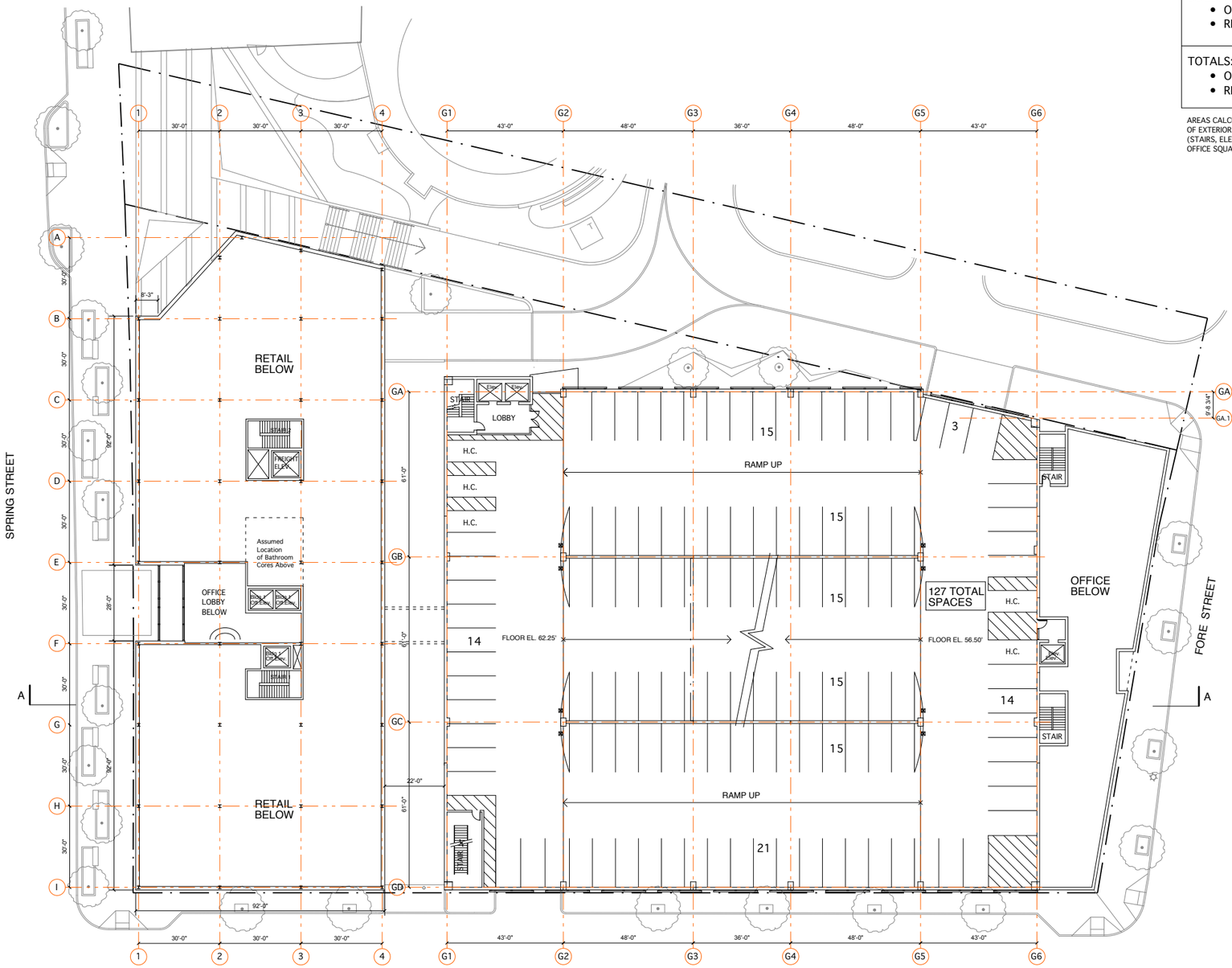
BUILDING 2 UPPER LEVEL 1
El. 48.00'

Date: DECEMBER 20, 2019
Phase: PERMITTING

A1.1

PROGRAMMING AREAS:	
PARKING:	851 SPACES
BUILDING 1:	
• OFFICE USE:	144,976 S.F.
• RETAIL USE:	17,795 S.F.
BUILDING 2:	
• OFFICE USE:	14,050 S.F.
• RETAIL USE:	3,750 S.F.
TOTALS:	
• OFFICE USE:	159,026 S.F.
• RETAIL USE:	21,545 S.F.

AREAS CALCULATED ABOVE ARE TO INSIDE FACE OF EXTERIOR WALLS. ALL COMMON CORE ELEMENTS (STAIRS, ELEVATORS, LOBBIES) ARE INCLUDED IN THE OFFICE SQUARE FOOTAGES



BUILDING 1- Upper Level G
1/16" = 1'-0"

GARAGE - Level 2
1/16" = 1'-0"

BUILDING 2 - Upper Level 1
1/16" = 1'-0"

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Revisions #	Date	Description

Drawing Title: Scale: 1/16"=1'-0"

BUILDING 1 - UPPER LEVEL G

GARAGE - LEVEL 2
El. 56.50' / 62.25'

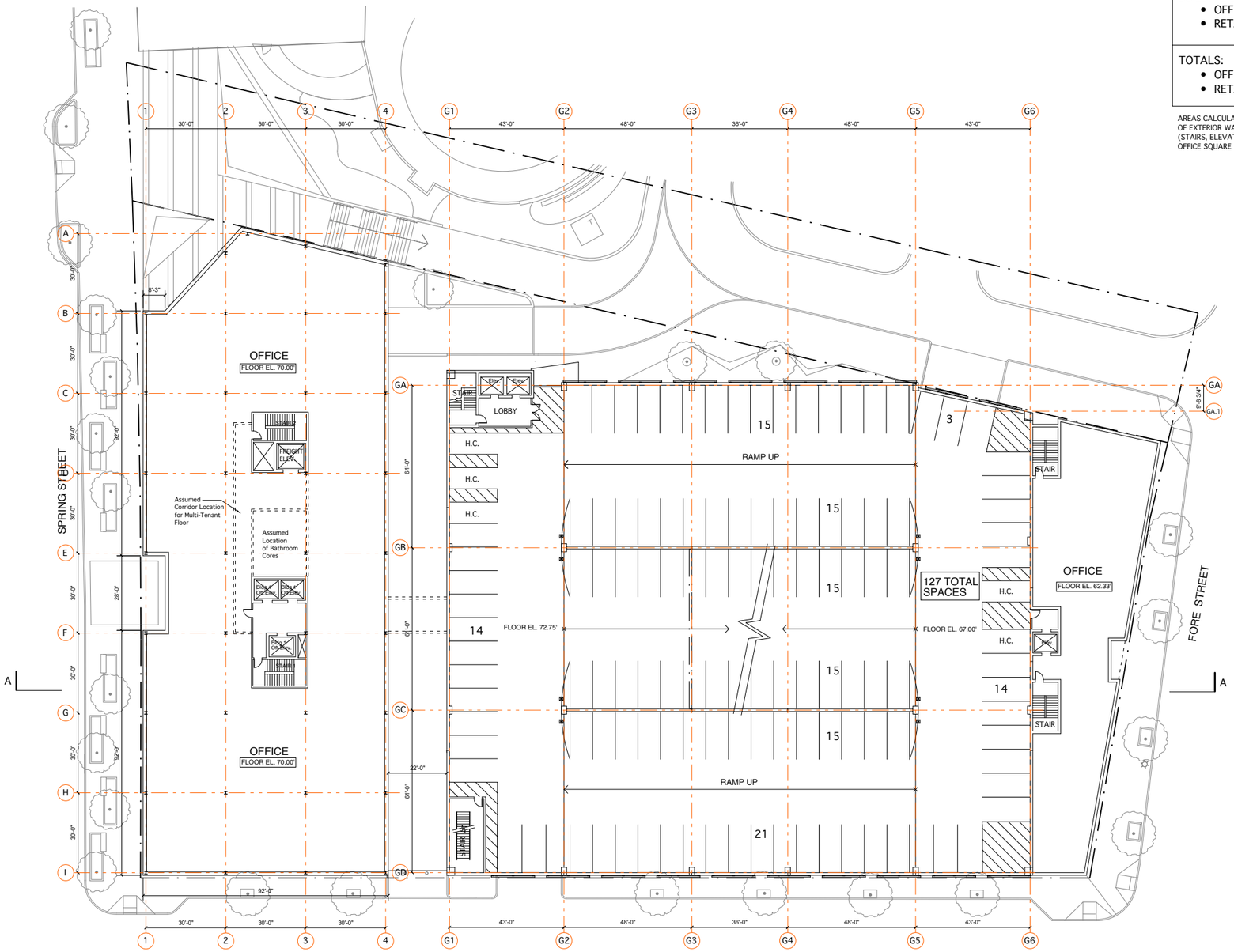
BUILDING 2 UPPER LEVEL 1

Date: DECEMBER 20, 2019
Phase: PERMITTING

A1.2

PROGRAMMING AREAS:	
PARKING:	851 SPACES
BUILDING 1:	
• OFFICE USE:	144,976 S.F.
• RETAIL USE:	17,795 S.F.
BUILDING 2:	
• OFFICE USE:	14,050 S.F.
• RETAIL USE:	3,750 S.F.
TOTALS:	
• OFFICE USE:	159,026 S.F.
• RETAIL USE:	21,545 S.F.

AREAS CALCULATED ABOVE ARE TO INSIDE FACE OF EXTERIOR WALLS. ALL COMMON CORE ELEMENTS (STAIRS, ELEVATORS, LOBBIES) ARE INCLUDED IN THE OFFICE SQUARE FOOTAGES



BUILDING 1- Level 1
1/16" = 1'-0"

GARAGE - Level 3
1/16" = 1'-0"

BUILDING 3 - Level 2
1/16" = 1'-0"

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Drawing Title: Scale: 1/16"=1'-0"

BUILDING 1 - LEVEL 1
El 70.00'

GARAGE - LEVEL 3
El. 67.00' / 72.75'

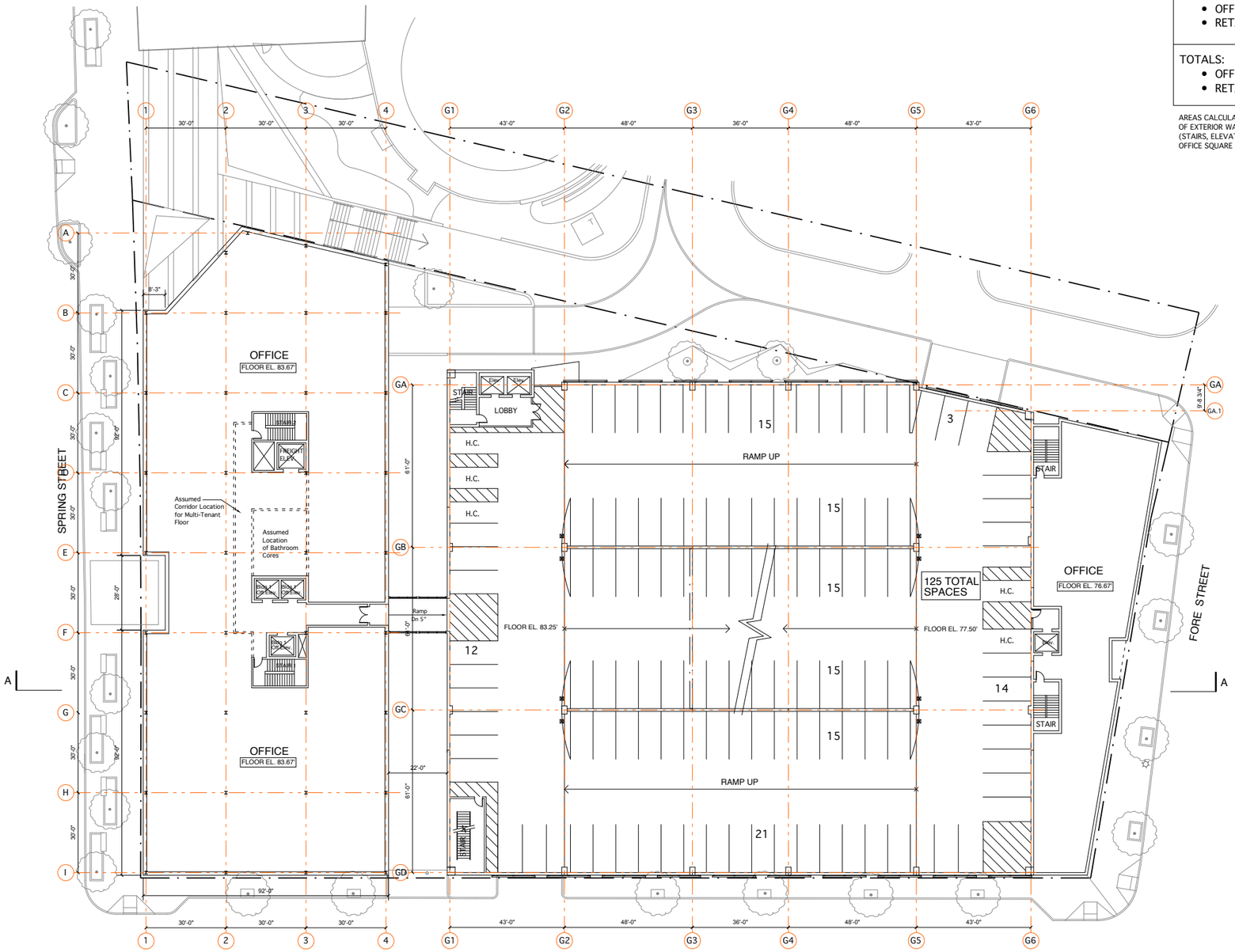
BUILDING 2 - LEVEL 2
EL. 62.33'

Date: DECEMBER 20, 2019
Phase: PERMITTING

A1.3

PROGRAMMING AREAS:	
PARKING:	851 SPACES
BUILDING 1:	
• OFFICE USE:	144,976 S.F.
• RETAIL USE:	17,795 S.F.
BUILDING 2:	
• OFFICE USE:	14,050 S.F.
• RETAIL USE:	3,750 S.F.
TOTALS:	
• OFFICE USE:	159,026 S.F.
• RETAIL USE:	21,545 S.F.

AREAS CALCULATED ABOVE ARE TO INSIDE FACE OF EXTERIOR WALLS. ALL COMMON CORE ELEMENTS (STAIRS, ELEVATORS, LOBBIES) ARE INCLUDED IN THE OFFICE SQUARE FOOTAGES



BUILDING 1- Level 2
1/16" = 1'-0"

GARAGE - Level 4
1/16" = 1'-0"

BUILDING 2 - Level 3
1/16" = 1'-0"

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Revisions #	Date	Description

Drawing Title: Scale: 1/16"=1'-0"

BUILDING 1 - LEVEL 2
El 83.67'

GARAGE - LEVEL 4
El. 77.50' / 83.25'

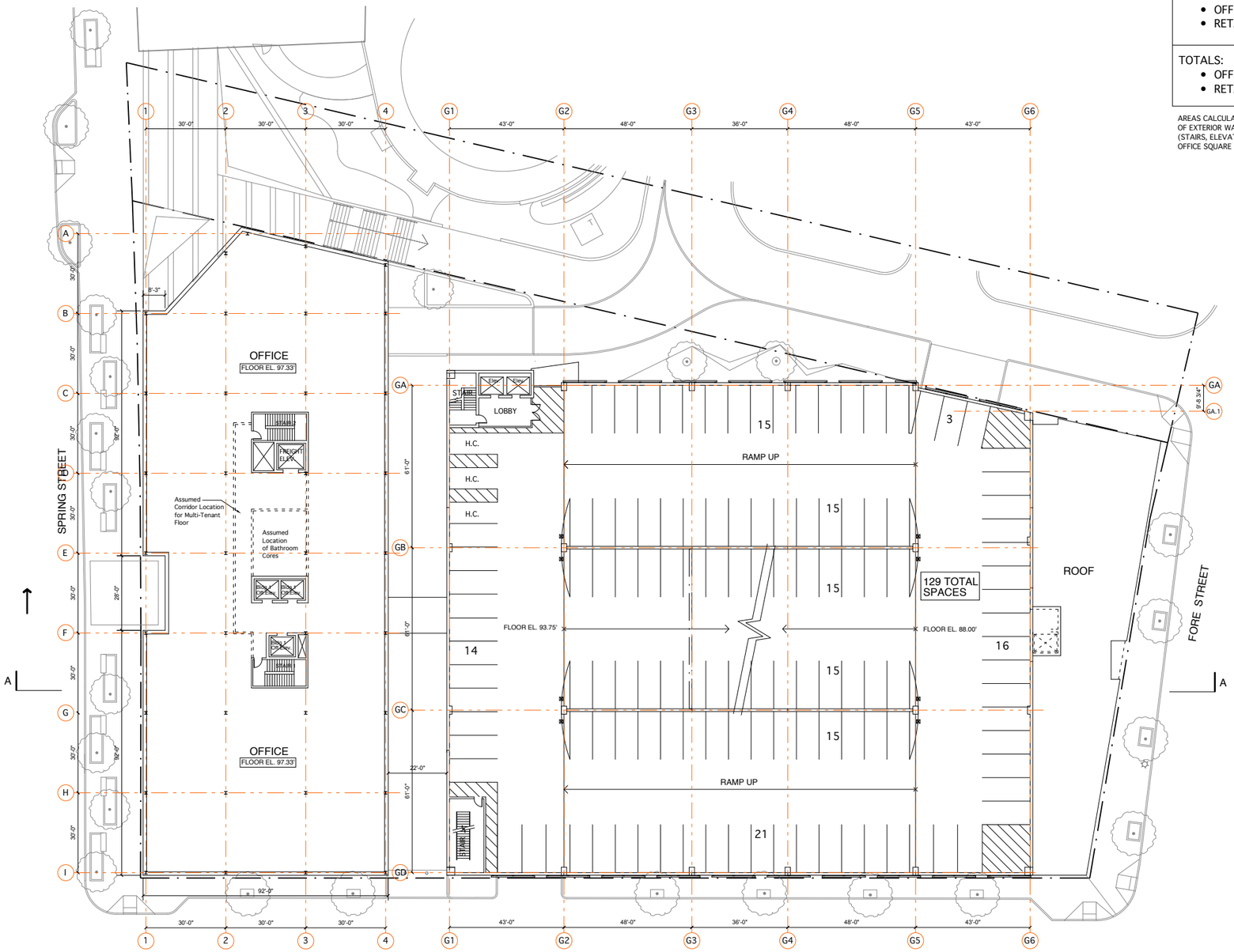
BUILDING 2 - LEVEL 3
EL. 76.67'

Date: DECEMBER 20, 2019
Phase: PERMITTING

A1.4

PROGRAMMING AREAS:	
PARKING:	851 SPACES
BUILDING 1:	
• OFFICE USE:	144,976 S.F.
• RETAIL USE:	17,795 S.F.
BUILDING 2:	
• OFFICE USE:	14,050 S.F.
• RETAIL USE:	3,750 S.F.
TOTALS:	
• OFFICE USE:	159,026 S.F.
• RETAIL USE:	21,545 S.F.

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BUILDING 1- Level 3
1/16" = 1'-0"

GARAGE - Level 5
1/16" = 1'-0"

BUILDING 2 - Roof
1/16" = 1'-0"

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Revisions #	Date	Description

Drawing Title: Scale: 1/16"=1'-0"

BUILDING 1 - LEVEL 3
El 97.33'

GARAGE - LEVEL 5
El. 88.00' / 93.75'

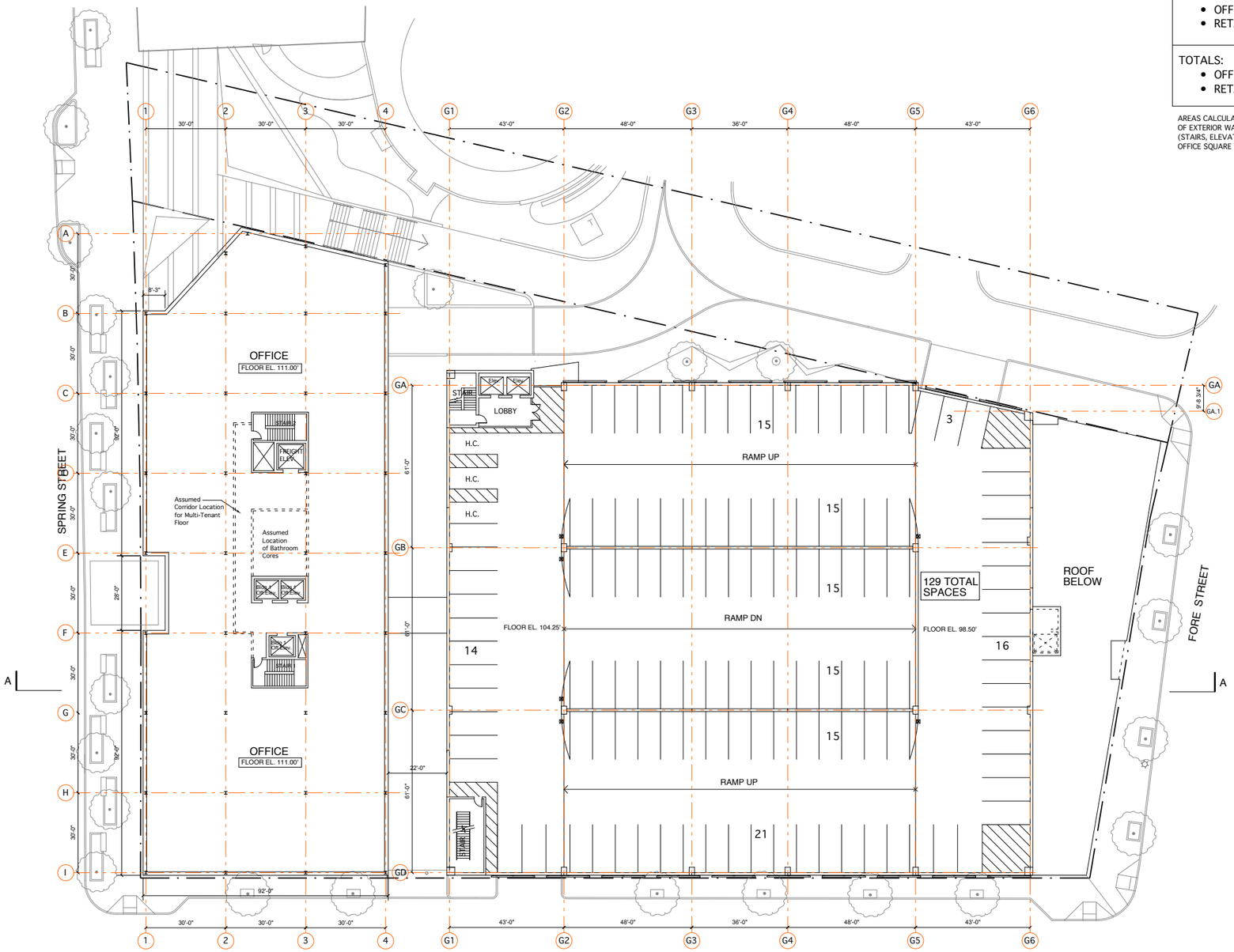
BUILDING 2 - ROOF
EL. 91.00'

Date: DECEMBER 20, 2019
Phase: PERMITTING

A1.5

PROGRAMMING AREAS:	
PARKING:	851 SPACES
BUILDING 1:	
• OFFICE USE:	144,976 S.F.
• RETAIL USE:	17,795 S.F.
BUILDING 2:	
• OFFICE USE:	14,050 S.F.
• RETAIL USE:	3,750 S.F.
TOTALS:	
• OFFICE USE:	159,026 S.F.
• RETAIL USE:	21,545 S.F.

AREAS CALCULATED ABOVE ARE TO INSIDE FACE OF EXTERIOR WALLS. ALL COMMON CORE ELEMENTS (STAIRS, ELEVATORS, LOBBIES) ARE INCLUDED IN THE OFFICE SQUARE FOOTAGES



BUILDING 1- Level 4
1/16" = 1'-0"

GARAGE - Level 6
1/16" = 1'-0"

BUILDING 2
1/16" = 1'-0"

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Drawing Title: Scale: 1/16"=1'-0"

BUILDING 1 - LEVEL 4
El 111.00'

GARAGE - LEVEL 6
El. 99.83' / 105.58'

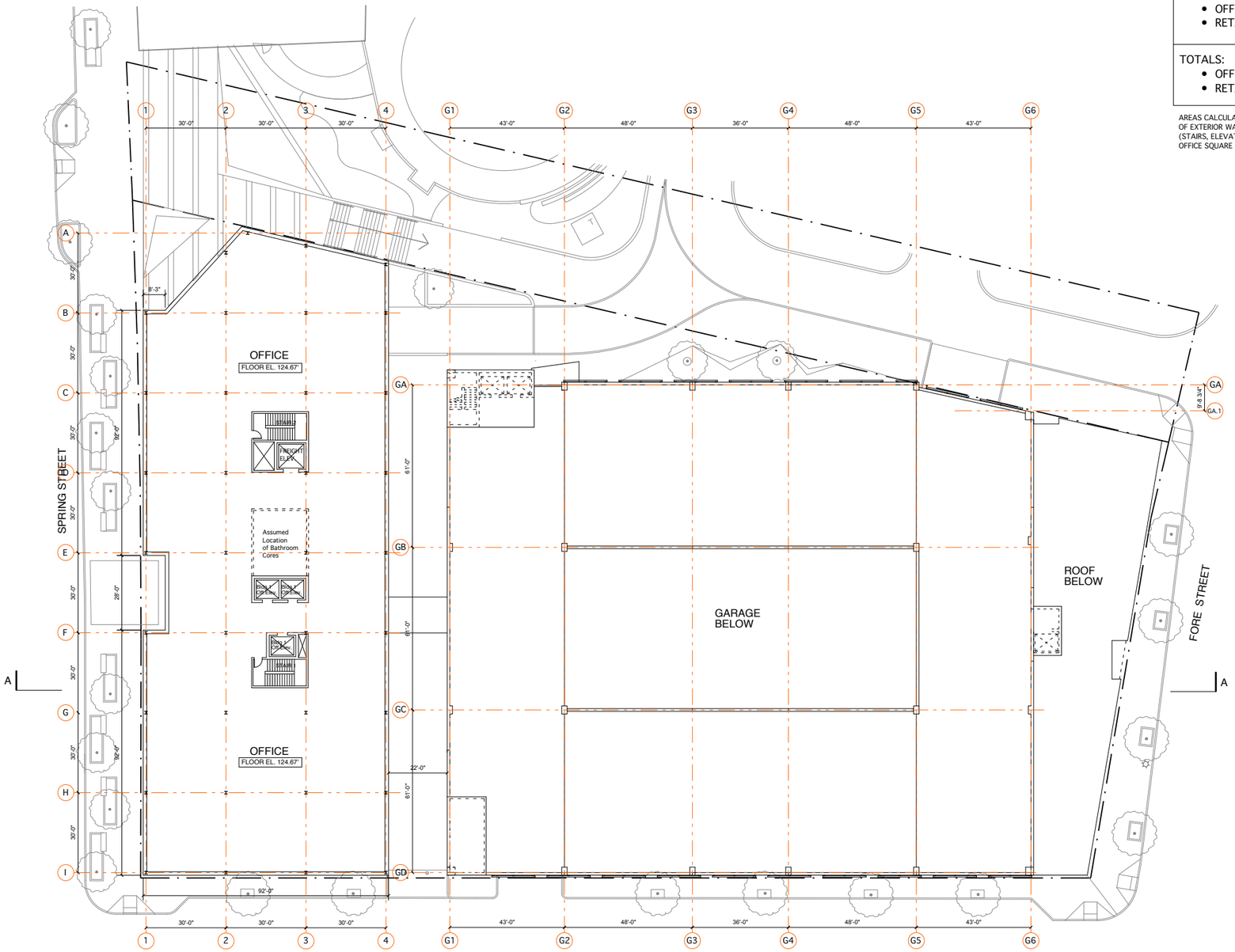
BUILDING 2

Date: DECEMBER 20, 2019
Phase: PERMITTING

A1.6

PROGRAMMING AREAS:	
PARKING:	851 SPACES
BUILDING 1:	
• OFFICE USE:	144,976 S.F.
• RETAIL USE:	17,795 S.F.
BUILDING 2:	
• OFFICE USE:	14,050 S.F.
• RETAIL USE:	3,750 S.F.
TOTALS:	
• OFFICE USE:	159,026 S.F.
• RETAIL USE:	21,545 S.F.

AREAS CALCULATED ABOVE ARE TO INSIDE FACE OF EXTERIOR WALLS. ALL COMMON CORE ELEMENTS (STAIRS, ELEVATORS, LOBBIES) ARE INCLUDED IN THE OFFICE SQUARE FOOTAGES



BUILDING 1- Level 5
1/16" = 1'-0"

GARAGE
1/16" = 1'-0"

BUILDING 2
1/16" = 1'-0"

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Drawing Title: Scale: 1/16"=1'-0"

BUILDING 1 - LEVEL 5
El 124.67'

GARAGE

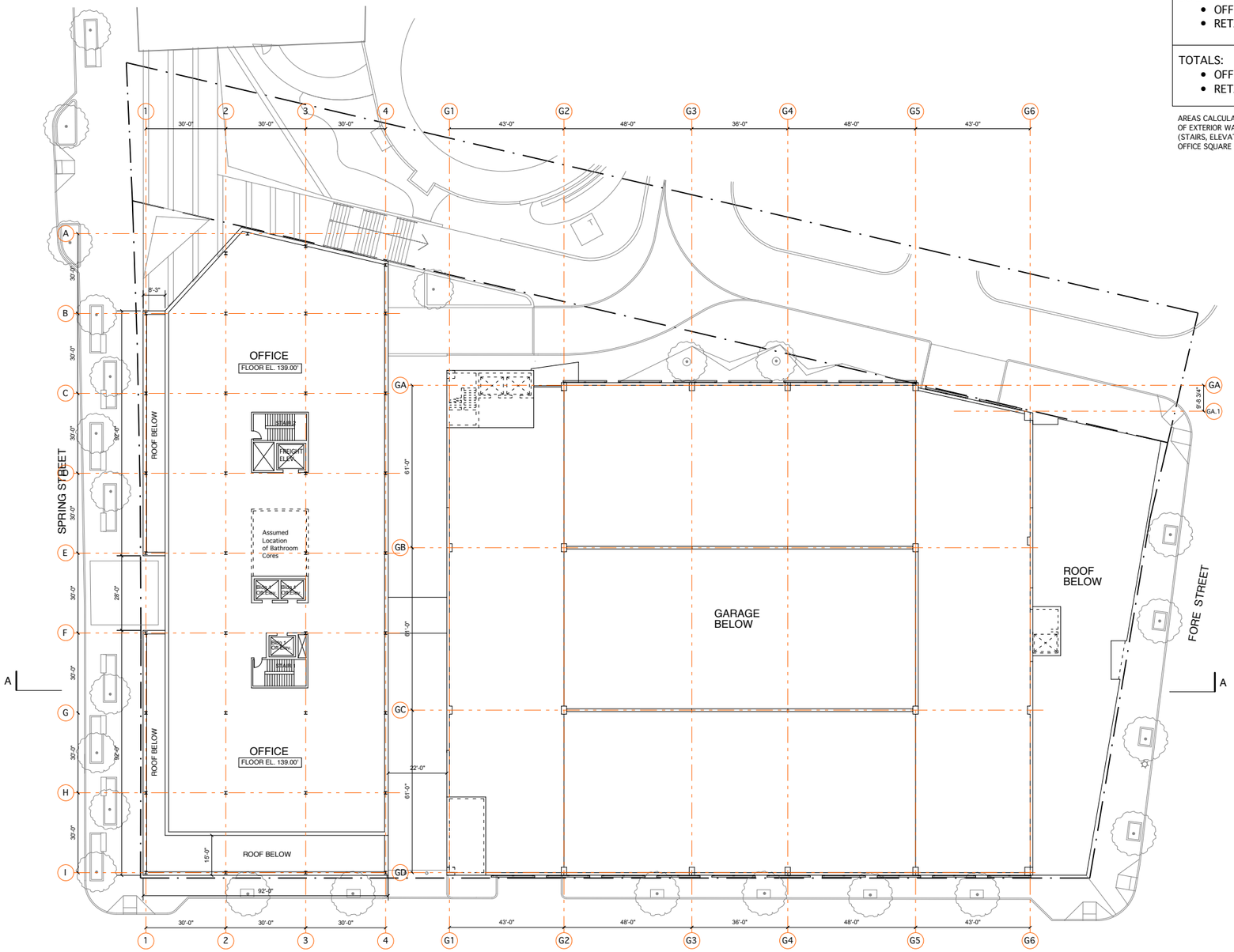
BUILDING 2

Date: DECEMBER 20, 2019
Phase: PERMITTING

A1.7

PROGRAMMING AREAS:	
PARKING:	851 SPACES
BUILDING 1:	
• OFFICE USE:	144,976 S.F.
• RETAIL USE:	17,795 S.F.
BUILDING 2:	
• OFFICE USE:	14,050 S.F.
• RETAIL USE:	3,750 S.F.
TOTALS:	
• OFFICE USE:	159,026 S.F.
• RETAIL USE:	21,545 S.F.

AREAS CALCULATED ABOVE ARE TO INSIDE FACE OF EXTERIOR WALLS. ALL COMMON CORE ELEMENTS (STAIRS, ELEVATORS, LOBBIES) ARE INCLUDED IN THE OFFICE SQUARE FOOTAGES



BUILDING 1- Level 6
1/16" = 1'-0"

GARAGE
1/16" = 1'-0"

BUILDING 2
1/16" = 1'-0"

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Revisions #	Date	Description

Drawing Title: Scale: 1/16"=1'-0"

BUILDING 1 - LEVEL 6
El 139.00'

GARAGE

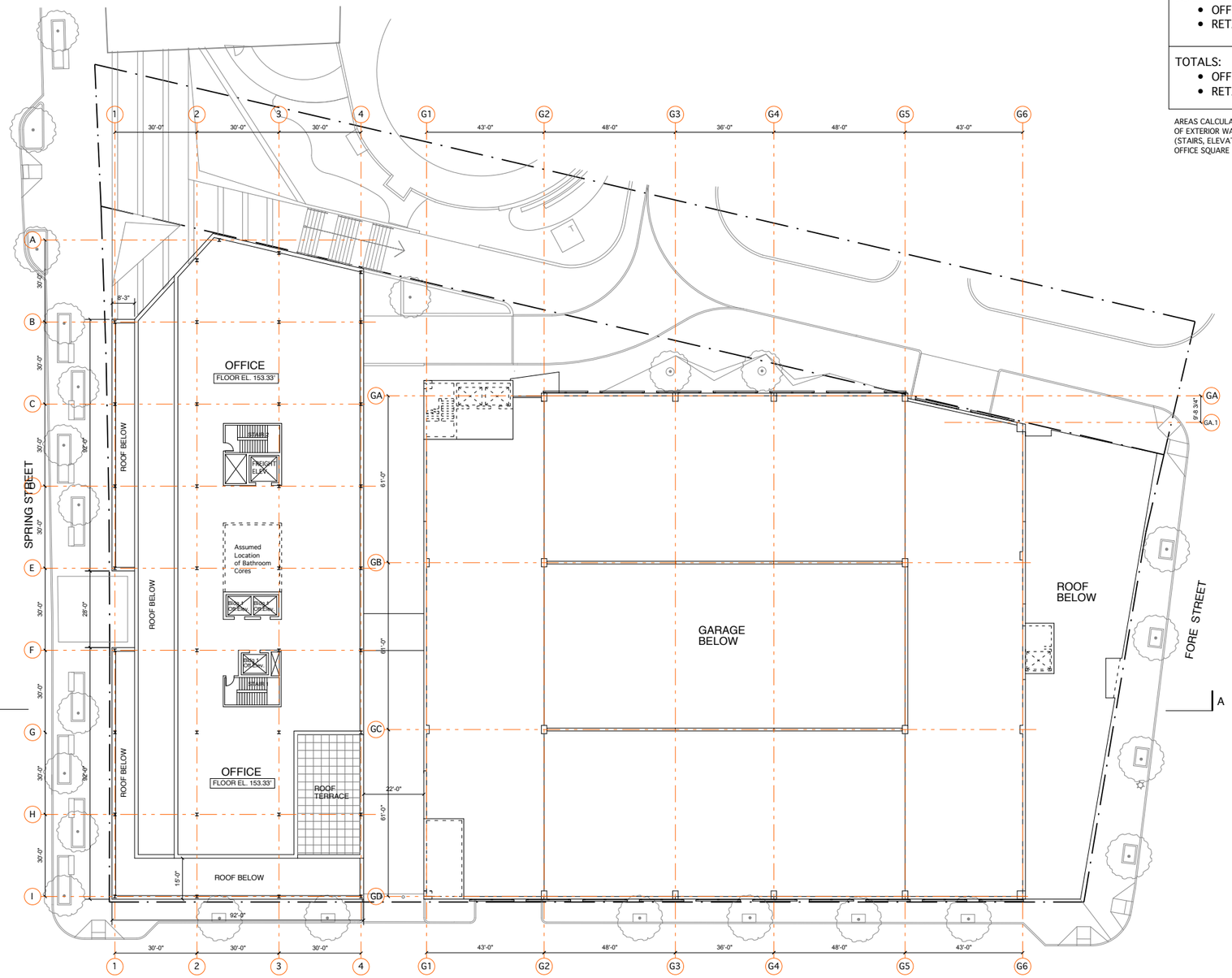
BUILDING 2

Date: DECEMBER 20, 2019
Phase: PERMITTING

A1.8

PROGRAMMING AREAS:	
PARKING:	851 SPACES
BUILDING 1:	
• OFFICE USE:	144,976 S.F.
• RETAIL USE:	17,795 S.F.
BUILDING 2:	
• OFFICE USE:	14,050 S.F.
• RETAIL USE:	3,750 S.F.
TOTALS:	
• OFFICE USE:	159,026 S.F.
• RETAIL USE:	21,545 S.F.

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BUILDING 1- Level 7
1/16" = 1'-0"

GARAGE
1/16" = 1'-0"

BUILDING 2
1/16" = 1'-0"

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Revisions #	Date	Description

Drawing Title: Scale: 1/16"=1'-0"

BUILDING 1 - LEVEL 7
El 153.33'

GARAGE

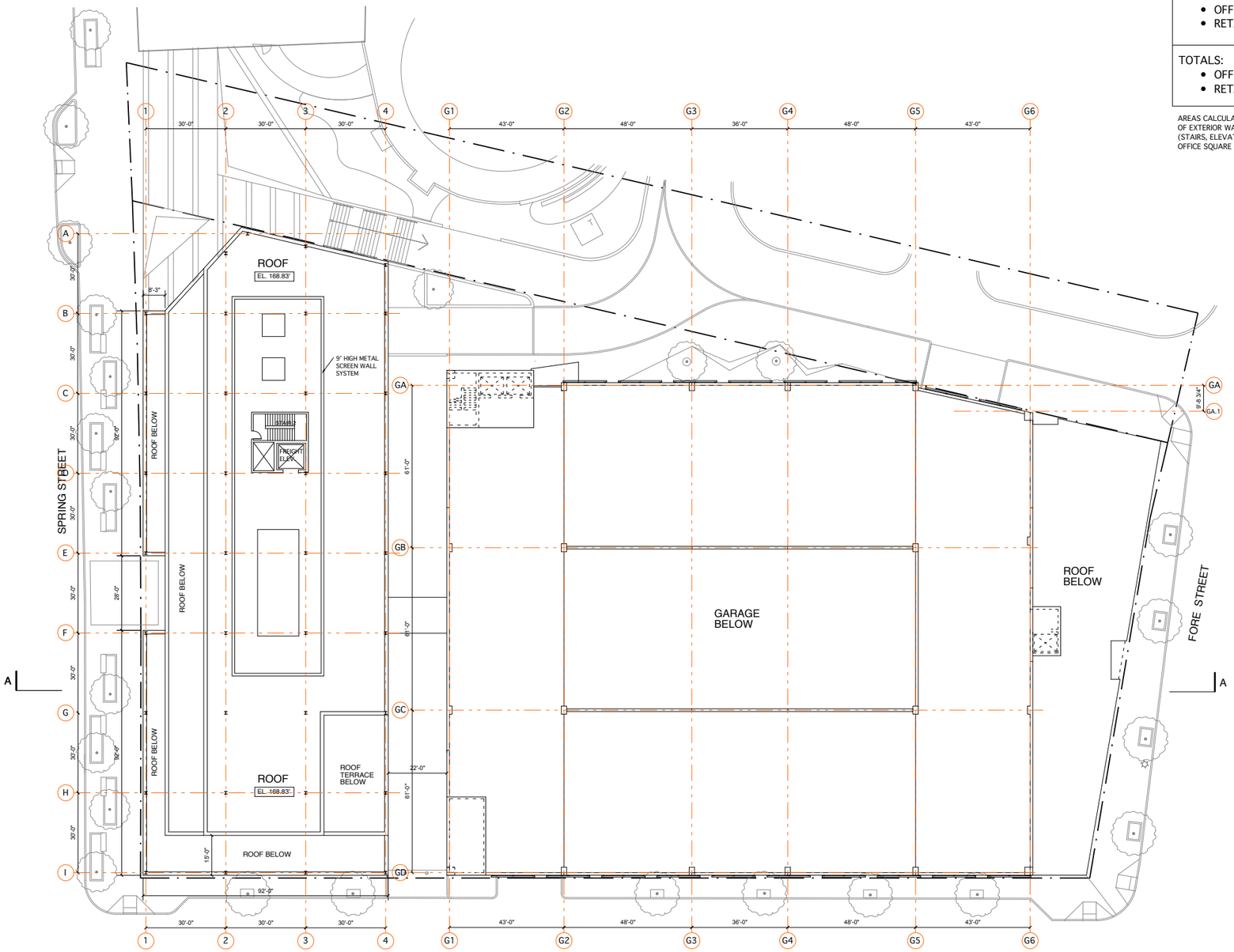
BUILDING 2

Date: DECEMBER 20, 2019
Phase: PERMITTING

A1.9

PROGRAMMING AREAS:	
PARKING:	851 SPACES
BUILDING 1:	
• OFFICE USE:	144,976 S.F.
• RETAIL USE:	17,795 S.F.
BUILDING 2:	
• OFFICE USE:	14,050 S.F.
• RETAIL USE:	3,750 S.F.
TOTALS:	
• OFFICE USE:	159,026 S.F.
• RETAIL USE:	21,545 S.F.

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BUILDING 1- Roof
1/16" = 1'-0"

GARAGE
1/16" = 1'-0"

BUILDING 2
1/16" = 1'-0"

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Drawing Title: Scale: 1/16"=1'-0"

BUILDING 1 ROOF EI 168.83'

GARAGE

BUILDING 2

Date: DECEMBER 20, 2019
Phase: PERMITTING

A1.10

BUILDING ENVELOPE SYSTEMS SUMMARY:

A — ARCHITECTURAL PRE-CAST CONCRETE CLADDING OVER CMU BACK UP WALL W/ AIR + WATER MEMBRANE & 2" RIGID INSULATION. 6" MTL STUDS WITH ROXUL INSULATION AT INTERIOR SIDE WITH GWB FINISH.

B — THERMALLY BROKEN ALUMINUM STOREFRONT SYSTEM W/ INSULATED LOW-E GLASS. 4" FACE FRAME DIMENSION AT PERIMETER, 2" AT DIVIDING MULLIONS .

C — BRICK VENEER W/ 1 1/2" CAVITY OVER 6" LIGHT GAUGE FRAMING WITH GYP SHEATHING, AIR + WATER MEMBRANE & 2" RIGID INSULATION. ROXUL INSULATION IN STUD CAVITY WTIH GWB FINISH. THERMALLY BROKEN HEAVY DUTY COMMERCIAL GRADE ALUMINUM WINDOWS W/ ALUMINUM SILL TRIM.

D — METAL, COMPOSITE, OR FRC PANELS OVER RAINSCREEN FRAMING SYSTEM OVER 8" LIGHT GAUGE FRAMING WITH GYP OR PLYWOOD SHEATHING , 2" RIGID INSULATION, AND AIR+WATER MEMBRANE. ROXUL INSULATION IN STUD CAVITY WTIH GWB FINISH. THERMALLY BROKEN HEAVY DUTY COMMERCIAL GRADE ALUMINUM WINDOWS W/ ALUMINUM SILL TRIM. VERTICAL FEATURE STRIPS/FINS ATTACHED TO SIDING IN RANDOM PATTERN AS SHOWN.

E — THERMALLY BROKEN CURTAINWALL FRAMING SYSTEM WITH INSULATED LOW E GLASS WITH METAL CLAD ROOF EDGE AND FACIA SYSTEM

F — FACADE SYSTEM SAME AS 'E' BUT INCLUDES ROOF DECK WITH PERIMETER RAILING SYSTEM - GLASS OR OTHER SYSTEM THAT PROVIDES MAXIMUM VISUAL OPENESS

G — STEEL FRAMED CANOPY STRUCTURE- PAINTED STEEL W SECTION SUPPORT COLUMNS AND EXPOSED PERIMETER BEAMS WITH INFILL FRAMING AS REQUIRED, MEMBRANE ROOFING, WOOD SLAT CEILING, RECESSED LIGHTING.

H — STEEL FRAMED CANOPY STRUCTURE- PAINTED STEEL W/ TEMPERED GLASS PANELS MOUNTED ON SS SPIDER FITTINGS. SUPPORTED FROM BUILDING STRUCTURE.

I — 4" GROUND FACE CMU BLOCK VENEER W/ 1 1/2" CAVITY OVER 6" LIGHT GAUGE FRAMING WITH GYP SHEATHING, AIR + WATER MEMBRANE & 2" RIGID INSULATION. ROXUL INSULATION IN STUD CAVITY WTIH GWB FINISH. THERMALLY BROKEN HEAVY DUTY COMMERCIAL GRADE ALUMINUM WINDOWS W/ ALUMINUM SILL TRIM.

J — ALUMINUM SLAT SCREENING SYSTEM FOR ROOF TOP MECHANICAL EQUIPMENT



SPRING STREET ELEVATION

1/8" = 1'-0"

Three Portland Square

Portland, Maine

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Revisions #	Date	Description

Drawing Title: Scale: 1/8"=1'-0"

BUILDING ELEVATIONS

Date: DECEMBER 20, 2019
Phase: PERMITTING

A2.1

BUILDING ENVELOPE SYSTEMS SUMMARY:

A — ARCHITECTURAL PRE-CAST CONCRETE CLADDING OVER CMU BACK UP WALL W/ AIR + WATER MEMBRANE & 2" RIGID INSULATION. 6" MTL STUDS WITH ROXUL INSULATION AT INTERIOR SIDE WITH GWB FINISH.

B — THERMALLY BROKEN ALUMINUM STOREFRONT SYSTEM W/ INSULATED LOW-E GLASS. 4" FACE FRAME DIMENSION AT PERIMETER, 2" AT DIVIDING MULLIONS .

C — BRICK VENEER W/ 1 1/2" CAVITY OVER 6" LIGHT GAUGE FRAMING WITH GYP SHEATHING, AIR + WATER MEMBRANE & 2" RIGID INSULATION. ROXUL INSULATION IN STUD CAVITY WTIH GWB FINISH. THERMALLY BROKEN HEAVY DUTY COMMERCIAL GRADE ALUMINUM WINDOWS W/ ALUMINUM SILL TRIM.

D — METAL, COMPOSITE, OR FRC PANELS OVER RAINSCREEN FRAMING SYSTEM OVER 8" LIGHT GAUGE FRAMING WITH GYP OR PLYWOOD SHEATHING , 2" RIGID INSULATION, AND AIR+WATER MEMBRANE. ROXUL INSULATION IN STUD CAVITY WTIH GWB FINISH. THERMALLY BROKEN HEAVY DUTY COMMERCIAL GRADE ALUMINUM WINDOWS W/ ALUMINUM SILL TRIM. VERTICAL FEATURE STRIPS/FINS ATTACHED TO SIDING IN RANDOM PATTERN AS SHOWN.

E — THERMALLY BROKEN CURTAINWALL FRAMING SYSTEM WITH INSULATED LOW E GLASS WITH METAL CLAD ROOF EDGE AND FACIA SYSTEM

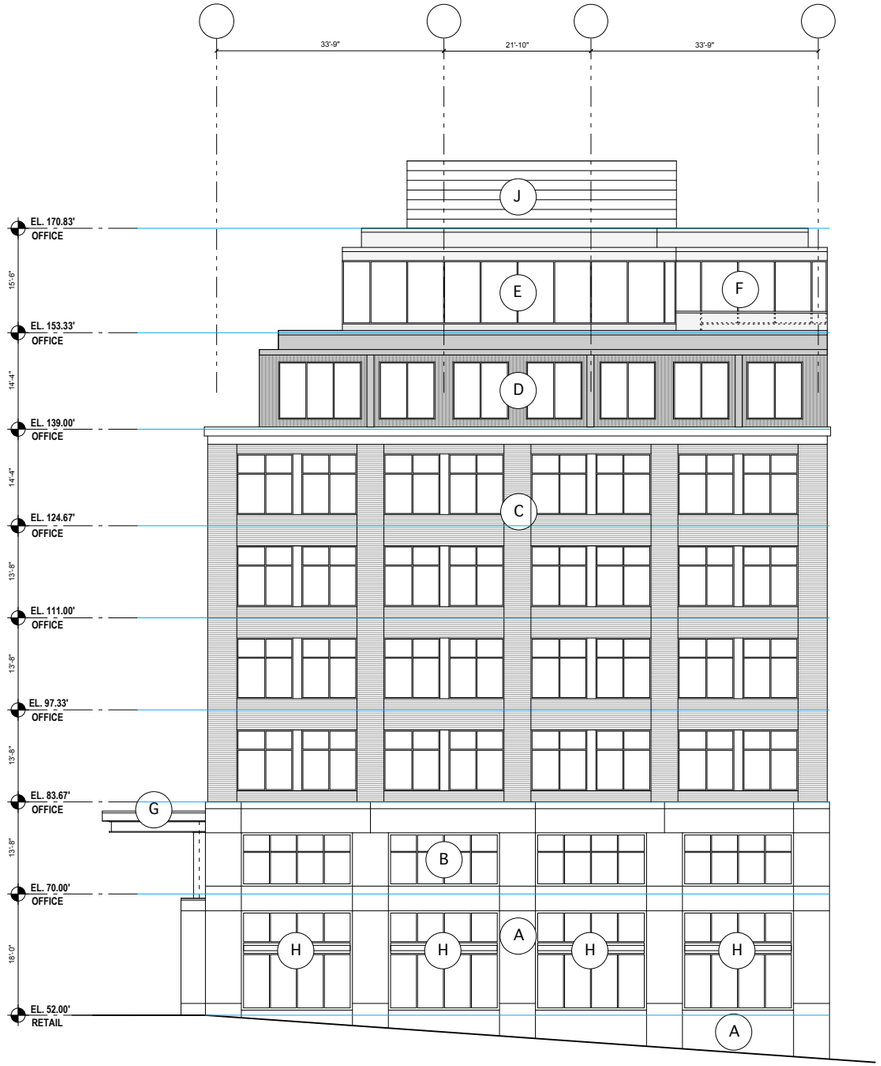
F — FACADE SYSTEM SAME AS 'E' BUT INCLUDES ROOF DECK WITH PERIMETER RAILING SYSTEM - GLASS OR OTHER SYSTEM THAT PROVIDES MAXIMUM VISUAL OPENESS

G — STEEL FRAMED CANOPY STRUCTURE- PAINTED STEEL W SECTION SUPPORT COLUMNS AND EXPOSED PERIMETER BEAMS WITH INFILL FRAMING AS REQUIRED, MEMBRANE ROOFING, WOOD SLAT CEILING, RECESSED LIGHTING.

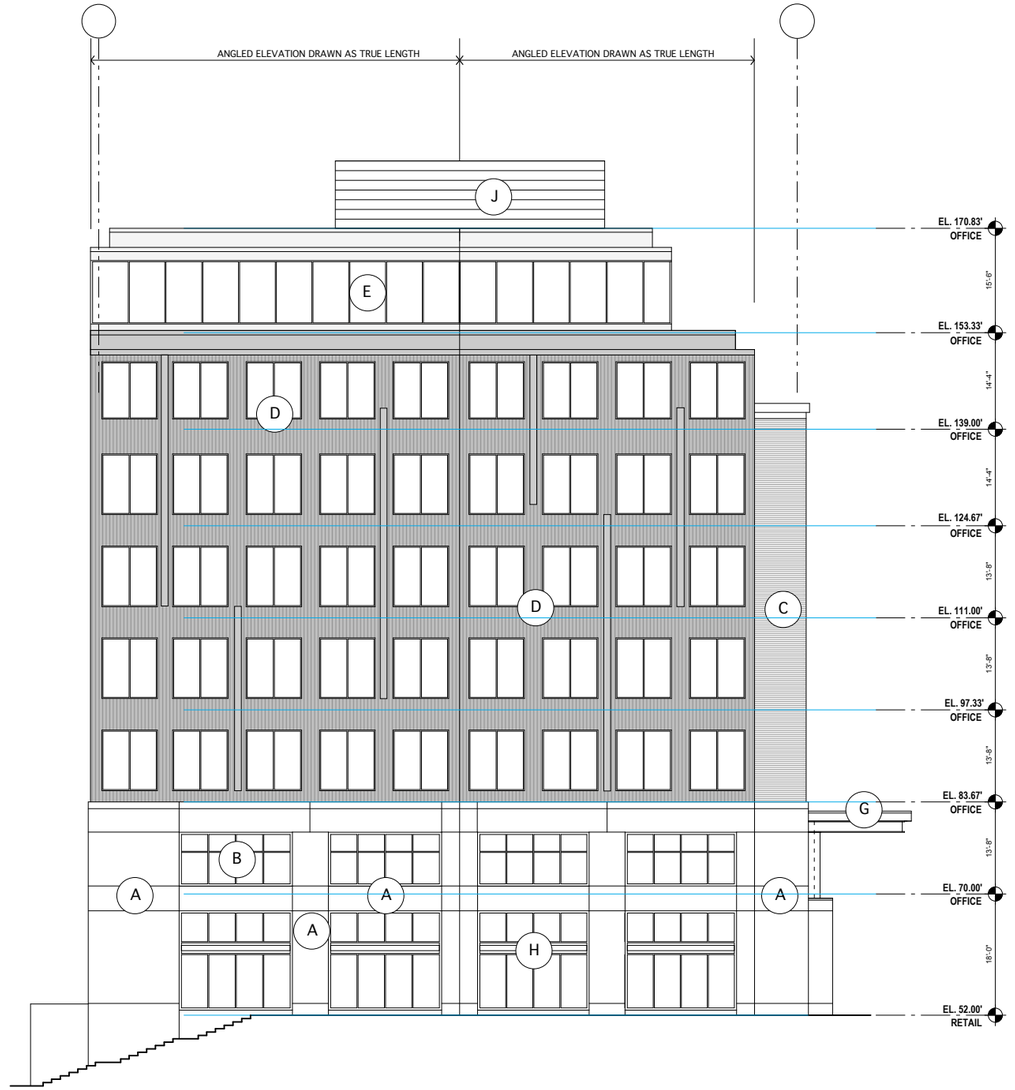
H — STEEL FRAMED CANOPY STRUCTURE- PAINTED STEEL W/ TEMPERED GLASS PANELS MOUNTED ON SS SPIDER FITTINGS. SUPPORTED FROM BUILDING STRUCTURE.

I — 4" GROUND FACE CMU BLOCK VENEER W/ 1 1/2" CAVITY OVER 6" LIGHT GAUGE FRAMING WITH GYP SHEATHING, AIR + WATER MEMBRANE & 2" RIGID INSULATION. ROXUL INSULATION IN STUD CAVITY WTIH GWB FINISH. THERMALLY BROKEN HEAVY DUTY COMMERCIAL GRADE ALUMINUM WINDOWS W/ ALUMINUM SILL TRIM.

J — ALUMINUM SLAT SCREENING SYSTEM FOR ROOF TOP MECHANICAL EQUIPMENT



COTTON STREET ELEVATION
1/8" = 1'-0"



UPPER CROSS STREET ELEVATION
1/8" = 1'-0"

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Revisions #	Date	Description

Drawing Title: Scale: 1/8"=1'-0"

BUILDING ELEVATIONS

Date: DECEMBER 20, 2019
Phase: PERMITTING

A2.2

BUILDING ENVELOPE SYSTEMS SUMMARY:

A ARCHITECTURAL PRE-CAST CONCRETE CLADDING W/ 3" CAVITY OVER 4" ROCKWOOL CAVITY ROCK W/4" THERMALLY BROKEN ZEE GIRTS AT 24" O.C. + AIR & VAPOR BARRIER OVER 5/8" GYPSUM SHEATHING OVER 8" MTL STUDS W/ 6" ROCKWOOL COMFORT ROCK + 5/8" GWB. STOREFRONT GLAZING.

B ALUMINUM SLAT SCREENING SYSTEM FOR ROOF TOP MECHANICAL EQUIPMENT

C1 BRICK VENEER W/ 3" CAVITY OVER 4" ROCKWOOL CAVITY ROCK W/4" THERMALLY BROKEN ZEE GIRTS AT 24" O.C. + AIR & VAPOR BARRIER OVER 5/8" GYPSUM SHEATHING OVER 8" MTL STUDS W/ 6" ROCKWOOL COMFORT ROCK + 5/8" GWB.

C2 BRICK VENEER W/ 1" CAVITY OVER 4" ROCKWOOL CAVITY ROCK W/4" THERMALLY BROKEN ZEE GIRTS AT 24" O.C. + AIR & VAPOR BARRIER OVER 5/8" GYPSUM SHEATHING OVER 8" MTL STUDS W/ 6" ROCKWOOL COMFORT ROCK + 5/8" GWB. COMMERCIAL GRADE ALUMINUM WINDOWS.

D1 COMPOSITE METAL PANELS OVER 7/8" FURRING CHANNEL OVER 4" ROCKWOOL CAVITY ROCK W/4" THERMALLY BROKEN ZEE GIRTS AT 24" O.C. + AIR & VAPOR BARRIER OVER 5/8" GYPSUM SHEATHING OVER 8" MTL STUDS W/ 6" ROCKWOOL COMFORT ROCK + 5/8" GWB. COMMERCIAL GRADE ALUMINUM WINDOWS.

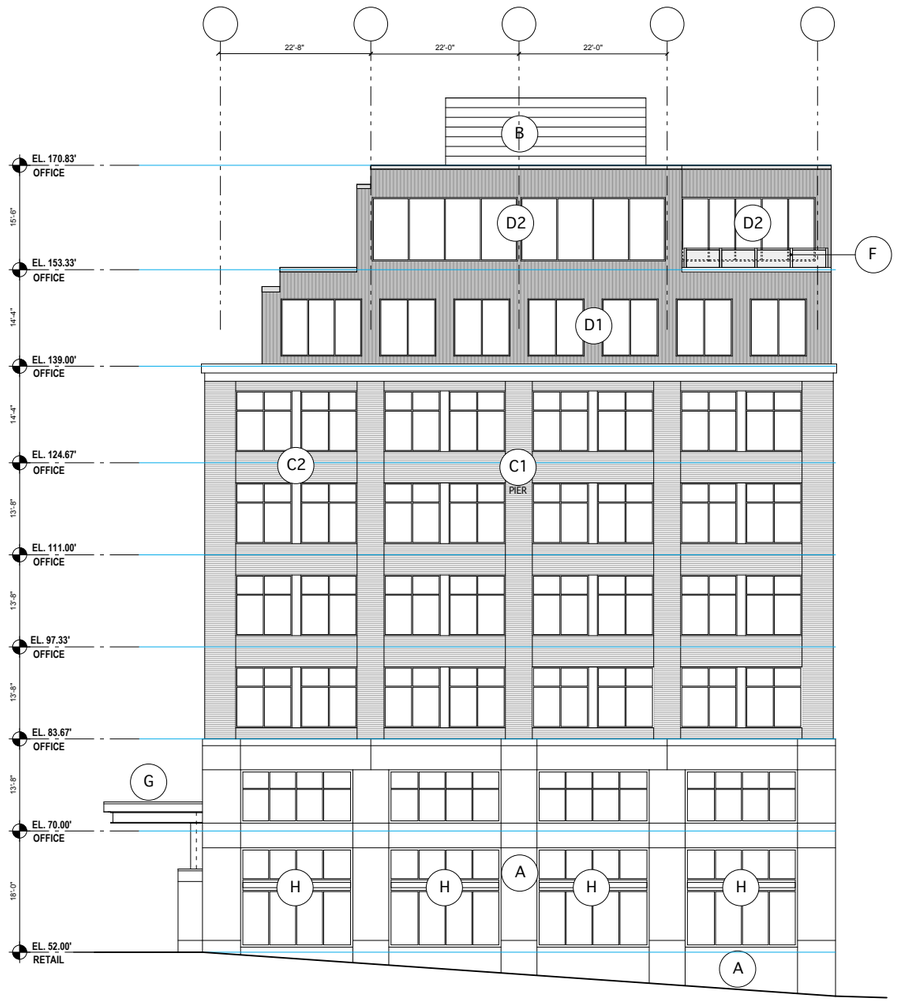
D2 SAME AS D1, EXCEPT WINDOWS TO BE CURTAIN WALL GLAZING.

E 4" GROUND FACE CMU BLOCK VENEER W/ 1" CAVITY OVER 4" ROCKWOOL CAVITY ROCK W/4" THERMALLY BROKEN ZEE GIRTS AT 24" O.C. + AIR & VAPOR BARRIER OVER 5/8" GYPSUM SHEATHING OVER 8" MTL STUDS W/ 6" ROCKWOOL COMFORT ROCK + 5/8" GWB. COMMERCIAL GRADE ALUMINUM WINDOWS.

F ROOF DECK WITH PERIMETER RAILING SYSTEM - GLASS OR OTHER SYSTEM THAT PROVIDES MAXIMUM VISUAL OPENESS

G STEEL FRAMED CANOPY STRUCTURE- PAINTED STEEL W SECTION SUPPORT COLUMNS AND EXPOSED PERIMETER BEAMS WITH INFILL FRAMING AS REQUIRED, MEMBRANE ROOFING, WOOD SLAT CEILING, RECESSED LIGHTING.

H STEEL FRAMED CANOPY STRUCTURE- PAINTED STEEL W/ TEMPERED GLASS PANELS MOUNTED ON SS SPIDER FITTINGS. SUPPORTED FROM BUILDING STRUCTURE.



COTTON STREET ELEVATION
1/8" = 1'-0"



UPPER CROSS STREET ELEVATION
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Revisions	#	Date	Description

Drawing Title: Scale: 1/8"=1'-0"

BUILDING ELEVATIONS

Date: FEBRUARY 7, 2020
Phase: PERMITTING

A2.2

BUILDING ENVELOPE SYSTEMS SUMMARY:

A. ARCHITECTURAL PRE-CAST CONCRETE CLADDING OVER CMU BACK UP WALL W/ AIR + WATER MEMBRANE & 2" RIGID INSULATION. 6" MTL STUDS WITH ROXUL INSULATION AT INTERIOR SIDE WITH GWB FINISH.

B. THERMALLY BROKEN ALUMINUM STOREFRONT SYSTEM W/ INSULATED LOW-E GLASS. 4" FACE FRAME DIMENSION AT PERIMETER, 2" AT DIVIDING MULLIONS .

C. BRICK VENEER W/ 1 1/2" CAVITY OVER 6" LIGHT GAUGE FRAMING WITH GYP SHEATHING, AIR + WATER MEMBRANE & 2" RIGID INSULATION. ROXUL INSULATION IN STUD CAVITY WTIH GWB FINISH. THERMALLY BROKEN HEAVY DUTY COMMERCIAL GRADE ALUMINUM WINDOWS W/ ALUMINUM SILL TRIM.

D. METAL, COMPOSITE, OR FRC PANELS OVER RAINSCREEN FRAMING SYSTEM OVER 8" LIGHT GAUGE FRAMING WITH GYP OR PLYWOOD SHEATHING , 2" RIGID INSULATION, AND AIR+WATER MEMBRANE. ROXUL INSULATION IN STUD CAVITY WTIH GWB FINISH. THERMALLY BROKEN HEAVY DUTY COMMERCIAL GRADE ALUMINUM WINDOWS W/ ALUMINUM SILL TRIM. VERTICAL FEATURE STRIPS/FINS ATTACHED TO SIDING IN RANDOM PATTERN AS SHOWN.

E. THERMALLY BROKEN CURTAINWALL FRAMING SYSTEM WITH INSULATED LOW E GLASS WITH METAL CLAD ROOF EDGE AND FACIA SYSTEM

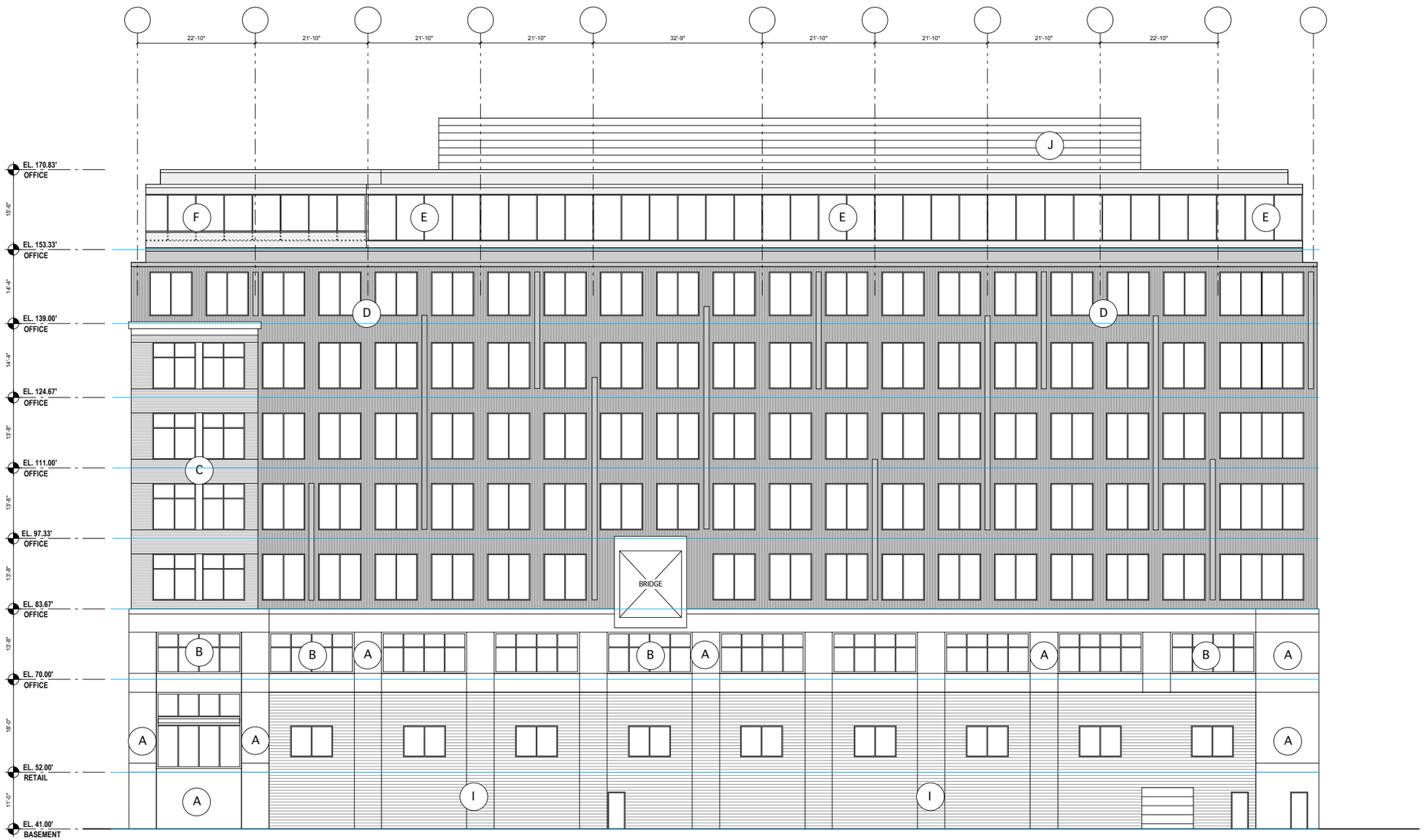
F. FACADE SYSTEM SAME AS 'E' BUT INCLUDES ROOF DECK WITH PERIMETER RAILING SYSTEM - GLASS OR OTHER SYSTEM THAT PROVIDES MAXIMUM VISUAL OPENESS

G. STEEL FRAMED CANOPY STRUCTURE- PAINTED STEEL W SECTION SUPPORT COLUMNS AND EXPOSED PERIMETER BEAMS WITH INFILL FRAMING AS REQUIRED, MEMBRANE ROOFING, WOOD SLAT CEILING, RECESSED LIGHTING.

H. STEEL FRAMED CANOPY STRUCTURE- PAINTED STEEL W/ TEMPERED GLASS PANELS MOUNTED ON SS SPIDER FITTINGS. SUPPORTED FROM BUILDING STRUCTURE.

I. 4" GROUND FACE CMU BLOCK VENEER W/ 1 1/2" CAVITY OVER 6" LIGHT GAUGE FRAMING WITH GYP SHEATHING, AIR + WATER MEMBRANE & 2" RIGID INSULATION. ROXUL INSULATION IN STUD CAVITY WTIH GWB FINISH. THERMALLY BROKEN HEAVY DUTY COMMERCIAL GRADE ALUMINUM WINDOWS W/ ALUMINUM SILL TRIM.

J. ALUMINUM SLAT SCREENING SYSTEM FOR ROOF TOP MECHANICAL EQUIPMENT



SERVICE ALLEY ELEVATION
1/8" = 1'-0"

Three Portland Square

Portland, Maine

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New York, NY

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Revisions #	Date	Description

Drawing Title: Scale: 1/16"=1'-0"

BUILDING ELEVATIONS

Date: DECEMBER 20, 2019
Phase: PERMITTING

A2.3

BUILDING ENVELOPE SYSTEMS SUMMARY:

- (A) ARCHITECTURAL PRE-CAST CONCRETE CLADDING W/ 3" CAVITY OVER 4" ROCKWOOL CAVITY ROCK W/4" THERMALLY BROKEN ZEE GIRTS AT 24" O.C. + AIR & VAPOR BARRIER OVER 5/8" GYPSUM SHEATHING OVER 8" MTL STUDS W/ 6" ROCKWOOL COMFORT ROCK + 5/8" GWB. STOREFRONT GLAZING.
- (B) ALUMINUM SLAT SCREENING SYSTEM FOR ROOF TOP MECHANICAL EQUIPMENT
- (C1) BRICK VENEER W/ 3" CAVITY OVER 4" ROCKWOOL CAVITY ROCK W/4" THERMALLY BROKEN ZEE GIRTS AT 24" O.C. + AIR & VAPOR BARRIER OVER 5/8" GYPSUM SHEATHING OVER 8" MTL STUDS W/ 6" ROCKWOOL COMFORT ROCK + 5/8" GWB.
- (C2) BRICK VENEER W/ 1" CAVITY OVER 4" ROCKWOOL CAVITY ROCK W/4" THERMALLY BROKEN ZEE GIRTS AT 24" O.C. + AIR & VAPOR BARRIER OVER 5/8" GYPSUM SHEATHING OVER 8" MTL STUDS W/ 6" ROCKWOOL COMFORT ROCK + 5/8" GWB. COMMERCIAL GRADE ALUMINUM WINDOWS.
- (D1) COMPOSITE METAL PANELS OVER 7/8" FURRING CHANNEL OVER 4" ROCKWOOL CAVITY ROCK W/4" THERMALLY BROKEN ZEE GIRTS AT 24" O.C. + AIR & VAPOR BARRIER OVER 5/8" GYPSUM SHEATHING OVER 8" MTL STUDS W/ 6" ROCKWOOL COMFORT ROCK + 5/8" GWB. COMMERCIAL GRADE ALUMINUM WINDOWS.
- (D2) SAME AS D1, EXCEPT WINDOWS TO BE CURTAIN WALL GLAZING.
- (E) 4" GROUND FACE CMU BLOCK VENEER W/ 1" CAVITY OVER 4" ROCKWOOL CAVITY ROCK W/4" THERMALLY BROKEN ZEE GIRTS AT 24" O.C. + AIR & VAPOR BARRIER OVER 5/8" GYPSUM SHEATHING OVER 8" MTL STUDS W/ 6" ROCKWOOL COMFORT ROCK + 5/8" GWB. COMMERCIAL GRADE ALUMINUM WINDOWS.
- (F) ROOF DECK WITH PERIMETER RAILING SYSTEM - GLASS OR OTHER SYSTEM THAT PROVIDES MAXIMUM VISUAL OPENESS
- (G) STEEL FRAMED CANOPY STRUCTURE- PAINTED STEEL W SECTION SUPPORT COLUMNS AND EXPOSED PERIMETER BEAMS WITH INFILL FRAMING AS REQUIRED, MEMBRANE ROOFING, WOOD SLAT CEILING, RECESSED LIGHTING.
- (H) STEEL FRAMED CANOPY STRUCTURE- PAINTED STEEL W/ TEMPERED GLASS PANELS MOUNTED ON SS SPIDER FITTINGS. SUPPORTED FROM BUILDING STRUCTURE.



SERVICE ALLEY ELEVATION
1/8" = 1'-0"

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Revisions #	Date	Description

Drawing Title: Scale: 1/16"=1'-0"

BUILDING ELEVATIONS

Date: DECEMBER 20, 2019
Phase: PERMITTING

A2.3a

BUILDING ENVELOPE SYSTEMS SUMMARY:

(A) ARCHITECTURAL PRE-CAST CONCRETE CLADDING OVER CMU BACK UP WALL W/ AIR + WATER MEMBRANE & 2" RIGID INSULATION. 6" MTL STUDS WITH ROXUL INSULATION AT INTERIOR SIDE WITH GWB FINISH.

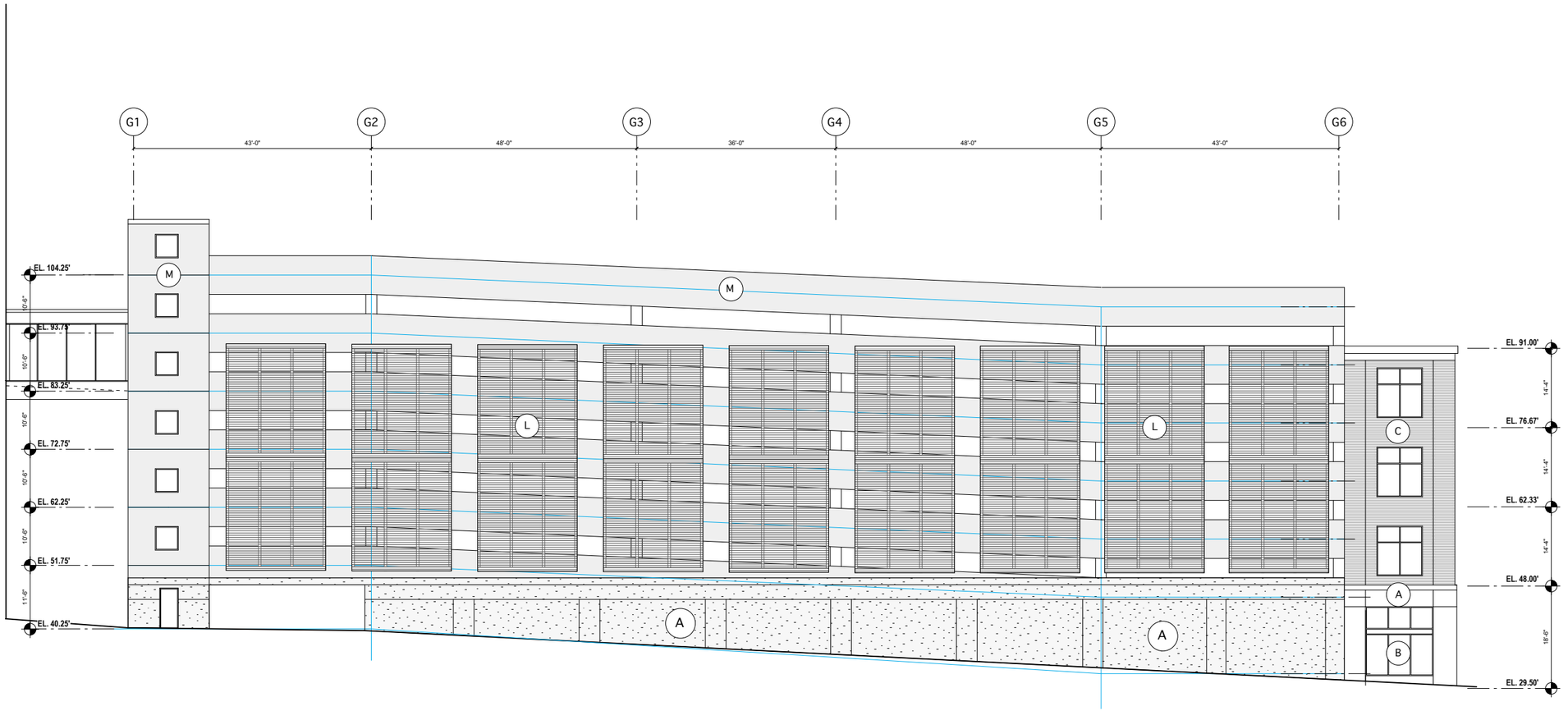
(B) THERMALLY BROKEN ALUMINUM STOREFRONT SYSTEM W/ INSULATED LOW-E GLASS. 4" FACE FRAME DIMENSION AT PERIMETER, 2" AT DIVIDING MULLIONS .

(D) METAL, COMPOSITE, OR FRC PANELS OVER RAINSCREEN FRAMING SYSTEM OVER 8" LIGHT GAUGE FRAMING WITH GYP OR PLYWOOD SHEATHING , 2" RIGID INSULATION, AND AIR+WATER MEMBRANE. ROXUL INSULATION IN STUD CAVITY WTIH GWB FINISH. THERMALLY BROKEN HEAVY DUTY COMMERCIAL GRADE ALUMINUM WINDOWS W/ ALUMINUM SILL TRIM. VERTICAL FEATURE STRIPS/FINS ATTACHED TO SIDING IN RANDOM PATTERN AS SHOWN.

(K) ARCHITECTURAL PRE-CAST CONCRETE CLADDING OVER PRECAST GARAGE STRUCTURE/CMU AS REQUIRED. ALUMINUM FRAME & LOUVER OR VISUAL SCREENING PANEL

(L) ALUMINUM PERF METAL PANELS & FRAMING SYSTEM - SEE ATTACHED PRODUCT INFORMATION.

(M) PRE-CAST CONCRETE STRUCTURE ELEMENTS.



GARAGE COTTON STREET ELEVATION

1/8" = 1'-0"

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BUILDING ELEVATIONS

Date:	DECEMBER 20, 2019
Phase:	PERMITTING

A2.4

BUILDING ENVELOPE SYSTEMS SUMMARY:

(A) ARCHITECTURAL PRE-CAST CONCRETE CLADDING OVER CMU BACK UP WALL W/ AIR + WATER MEMBRANE & 2" RIGID INSULATION. 6" MTL STUDS WITH ROXUL INSULATION AT INTERIOR SIDE WITH GWB FINISH.	(M) PRE-CAST CONCRETE STRUCTURE ELEMENTS.
(B) THERMALLY BROKEN ALUMINUM STOREFRONT SYSTEM W/ INSULATED LOW-E GLASS. 4" FACE FRAME DIMENSION AT PERIMETER, 2" AT DIVIDING MULLIONS .	
(C) BRICK VENEER W/ 1 1/2" CAVITY OVER 6" LIGHT GAUGE FRAMING WITH GYP SHEATHING, AIR + WATER MEMBRANE & 2" RIGID INSULATION. ROXUL INSULATION IN STUD CAVITY WTIH GWB FINISH. THERMALLY BROKEN HEAVY DUTY COMMERCIAL GRADE ALUMINUM WINDOWS W/ ALUMINUM SILL TRIM.	
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(G) STEEL FRAMED CANOPY STRUCTURE- PAINTED STEEL W SECTION SUPPORT COLUMNS AND EXPOSED PERIMETER BEAMS WITH INFILL FRAMING AS REQUIRED, MEMBRANE ROOFING, WOOD SLAT CEILING, RECESSED LIGHTING.	



FORE STREET ELEVATION

1/8" = 1'-0"

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BARTLETT DESIGN
5 Palmer Street
Bath, ME 04530
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GORRILL PALMER
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South Portland, ME 04106
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HALEY & ALDRICH, INC.
75 Washington Avenue
Suite 1A
Portland, ME 04101
207.239.7470
www.haleyaldrich.com

Revisions #	Date	Description

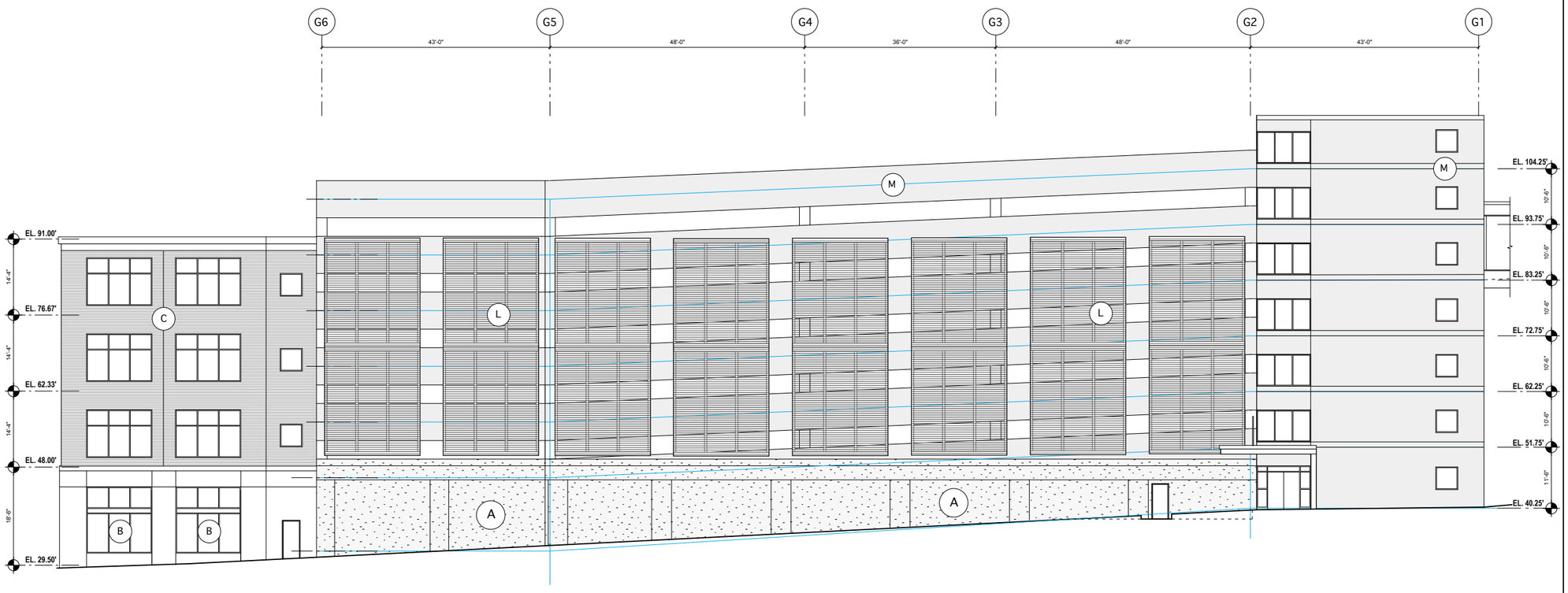
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Date: DECEMBER 20, 2019
Phase: PERMITTING

A2.5

BUILDING ENVELOPE SYSTEMS SUMMARY:

(A) ARCHITECTURAL PRE-CAST CONCRETE CLADDING OVER CMU BACK UP WALL W/ AIR + WATER MEMBRANE & 2" RIGID INSULATION. 6" MTL STUDS WITH ROXUL INSULATION AT INTERIOR SIDE WITH GWB FINISH.	(K) ARCHITECTURAL PRE-CAST CONCRETE CLADDING OVER PRECAST GARAGE STRUCTURE/CMU AS REQUIRED. ALUMINUM FRAME & LOUVER OR VISUAL SCREENING PANEL
(B) THERMALLY BROKEN ALUMINUM STOREFRONT SYSTEM W/ INSULATED LOW-E GLASS. 4" FACE FRAME DIMENSION AT PERIMETER, 2" AT DIVIDING MULLIONS .	(L) ALUMINUM PERF METAL PANELS & FRAMING SYSTEM - SEE ATTACHED PRODUCT INFORMATION.
(D) METAL, COMPOSITE, OR FRC PANELS OVER RAINSCREEN FRAMING SYSTEM OVER 8" LIGHT GAUGE FRAMING WITH GYP OR PLYWOOD SHEATHING , 2" RIGID INSULATION, AND AIR+WATER MEMBRANE. ROXUL INSULATION IN STUD CAVITY WTIH GWB FINISH. THERMALLY BROKEN HEAVY DUTY COMMERCIAL GRADE ALUMINUM WINDOWS W/ ALUMINUM SILL TRIM. VERTICAL FEATURE STRIPS/FINS ATTACHED TO SIDING IN RANDOM PATTERN AS SHOWN.	(M) PRE-CAST CONCRETE STRUCTURE ELEMENTS.



UPPER CROSS STREET ELEVATION
1/8" = 1'-0"

Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

WINTON SCOTT ARCHITECTS, PA
5 Milk Street
Portland, ME 04101
774-4811
www.wintonscott.com

CARROLL ASSOCIATES LANDSCAPE ARCHITECTS
217 Commercial St, Suite 200
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www.carroll-assoc.com

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Portland, ME 04102
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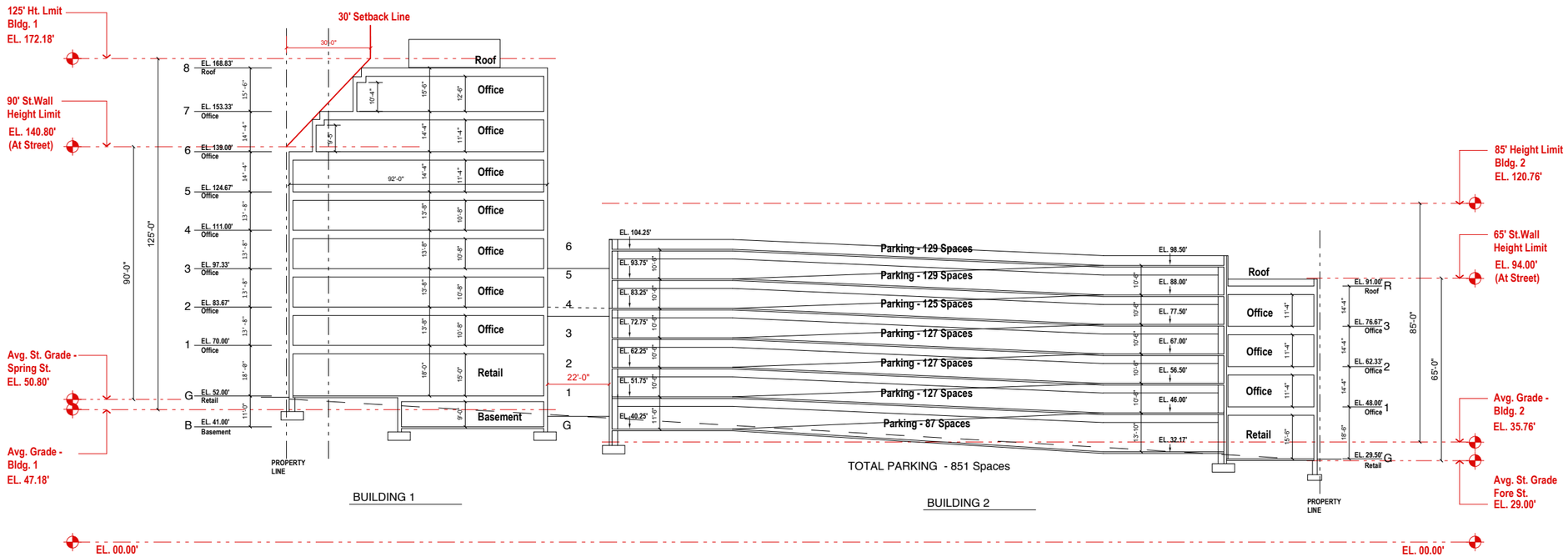
Revisions #	Date	Description

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BUILDING ELEVATIONS

Date: DECEMBER 20, 2019
Phase: PERMITTING

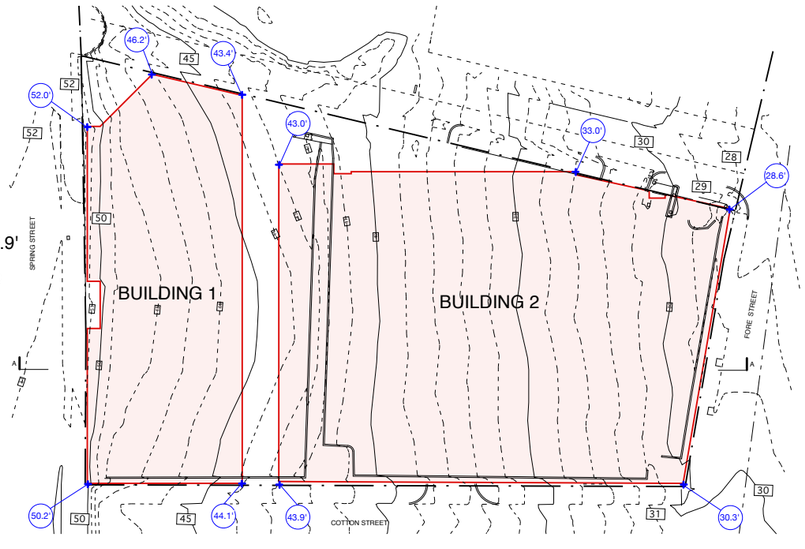
A2.6



SECTION A-A BUILDINGS 1 & 2

44.1' + 50.2' + 52.0' + 46.2' + 43.4' = 235.9'

235.9' / 5 = 47.18' AVERAGE GRADE @ BUILDING 1



AVERAGE GRADE CALCULATION DIAGRAM

30.3' + 43.9' + 43.0' + 33.0' + 28.6' = 178.8'

178.8' / 5 = 35.76' AVERAGE GRADE @ BUILDING 2

Three Portland Square

Portland, Maine

Owner / Developers
NORTH RIVER, LLC
New York, NY

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Revisions #	Date	Description

Drawing Title: Scale: 1/16"=1'-0"

BUILDING SECTION A-A AND AVERAGE GRADE CALC DIAGRAM

Date: DECEMBER 20, 2019
Phase: PERMITTING

A3.1



CORNER FORE & COTTON ST.



CORNER SPRING & COTTON ST.



COTTON STREET VIEW

Memorandum
Planning and Urban Development Department
Planning Division

To: Brandon Mazer, Chair and Members of the Portland Planning Board
From: Andrew Tufts, Planner
Date: February 21, 2020
Re: VA Clinic, 113 West Commercial St, JB Brown & Sons
Project #: PL-000927-2019 CBL: 060 A001
Meeting: February 24, 2020

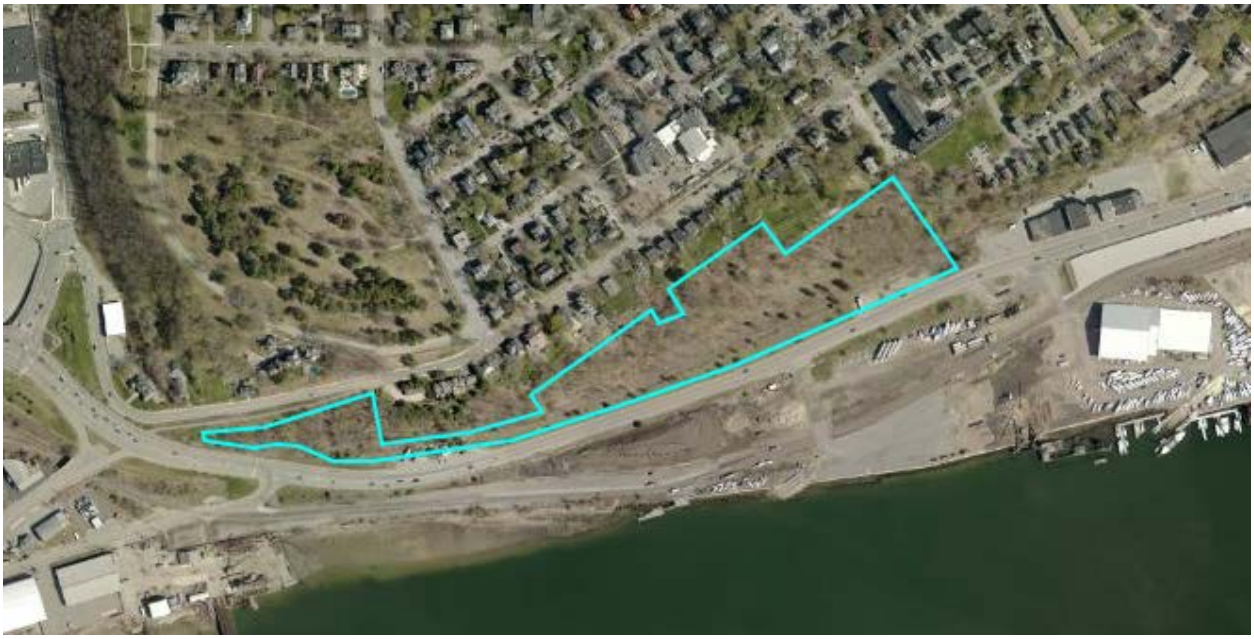


Figure 1: Parcel outline - Source: City of Portland Maine Parcel Viewer

I. INTRODUCTION

JB Brown & Sons, LLC, has submitted a Level III Site Plan application for the development of a Community Based Outpatient Clinic for the Department of Veteran Affairs. The property is a 366,067 square foot parcel (8.4 acres) along approximately 1,400 LF of street frontage on West Commercial Street. Approximately 4 acres of the site is zoned B-5b, Commercial, where the majority of the site work will occur. The remaining 4 acres, along the rear uphill portion of the site, is zoned R-4, Residential. A medical clinic is a Permitted use in the Commercial Zone.

The Planning & Urban Development Department sent 116 notices advertising this meeting to property owners within 500 feet of the site. A legal advertisement ran in the February 15th & February 16th editions of the Portland Press Herald.

Applicant: JB Brown & Sons, LLC

Consultants: Steve Bushey, P.E. (Gorril-Palmer, LLC (Engineer)) Greg Heppner, AIA (SmithGroup Architects) Nick Elliston (Titcomb Associates (Surveying))

II. REQUIRED REVIEWS

Waiver Requests	*Applicable Standards*
The applicant is requesting three site driveways along West Commercial Street due to the site conditions including length/street frontage and proposed driveway separation. Staff Comments: DPW continues to review and explore design considerations.	Technical Standard – Transportation Standards – Number of Driveways 1.7.2.8 No more than two (2) driveways shall be permitted for ingress and egress purposes to any commercial, industrial or residential (with 10 or more parking spaces) site.
The applicant is requesting a waiver of the required number of bicycle parking spaces as that would exceed well over 50 bike spaces which the applicant considers to be excessive for the clinic use. Staff Comments: Staff is supportive of starting with 20 bicycle spaces on the condition of potentially adding more based on TDM results.	Technical Standards – Transportation Standards –Bicycle Parking (14-526 (a) 4 b) b) Non-residential structures. Two (2) bicycle parking spaces for every ten (10) vehicle parking spaces for the first one hundred (100) required vehicle parking spaces, plus one (1) bicycle parking space for every twenty (20) required motor vehicle parking space over one hundred (100) required vehicle parking spaces.
Review	*Applicable Standards*
Site Plan	*Section 14-526*

III. PROJECT DATA

Existing Zoning	B-5b Commercial, R-4 Residential
Existing Use	*Vacant Lands, Surface Parking*
Proposed Use	*2-story Community Based Outpatient Clinic (CBOC)*
Parcel Size	366,067 SF

	Existing	*Proposed*	*Net Change*
Building Footprint	NA	34,155 SF	+ 34,155 SF
Building Floor Area	NA	62,170 SF	+ 62,170 SF
Impervious Surface Area	11,240 SF	168,273 SF	+ 157,033 SF
Parking Spaces	0	535	+ 535
Bicycle Parking Spaces	0	2	+ 2

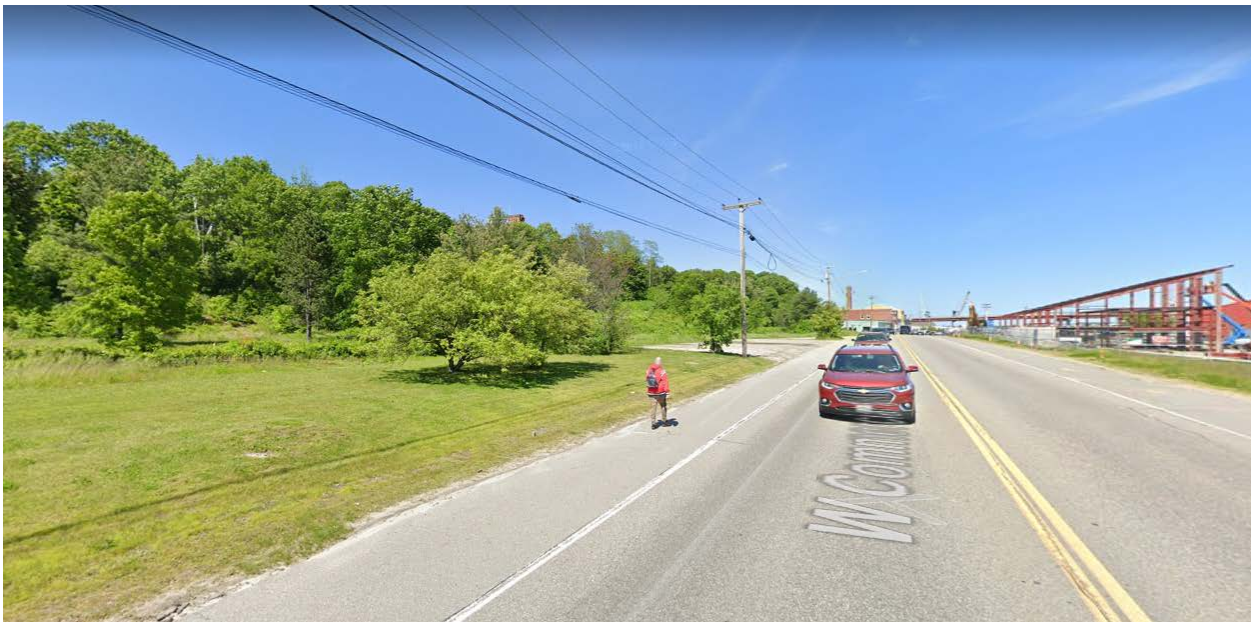


Figure 2: Existing conditions - Source: Google Maps

IV. EXISTING CONDITIONS

The development site is located on West Commercial Street along a gateway to Portland's waterfront. The parcel is approximately 8.4 acres in size, and includes topography consisting of ground elevations ranging from elevation 20' to elevation 25' from the ROW area back 160' or so. The rear portion of the site is a steep incline ending at approximately 100' in elevation. The site is primarily open space with intermittent vegetation in the lower portion adjacent to the street, and denser vegetation along the northern rear of the site. The applicant is the Department of Veteran Affairs, and the owner of the parcel is JB Brown & Sons, LLC. The site is bordered by the Star Match building to the east, a residential area uphill to the north, and directly opposite the Canal Landing Boat repair and maintenance facility that occupies approximately 17 acres on the south side of West Commercial Street. The nearest open space is Harbor View Memorial Park, an approximately 7-minute walk North-East, and the Western Promenade, an approximately 15-minute walk North-West. No sidewalks currently exist on site. The site is sparsely vegetated along West Commercial Street, with few street trees, due to overhead wires and large utility infrastructure below grade.

Drainage in West Commercial Street is limited to a few catch basins that are tied to the CSO system. These are located to the west end of the site, thus the ability to convey stormwater off the site will require careful consideration. The segment of West Commercial Street spanning the proposed developments frontage, has been subject to flooding in recent years. A recent storm in December of 2019, brought heavy amounts of rainfall causing approximately 12" inches of standing water in front of the site. Both the applicant and the City of Portland are analyzing the situation and continue to discuss appropriate stormwater management for the site.

Owen Haskell, Inc. completed a boundary and topographic survey of the site in June of 2019. An easement exists for an undeveloped portion of Emery Street, which was accepted as a city street in 1851.



Figure 3: Conceptual rendering – West Commercial Street looking north - Source: SmithGroup

V. PROPOSED DEVELOPMENT

The proposed development includes a two-story, 34,155 square-foot Outpatient Clinic (CBOC), as well as a three-level 35,800 square-foot parking garage. Three driveways are proposed along West Commercial Street. The main entrance is proposed between the two buildings, with the entrance made prominent by elevated architectural masses on corresponding corners of the CBOC and parking garage. A seating area and gathering plaza is adjacent to the CBOC entrance, allowing patients an area to sit outside in view of the meadow planting.

The parking garage would include 382 parking stalls. The first two levels would be reserved for patients, while the top would be designated for public use associated with the working waterfront and/or the adjacent Star Match property. Vehicles would enter the garage directly to the east of the entrance drive, and can exit either at the entrance or at the eastern side leading to West Commercial.

The western driveway provides access to a staff surface parking lot, which contains 152 spaces with its own entrance from West Commercial Street. A staff building entrance is adjacent to the staff parking lot. Service vehicles enter at the east end of the site (behind the garage) and are restricted to the drive lane behind the garage and CBOC. The ambulance dock, mobile imaging station, dumpsters and loading dock are located behind the Clinic, out of site from patients and visitors.

Emery Street, a paper street accepted by the City in 1851, runs North-South along the eastern edge of the proposed project where the eastern most driveway is proposed. City staff are working with the applicant on alternatives for the use of this paper street. More details on the use of the Emery Street paper street will be available by the time of the project's public hearing.

VI. PUBLIC COMMENT AND NEIGHBORHOOD MEETING

A neighborhood meeting was held on the evening of February 13, 2020 at 321 Commercial Street, Portland, Maine at 5:30PM for the proposed project. Approximately 12-14 members of the public attended. Attending

on behalf of the development team were Vin Veroneau and Bob Vallee from JB Brown & Sons (applicant), and Steve Bushey from Gorrill Palmer Engineers (civil engineer). Vin Veroneau provided an overview of the project using a PowerPoint presentation, while Steve Bushey was in attendance available to answer questions regarding site design and traffic. There were a number of questions from the public regarding lighting and potential light-trespass from the garage. One member of the public suggested the idea of incorporating potted plantings and landscape features to the top deck of the garage. A representative of Portland Trails was in attendance and there was some discussion of incorporating a pedestrian trail along the Emery Street paper street easement, connecting the uphill neighborhood to West Commercial Street. The meeting adjourned at roughly 6:45PM.

VII. RIGHT, TITLE, & INTEREST AND FINANCIAL & TECHNICAL CAPACITY

The owner of the property is JB Brown & Sons, LLC. The applicant provided a copy of the warranty deed, recorded at the Cumberland County Registry of Deeds in CCRD Book 29147 page 254, which demonstrates their right, title and interest in the property.

FDS JBB Portland LLC currently is entered into a Lease Agreement with the federal government for a 20-year period.

The applicant team cited their experience and qualifications to demonstrate capacity to design and construct the project.

IX. ZONING ANALYSIS

Dimensional requirements for this project are dictated by the B-2b community business zone.

Zoning Requirements	B-5b	Provided	+/-
Minimum Lot Size	None	8.4 AC	
Minimum Street Frontage	None	1,400 ft	
Front Yard	Minimum: 0 ft Maximum: 10 ft	Max.: < 10ft	
Minimum Side Yard	None	NA	
Minimum Rear Yard	10 ft	8.9 ft	
Maximum Lot Coverage	100%	<60%	
Maximum Structure Height	55 ft	42 ft	
Parking	155	540 382-space patients 152-space staff	**+ 385**
Bicycle Parking	42 spaces	2 spaces	**- 40**

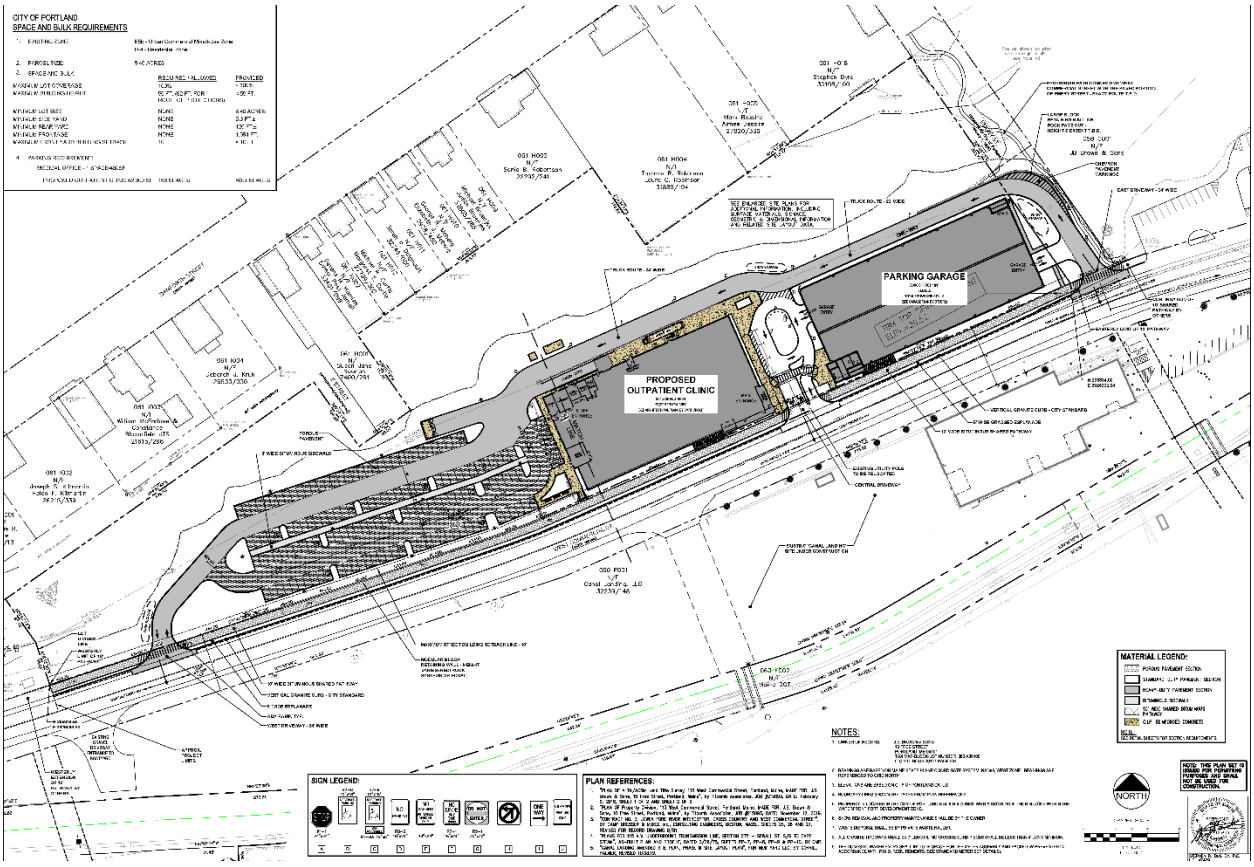


Figure 4: Site Plan - Source:Gorrill Palmer

IX. DEVELOPMENT REVIEW

A. SITE PLAN SUBMISSION REQUIREMENTS (Section 14-527)

The applicant has submitted a recording plat. The final plat will need to be revised to reflect any waivers and conditions of approval that relate to the subdivision plan. Any waivers granted must be recorded at the Registry of Deeds within two years of a Planning Board decision.

B. SITE PLAN STANDARDS (Section 14-526)

The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's site plan ordinance and applicable regulations. Staff comments are listed below.

1. *Transportation Standards*

   a. Impact on Surrounding Street Systems and Access and Circulation

   The site is located on West Commercial Street along a corridor that spans between the Veterans Memorial Bridge and the Casco Bay Bridge. West Commercial Street currently supports a significant amount of traffic. Vehicles would access the site and parking areas from three driveways creating three new curb cuts along West Commercial. One existing curb cut on the adjacent Star Match property would be closed, resulting in a net increase

of two curb cuts. The main public access to the site would be through the middle driveway which is made prominent by elevated architectural masses on corresponding corners of the CBOC and garage. A canopy is proposed at the CBOC's entrance with space for three cars to drop-off and pickup.

The entrance to the proposed garage is to the east of the main entrance. The garage has two vehicular exits, one at the main entrance drive for pick-ups, and another at its east end leading to West Commercial Street. Staff parking is located west of the clinic and has its own entrance from West Commercial Street.

The proposed project requires the applicant to receive approval for a Traffic Movement Permit (TMP). A TMP application was filed with the City on December 3, 2019 followed by a project scoping meeting conducted on Monday, December 30, 2019. The City's Traffic Consultant, at that time, identified a full traffic impact study would be required in support of the permit application. An initial traffic impact study has been submitted and is in review.

b. Sidewalks

West Commercial Street does not currently have a sidewalk along the site frontage. The project includes the development of a 10' wide multi-use pathway along the site frontage, to be developed in accordance with the West Commercial Street Multi-Modal Corridor Study. The pathway will be paved asphalt and will involve granite curb placement, an esplanade and the pathway. Linkage to the proposed VA Clinic development will be provided at several locations.

The current design shows the path ending at the edge of a city stormwater overflow basin. The applicant has expressed support for an easement that will allow the city to reroute the path around this obstruction, to be finalized in the course of the Site Plan review.

c. Public Transit Access

West Commercial Street does not currently fall within a METRO service route; therefore, service is not directly available at the site. METRO is currently undertaking an update to their systems and routes and service may be considered along West Commercial Street.

The implementation of the West Commercial Street multi-modal pathway into the site planning meets the objectives of previous City studies and planning.

d. Parking

The proposed project would provide 540 parking spaces on site. The development would include 152 surface parking spaces and 382 spaces within the parking garage. The City Code requires 155 spaces based on a ratio of 1 space/400 SF for a program of 62,300 SF. The proposed parking exceeds the required parking by greater than 10%.

The tenant agreement with the VA requires that 400 spaces be provided for their programing. An additional 132 spaces will be provided in the parking garage and these will be available for use by tenants of the Star Match building.

A Transportation Demand Management Plan is required under site plan standards. The programming for internal VA traffic monitoring has not yet been determined, but the VA does employ a rideshare program. The applicant is requesting that the submission of a TDM plan be made a condition of approval tied to the issuance of a certificate of occupancy. This will allow the developer and government representatives an opportunity to coordinate the program for the site. Staff recommends that if submission of a TDM is made a condition of approval, that the applicant submit an overview of what the anticipated approaches to transportation demand management will be, prior to a full plan being submitted.

Parking aisles and dimensions on the proposed parking areas meet the applicable standards. This will include 9' x 18' stalls and 24' min. two-way drive aisles and 16' wide one-way drives.

All new surface parking shall be paved. Porous pavement is proposed for much of the surface parking field, allowing for greater stormwater infiltration onsite.

e. Bicycle Parking

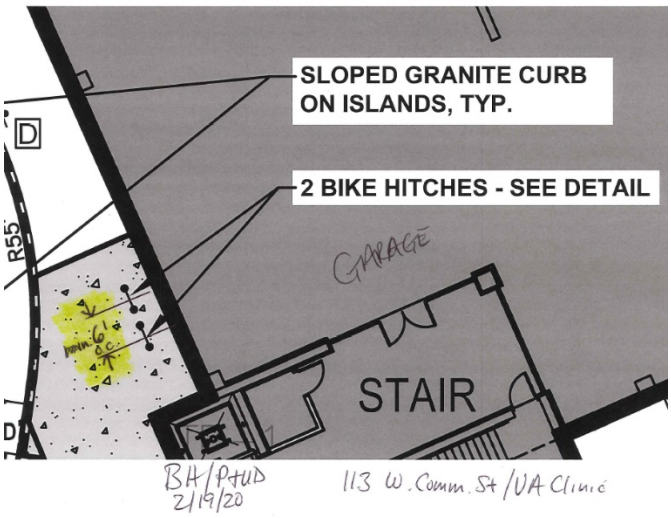
The applicant is proposing up to 20 bicycle spaces, and is requesting a waiver from the required 42 spaces.

Bruce Hyman, City of Portland Transportation Program Manager, has the following comments:

- *In response to the bike parking proposed as part of the project. I've noted two groupings of two bike racks for a combined proposed bike parking of 8 spaces. Given the location of the future clinic adjacent to the West Commercial Street Shared Use Pathway, I would recommend a minimum of ten bike racks for a bike parking capacity of 20 bikes initially. In the forthcoming TDM Plan, I recommend it state that the parking utilization will be monitored and the parking supply increased as use/demand warrants.*

- *I would suggest 5 bike racks located at the employee entrance side of the clinic and 5 racks located at the patient/client entrance side of the building. There appears to be ample concrete surfaces at both locations upon which to mount surface mount Downtown Racks as noted on the Detail Sheet C-10.1. The Site Plan notes 'Bike Hitches' which are a different Dero bike rack and the detail and the plan note should be reconciled.*

- *I also note that the spacing of the racks shown in both locations is only 4′ when scaled off the plans. In the configuration shown (end-to-end), the racks are to be spaced a minimum of 6′ on center. This is the same configuration and spacing used at the WEX site. The 3′-4′ spacing used on the plans is when the racks are placed side-by-side, not as shown in the plans.*



2. Environmental Quality Standards

a. Preservation of Significant Natural Features

There are no known significant natural features on the site.

b. Landscaping and Landscape Preservation

A landscaping plan was submitted as part of the application. The proposed parking lots will contain landscaping that is consistent with the City's technical standards.

The site landscaping plan contains tree plantings along the front of the property, within the site and not within the Public right of way. The plans include the development of a 5' wide esplanade and the 10' wide pathway within the right of way. Unfortunately, the esplanade is generally located over the existing 115 KVA high voltage underground power transmission line and also below the overhead lines, thus the placement of trees in this zone is prohibited. To offset these restrictions, the plan includes the tree plantings on the site.

Jeff Tarling, City Arborist, has submitted comments to the applicant that may be found in the attachments within the comment's response letter.

c. Water Quality, Storm Water Management and Erosion Control

The existing site contains approximately 11,240 square feet of impervious surface. Redevelopment of the project site would result in an increase of approximately 157,0133 square feet of impervious area, to a total of 168,273 square feet.

Currently, this stretch of West Commercial Street is prone to flooding when there is a combination of high tides, snow melt, and storm events. The applicant is working with DPW to address and improve these conditions.

The applicant has outlined the existing conditions of stormwater infrastructure along West Commercial Street:

The exact conveyance route of the existing street system is unknown and the development team is coordinating with DPW on these existing conditions. The existing 48" Fore River interceptor sewer is located along the site frontage. An existing overflow control structure is located just west of the site and that structure contains a 24" overflow pipe to the Fore River. Similarly, there is a control structure along the Interceptor opposite the Emery Street right of way and that CSO structure regulates flows to multiple overflow pipes out to the Fore River. Each of these CSO systems remains active. The site is proximate to the Fore River tidal conditions and only the Canal Landing Boat Yard is between the site and the river.

The site's stormwater runoff will be collected by several means. The proposed clinic building roof will contain drains that will tie into a subsurface chamber storage system and below grade treatment device. These systems will provide both water quality treatment and flood control. Additionally, the surface parking will use porous pavement with catchment areas beneath.

The project is required to comply with stormwater management regulations in accordance with Maine DEP Chapter 500 and City of Portland Technical Manual Chapter 5 stormwater regulations. The project will also be required to meet the standards as required for a Site Location of Development permit.

Lauren Swett, Consulting Civil Engineer, has provided the following comments in regard to stormwater and erosion control:

- *Basic Standards: The Applicant is providing erosion and sedimentation controls in conformance with the Basic Standards.*

- *General Standards: The proposed stormwater management system achieves the required developed area treatment standard of 80% by treating 85.59% of the developed area. However, the overall treatment percentage for impervious areas fall below the 95% treatment standard, treating 93.16% of the new impervious area. The applicant proposes to increase the runoff treatment depth from the porous pavement section and employ a catch basin filter cartridge in the loading dock truck well in order to supplement the impervious area that cannot be treatment due to grade restrictions and existing utilities within the ROW. We are in agreement with this approach to providing treatment.*

- *Flooding Standards: The Applicant has requested a waiver from the flooding standard. The increase in flow at POI is significant, and is not at a level where we would typically allow for a waiver. The Applicant has noted that this is a location that currently sees offsite/street flooding, and that the project will only result in a small increase in the existing negative condition. The Applicant should provide additional on-site stormwater storage – the project should not increase stormwater flow to the City's infrastructure, and should not*

make a flooding condition offsite worse. We will continue to review the details of the stormwater design, but suggest that the Applicant consider their alternatives for meeting the Flooding Standard.

3. Public Infrastructure and Community Safety Standards

a. Public Safety and Fire Prevention

The site would provide access from three driveways for emergency vehicles. Fire hydrants would be located along West Commercial Street and would be within 25' of the front corner of the garage. The clinic would be fully sprinklered and the parking garage would contain standpipes for Fire Department use.

Mike Thompson, Division Chief of the Fire Prevention and Community Outreach Division, has reviewed the submitted plans and found them to be acceptable, noting the following points:

- *The site plan needs to be submitted to the City of Portland Public Works Engineering so the E911 Addressing Officer can assign an official street address to the project.*
- *The address of the parking garage shall be 101 W. Commercial Street*
- *The address of the office building shall be 141 W. Commercial Street*
- *The street address of each building shall be clearly marked on the front of the building, as approved by the fire department.*
- *Elevators shall be a minimum of 84"x24"*
- *Any canopy or archway shall provide a minimum clearance of 13'6".*

b. Availability and Adequate Capacity of Public Utilities

The Applicant is securing letters from the applicable utilities stating their ability to serve the site. The project will require new electrical, gas, sewer, and water services to the clinic and power and sewer to the garage. An ability to serve letter has been requested from the Portland Water District, and a Wastewater Capacity Application has been approved by Brad Roland, P.E., Senior Project Engineer, at the City of Portland.

All new electrical services to the site will be underground. All new utility infrastructure will meet the provisions of the Technical Manual. The Clinic will be served by new fire and domestic mains off the PWD 16" water main located in West Commercial Street. The building sewer will connect to the existing Fore River Interceptor sewer located along the front property line. Power will be from the existing overhead primary distribution system that CMP maintains on West Commercial Street.

4. Site Design Standards

a. Snow and Ice Loading

The buildings have been designed and located such that accumulated snow and ice will not fall onto adjacent properties or public ways. Snow will be removed from the parking lots and stockpiled within the site perimeter or if necessary, removed from the site.

b. View Corridors

The site is not located within any corridors identified in the Downtown Vision View Corridor Protection Plan.

c. Historic Resources

The development is not located within a designated historic district.

d. Exterior Lighting

All new exterior lighting at the site will be full cutoff with no light emitted above the horizontal plane, and in accordance with Section 12 of the Technical Manual. A photometric Lighting Plan has been prepared by Swaney Lighting Consultants to demonstrate illumination levels throughout the site will be consistent with City Standards.

Caitlin Cameron, City of Portland Urban Designer, reviewed the plans and a design review can be found in the attachments.

e. Noise and Vibration

All heating, ventilation, air conditioning equipment including air handlers and generators are designed to meet local, state, and federal emissions and noise requirements. Most of the HVAC equipment is mounted in the middle of the roofs to minimize visibility. Any additional ground mounted equipment for the buildings will be screened.

f. Signage and Wayfinding

All signage shall meet the requirements of the Manual on Uniform Traffic Devices (MUTCD) and Division 22 of the City Code. The proposed hotel and commercial signage can be seen on the architectural renderings.

g. Zoning Related Design Standards

N/A

h. Construction Management Plan

The construction management plan continues to be reviewed by city staff.

XII. NEXT STEPS

1. Address staff comments
2. Address additional comments of the Planning Board
3. Prepare final plan submission, including subdivision and site plan submittal requirements as included in 14-527(e) and (f) for review by the Planning Board
4. Hold Planning Board Hearing

XIII. ATTACHMENTS

PLANNING BOARD REPORT ATTACHMENTS

1. Public Comments
2. Comment Response Letters

APPLICANT'S SUBMITTALS

A - PROJECT DESCRIPTION
B - RIGHT, TITLE, & INTEREST
C - TECHNICAL CAPABILITY
D - FINANCIAL CAPACITY
E - ZONING ASSESSMENT
F - WAIVER REQUESTS
G - SITE DESIGN
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PLANS

P1. COVER
P2. GEN NOTES
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P7. GRADING
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P18. ACCESS DRIVE PROFILES
P19. PRE-WATERSHED PLAN
P20. POST-WATERSHED PLAN

Google Groups

Development in the vicinity of 113 West Commercial Street

joshua.broder@gmail.com <joshua.broder@gmail.com> Dec 30, 2019 1:10 PM
Posted in group: **Planning Board**

I'm writing in response to a notice I received of the FDS JBB Portland LLC development slated to become a VA clinic on Commercial Street.

I reside at 414 Danforth St, and will likely be able to see this development from my back yard.

I'm also an owner of a large office condo at 16 Middle Street, where my business Tilson, employs many veterans who will make use of this clinic.

I'm also a veteran who will most likely make use of the clinic.

I think this development is appropriate and should move forward. The peninsula is a great place for this kind of density and Commercial Street to the highway can support the traffic. I also think a larger on peninsula VA clinic supports a vibrant live and work community here in Portland as evidenced by it's utility to me as a resident and my employees who work on peninsula.

Respectfully submitted,

Josh

Google Groups

Re: Proposed VA Center - for Distribution to the Planning Board

constance bloomfield <constancebloomfield1@gmail.com> Jan 19, 2020 7:07 PM
Posted in group: **Planning and Urban Development**

Thank you for the opportunity to comment on the plans submitted thus far for the W. Commercial St. VA Facility.

COMMENTS ON W. COMMERCIAL ST. VA CLINIC - LEVEL III SITE PLAN REVIEW

SITE PLAN

The Planning Board should require site sections with building outlines at parking lot, clinic building, and parking garage. Such site sections are crucial for understanding this project in its context. Site sections should include the entire slope in order to determine where and to what extent "modest cutting into the slope" will occur. The slope is notoriously unstable; if cutting is absolutely necessary, uphill neighbors need to be assured that the developer assumes liability for its effect on uphill properties for many years in the future.

Site sections, including building outlines, will reveal what effect lighting, particularly on the top level of the parking lot or clinic roof will have on the neighboring residences on Danforth St. 90 degree cut-off lights may shine directly into these houses, depending on the height of the poles and the elevations of residences vis-a-vis the top of the garage.

Site plan should be coordinated with project recommendations from the West Commercial Multi-Modal Corridor: particularly widening of west Commercial St. immediately in front of project site and; construction of a landscaped median from Benny's to the Star Match Buildings. This project should not preclude implementation of the Study's recommendations in the future. For example, there seems to be no room for a curb cut on either side Commercial St. for bus loading and unloading. Nor does there seem to be adequate room for car and bus turn-around between the two buildings.

Developer should be encouraged to retain some fully-grown trees on the site of the staff parking lot and bordering Commercial St. – rather than treat the landscape as a scrape and asphalt project.

PROGRAM

This seems to be a much larger facility than the clinic operation it is replacing. If it is an expanded program and/or with a larger population base, the project description should address that.

The number of parking spaces is more than 2 ½ times the city's requirement for a building of this size and use. In fact the staff parking lot alone would meet the standard. This suggests that the parking structure will be serving a larger constituency and not solely serving the VA. If so, that should be stated at the outset, as it introduces other elements to consider. Is it a 24-hour facility; will there be shuttle buses to downtown; who will manage it? Will it be full of reserved spaces, that sit empty on weekends, etc? Any traffic analysis must deal with the VA use and any additional use anticipated by this large parking structure.

ENVIRONMENTAL CONSIDERATIONS

These buildings are designed for a mid-20th Century world, not a 21-century world with its energy and climate issues. The parking structure is not the only aspect that flaunts the needs of the future.

The building insulation and glazing as described, meets the minimal state requirements, anything less is illegal. No one should be praised for thermal breaks and double-glazing or 3 inches of rigid insulation. In terms of heat loss and gain the building components are significantly less than is easily accomplished in this day and age at no significant increase in construction cost and huge decreases in operating costs. In addition, the building has been designed with apparently no attention to its compass orientation. There is no built-in shading on the south and west facades. In summer the unshaded south-facing glass

entry ‘towers’ will be unbearably hot and will produce massive cooling loads. There must be other ways to establish a grand and dignified entry. And why is the clinic building’s rooftop not covered with solar collectors, or provided with a vegetated surface?

Exterior lighting standards should exceed Dark Skies standards. The number of lights should be limited and the shortest pole heights chosen to assure safety but not excessive lighting or light spread. Cut-offs should be less than 90 degrees for pole lights and building exterior lights. The staff parking lot lighting should be limited to hours of operation. The parking structure is described as having symbolically important back-lit panels – will it glow in all directions all night? That might be re-considered.

PC3

Elizabeth C. Parsons
44 Winter Street
Portland, ME 04102

21 February 2020

Mr. Andrew Tufts, Planner
City of Portland
389 Congress Street
Portland, ME 04101

RE: 113 West Commercial Street, PL 000927-2019

Dear Andrew:

Since I cannot attend the Planning Board workshop related to this project, I am sending along some observations in the spirit of the conversation I had with you and James Rather a few weeks ago.

As you know, late last year our City Council declared a climate emergency and resolved to act aggressively in reducing Portland's climate emissions. Meeting this objective will necessarily require significant changes to ways in which we've become accustomed to constructing buildings and using land. To that end, and specifically as relates to the above-mentioned project in the West End, I note the following:

- The envisioned project has been "designed to respond to the challenges of the local climate" and to meet sustainability standards named under the terms of the solicitation process.
    - This seems to involve mostly energy efficiency measures, which are laudable. However:
- The building's rooftop is flat and the whole will be situated in an open area. Why are solar panels not included?
- Heating will apparently be by natural gas. What about heat pumps, the costs of which continue to decrease?
- The large windows will be glazed. What will be done to ensure that birds (the numbers of which have declined precipitously in recent years due largely to human encroachment on wildlife habitat) do not fly into those windows?
- A parking garage and a parking lot will take up considerable space. With Maine's poor public transportation system and this project attracting people statewide, the parking garage makes sense (solar panels could be put there too). But what about local staff who would park in the lot? What arrangements might be made to reduce individual vehicular traffic in exchange for incentives to take public transportation and/or a shuttle?
- A long-planned extension of Portland trails is situated in the roadway in front of the construction project. Mention is also made of emphasizing natural lighting and an open

feeling to the complex that would contribute to towards Veterans' healing. If the staff parking lot were reduced in size or eliminated, much more greenspace would be available. And how about putting the trail behind the property, in the treed area where the old rail line runs?

Given that construction on this project is slated to start soon, I expect that the design planning process is quite far advanced. Nonetheless, this is the very type of project the City should be demanding more from if we are serious about doing our part to reduce carbon emissions. This is the point my colleague on the Portland Climate Action Team, Martica Douglas, was making in her recent *Press Herald* Maine Voices article.

Portland's establishing stringent emissions-reducing standards for every single bit of construction that goes up should be a major policy focus of the Planning Board and of all related City departments from here on out. That might seem like an unrealistic thing to propose, but we're living in unprecedented ecological times. It would take vision and courage for City leaders to make and enforce this type of policy change. But, to echo President Kennedy's exhortation about putting men on the moon, making such a change is something we need to do not because it's easy but because it's hard.

And who knows? It's possible that Portland's taking a strong, more holistic stance on development might inspire an unexpected swell of investment interest and creative construction design.

Please feel free to share these comments with Planning Board members. I have copied a few other key people as well.

Sincerely,

Elizabeth C. Parsons
Member, Portland Climate Action Team

cc: Councilor Spencer Thibodeau
Councilor Jill Duson
Councilor Belinda Ray
Christine Grimando
James Rather
Martica Douglas

GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, ME 04106
207.772.2515

January 30, 2020

Mr. Andrew Tufts
Planning and Development Department
City of Portland, Maine
389 Congress Street
Portland, Maine 04101-3509

Subject: VA Community Based Outpatient Clinic (CBOC)
Project ID – PL-0000927-2019
113 West Commercial Street
Letter of Response #1

Dear Andrew:

On behalf of **FDS JBB Portland LLC** (Applicant), our office is pleased to provide the following responses to various staff comments you provided on January 3, 2020. For ease of review we have repeated the staff comments and provide our responses as follows:

MIKE TREMBLAY, DPW P.E. SENIOR ENGINEER

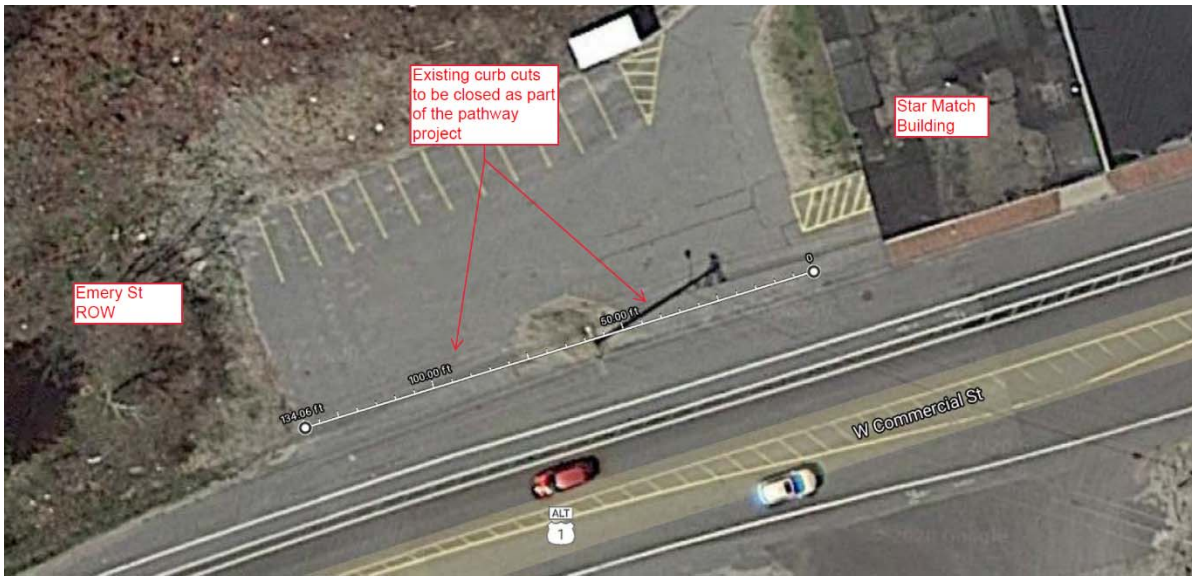
Site Plan

Comment

The project site has three driveways. A maximum of two driveways is permitted per the technical manual (1.7.2.8). A waiver is required for three driveways. DPW does not support a waiver for a third driveway at this time, given the potential issues with the central driveway, discussed below; three driveways also present three new conflict points along a high-volume, high-speed roadway.

Response

The applicant is proposing three driveways; however, we note that the most easterly driveway is positioned within the Emery Street Right-of Way, thus it could be considered as separate from the other two driveways from the site onto West Commercial Street. We also note that J.B. Brown & Sons owns the adjacent property containing the Star Match Building, just east of the Emery Street Right-of Way. J.B. Brown has committed to closing their existing curb opening just to the east of the Emery Street Right of Way as part of the development of the City sponsored 10' wide mixed-use pathway project. This curb cut measures over 135 feet wide. That small paved parking lot will simply be tied into the Emery Street Driveway.



The net result will be only two new driveways along the West Commercial Street frontage, a distance of over 1,500 LF. By basis of comparison, we note that the development site is within the B-5b Zone where there is no minimum lot size or minimum frontage, thereby, an alternative development scenario consisting of multiple lots could arrive at substantially more driveway openings on West Commercial Street. We note that the driveways provide distinct access for the development as follows:

- The westerly driveway will primarily serve Clinic staff for access to their surface parking lot. The westerly driveway will also provide access for heavy vehicles including the solid waste hauler, large truck deliveries exiting the site and ambulance services.
- The central driveway is the primary site entrance for patients/visitors and it provides direct access to the main Clinic patient building entrance as well as to the parking garage.
- The easterly driveway will provide access to the parking garage as well as for a heavy vehicle entering circulation route around the rear of the site, which is particularly necessary for access to the loading dock. The easterly driveway within the Emery Street Right of Way will also serve for a linkage to the Star Match Building parking lot and it will allow two existing curb openings to be closed.

Comment

The central driveway, used for pick-up/drop-off and as a garage entrance, is problematic. There appears to be very little stacking space for vehicles if the three pickup/dropoff stalls are occupied, which may cause vehicles to spill into West Commercial Street. Additionally, as all patients and visitors using the garage must walk across this driveway, vehicles turning into the driveway may need to wait for pedestrians to cross at two different locations (the shared path and the crosswalk within the site), which may cause conflicts on West Commercial Street. DPW suggests that the central driveway be closed, and the pick-up/drop-off area made accessible solely from the 24-foot access drive behind the site. This gives vehicles ample space to queue for the pick-up/drop-off area if there is congestion in this area; the driver can then quickly enter the garage or exit via the access drive. The path would be continuous between the garage and clinic, with no vehicle conflicts, and no waiver for an additional driveway would be required. Some of the following comments may be addressed, or become moot, if this comment is incorporated.

Response:

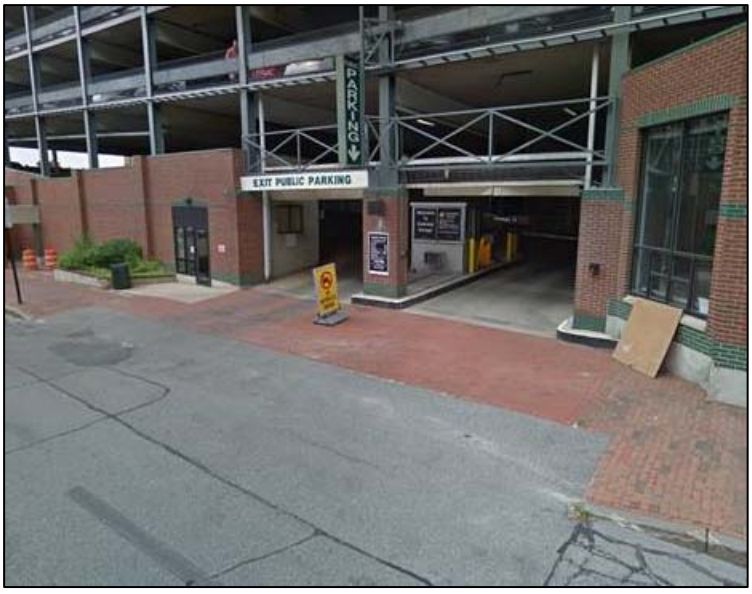
We are not in agreement with the assessment of stacking space as well as the interaction of entering movement traffic and pedestrians crossing between the buildings and/or the mixed-use pathway. Much like many private driveways and urban property access settings there will be the need for entering and exiting vehicles to give way to pedestrians on sidewalks, etc. This is certainly true on the Peninsula, where, for example, at multiple parking garage entrances there is limited queuing capacity at a gate-controlled entrance. Take for example, entrances at the following:



Fore Street



Union Street



High Street Garage

In addition, we note that we are currently evaluating the implementation of either a two-way center left turn lane or dedicated left turn lanes within West Commercial Street, at each of the development driveways. This evaluation is made part of the Traffic Study currently underway by Traffic Solutions and which will be submitted

as part of the Traffic Movement Permit Application to the City. These lanes will provide storage capacity for left turning vehicles into the site, while also minimizing interruption to the thru-traffic movements along the street. Secondly, the available queue of vehicles within the site will be approximately 120' from the crosswalk between the buildings to the first 5-minute drop-off/pick-up parking stall adjacent the clinic. This storage space will provide adequate stacking while also providing an opportunity for vehicles to enter the parking garage, or, if necessary, to circumnavigate the site perimeter via the rear access drive.

Comment

All of the site driveways are wider than permitted by the technical manual (1.7.2.4). Driveways wider than 30 feet, measured at the property line, require a waiver. The western driveway measures about 35 feet at the property line; the central driveway measures about 41 feet, and the easternmost driveway measures about 34 feet wide. At the outer driveways, these widths reflect large curb radii, including a 40 foot curb radius at the western side of the western driveway. At the central driveway, the entering travel lane is 14 feet wide and the exiting right-turn lane is 13 feet wide; both of these widths seem excessive. Vehicle turning templates are requested to confirm that these driveway widths and curb radii are necessary. The Applicant should tighten dimensions where possible, and provide explanation for wider dimensions otherwise.

Response:

The accompanying diagrams show the movement of semitrailer trucks or an emergency vehicle entering/exiting the site. Each of the driveways have been designed to provide adequate maneuvering space for the semi-trailers or a fire truck. The site will be routinely visited by Mobile Imaging trailers (WB-63 equivalent) and also larger tractor trailer deliveries for materials to the Clinic. The latest plans have been updated to reduce the driveway widths as much as possible while also providing adequate curb radii for the assortment of vehicles expected to visit the site, including passenger vehicles up to heavy semitrailer trucks. These are summarized as follows:

- Westerly driveway – 30' wide with 25' radius each side;
- Central Driveway – One 14' wide entering lane; two exiting lanes at 13' for right turns and 11' for left turns. Curb radii will be 20'; and
- Easterly Driveway – 24' wide with 20' exiting radius and 25' entering radius.

Comment

The 24-foot access drive seems excessive for one-way traffic, even for heavy vehicles. Reducing this width would reduce impervious surface and potentially reduce the amount of regrading that is required behind the site. Alternately, this access drive could be utilized by staff and/or patients and visitors in order to be able to remove one of the site driveways, as discussed above.

Response:

The rear access drive behind the garage will be 20' wide to accommodate occasional larger truck access as well as emergency services vehicles. The drive aisle behind the Clinic will be 24' wide as it is a two-way directional drive that must accommodate semitrailer mobile imaging vehicles, emergency vehicles including ambulance service to the rear of the building, and general large trailer truck deliveries to the site.

Comment

The central driveway features a raised crosswalk; however, curb ramps are shown serving this crosswalk. These ramps may not be necessary if the crosswalk is fully raised.

Response:

The design of the raised sidewalk has been updated to reflect the differential height between the raised crosswalk which is 4" high and the sidewalks which are raised 6". There will be a slight ramp condition at the transition from the crosswalk to each sidewalk, but not a full-fledged ramp given the small differential in grade.

Comment:

The alignment of the intersection of the driveway serving the pickup/dropoff area with West Commercial Street is not acceptable. A crosswalk must be shown, the stop bar must be behind the pedestrian crossing area, and the median shall not intrude into the pedestrian crossing area. Additionally, a larger raised table, which begins at a sloped driveway apron at the site entrance, and continuing through the internal crosswalk, should be considered.

Response:

The latest site plans include updates to the pathway crossing at each of the driveways. These include crosswalk pavement markings and stop bars positioned behind the crosswalk markings.

Comment

The surface parking area includes a significant amount of landscaped islands. These islands would appear to potentially cause drainage issues, and will be an obstacle to snow clearance. The allocation of green space within the parking lot should be reconsidered.

Response:

The design includes the use of porous pavement over much of the parking lot area, thus there is not as much concern about drainage patterns and the interruption of sheet flow on the pavement that might be caused by the landscaped islands. We are aware of the impact to winter snow plowing operations caused by the islands; however, the ability to provide screening and shading effects to the parking lot are considered a net positive outcome in this proposed design. The landscape plan for the parking lot includes plantings in the island bump outs as well as a line of trees along the site frontage, all of which are intended to offset the inability to place street trees within the proposed esplanade, due to the underlying utilities in the esplanade. There will be an 8' wide divider island between the two parking bays and that island is intended as a sidewalk condition to allow the employees to walk to/from the building without need of walking in the drive aisles. This condition is improved by the placement of the planted bump out islands, rather than placing trees within the longitudinal divider island, in our opinion.

Comment

One small area for snow storage was identified near the entrance to the surface parking lot. Additional areas should be identified, as the surface parking area is 45,000+ SF.

Response:

Several areas of snow storage have been identified on the site plan around the site perimeter. Removal of snow from the site may be occasionally required and the owner will contract with a local snow hauler to deal with high snowfall conditions, on an as needed basis.

Comment

The location of the dumpsters and dumpster access driveway should be reconsidered. Garbage trucks would appear to have to make awkward turning movements to service these dumpsters, and the dumpster area necessitates a significant amount of regrading on an embankment that may otherwise be untouched by the project. The dumpsters are also located somewhat far from the clinic.

Response:

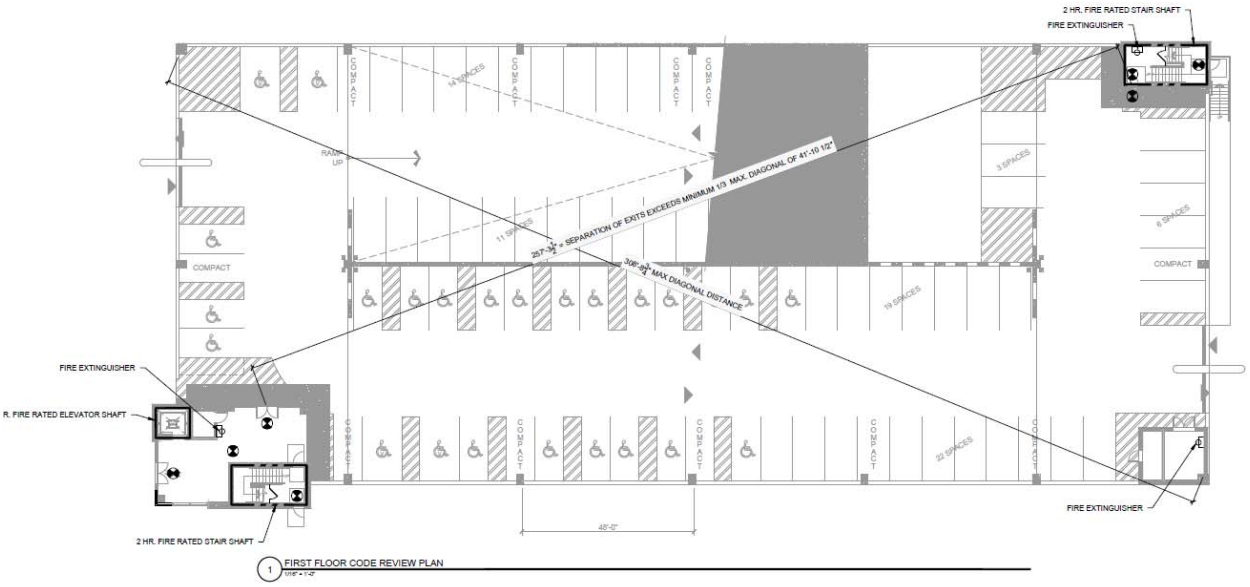
The solid waste enclosure has been shifted to a position closer to the loading dock area at the westerly rear corner of the Clinic. This location will provide improved access for staff as well as the trash removal equipment.

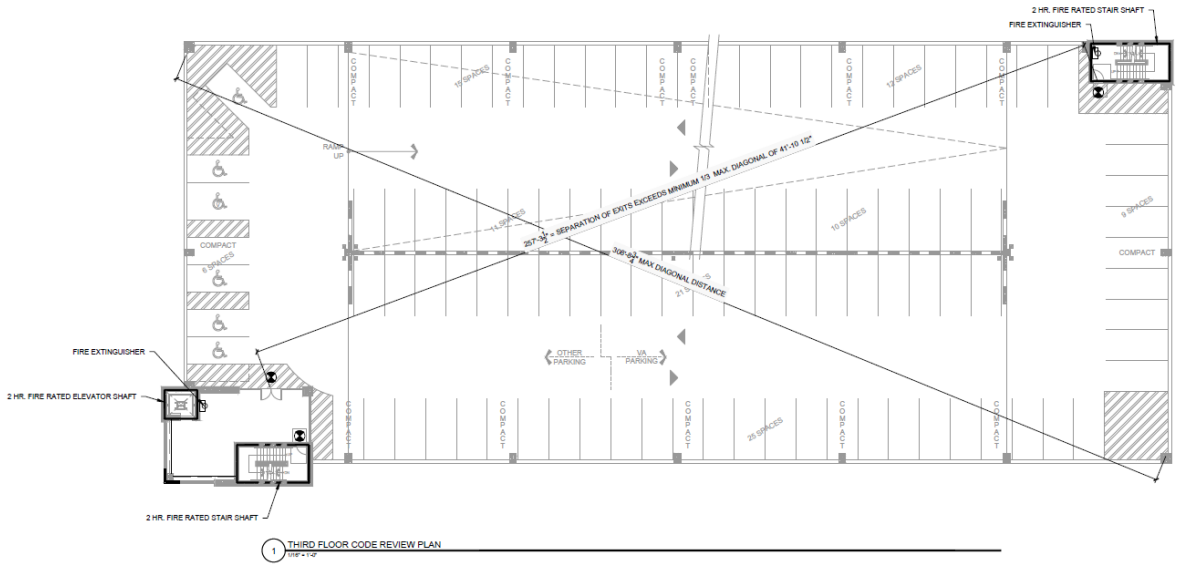
Comment

The parking layout of the parking garage should be provided. Per ADA parking requirements, "Hospital outpatient facilities need 10% of patient/visitor spaces to be accessible." As such, at least 39 accessible parking spaces in the garage are required to be accessible. Of these 39 spaces, 7 are required to be van-accessible.

Response:

The Government has requested 250 parking spaces out of the garage, thus the ADA count for the Clinic in the garage will be 25 spaces. The remaining 132± parking spaces in the garage will include 6 ADA spaces to satisfy the typical requirement for 1 ADA space/25 spaces. There will be a total of 31 ADA spaces in the garage. Updated interior garage layout is under preparation by Ryan Senatore Architecture and will be uploaded to ePlan when completed.





Comment

The 10-foot shared pathway must have a cross-slope of no more than 2.0% constructed. It is suggested that the pathway be designed to 1.5% cross-slope to allow for construction tolerance.

Response:

The pathway is currently depicted with a 1.5% or less cross-slope over its length.

Grading & Drainage

Comment

Spot grades are not provided on any of the grading and drainage plans. Spot grades should be included at critical grade break points, periodically along the front and back of sidewalk, at all grade break points at pedestrian ramps and tipdowns, at entrances and exits to buildings and garages, etc.

Response:

The latest grading and drainage plans include spot grading at critical points in the parking lot and around the site.

Comment

There is very little information on how the site will approach drainage. There is a significant slope at the back of the site which will contribute significant stormwater runoff to the impervious areas of the site. Surface parking lot drainage does not appear to be included. The drainage plan must be included in the site plan package for consideration before DPW will support this application.

Response:

We have completed the grading and drainage plans and stormwater management plans, all of which have been uploaded to eplan for Staff and peer review. Key aspects of the design include:

- Porous Asphalt pavement in the staff parking lot will provide water quality treatment and quantity control storage.
- A subsurface sand filter with R-Tank® storage will be provided for water quality treatment of roof runoff.
- A Focal Point™ water quality treatment filter will be provided for a small area of the parking lot water quality treatment.
- A closed collection and conveyance pipe system will capture runoff from the undeveloped hillside and convey it to the existing street system.

Comment

This application proposes significant regrading at the back of the site. Slope stabilization and erosion control measures must be specified on the grading plan, in the details, and in writing. Slope stabilization shall be appropriate given the makeup of the soil in the embankments.

Response:

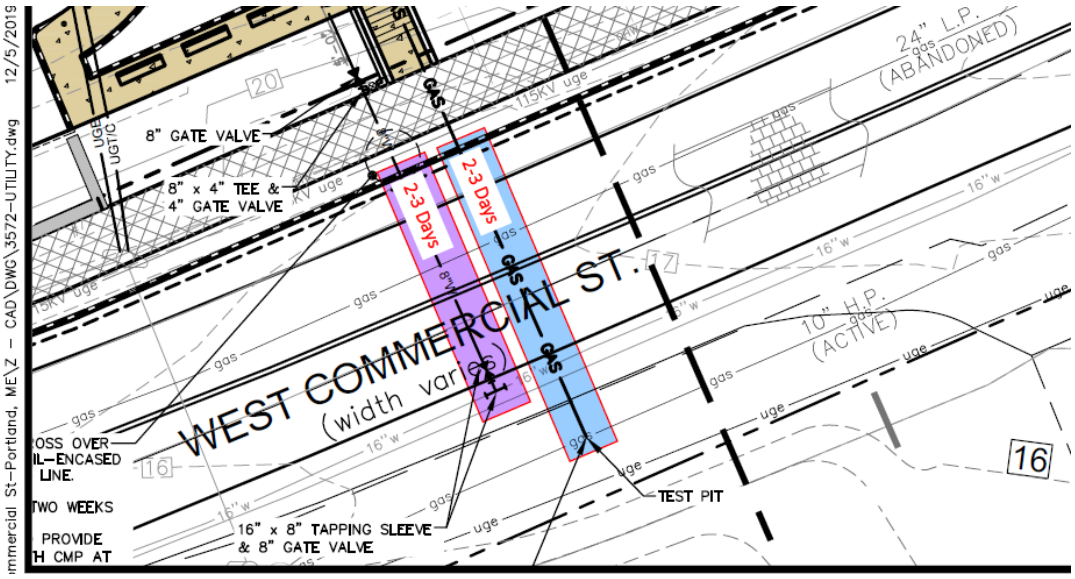
The Erosion and Sediment Control plan, narrative and details are part of the plan documents. Generally, the rear embankment slope will undergo a modest amount of regrading along the rear perimeter of the development. We have attempted to maintain these slope cuts to 2H:1V or shallower where possible although there are several areas at 1:1 for a short height. The Erosion control plans include the use of ArmorMax™ slope reinforcement on all slope steeper than 3:1.



Construction Management Plan

Comment

The locations of utility trenches and duration of work within West Commercial Street must be specified on the CM plan.



Response:

Landry French construction will be updating the CMP and an updated plan will be provided for staff review when completed. Each of the utility trenches in West Commercial Street is expected to require 2-3 days of effort. This includes the water services and the gas service extension. The existing paved road width exceeds 40' so the contractor is planning on maintaining two-way traffic throughout the duration of the work. They may also consider night work to minimize traffic control needs.

Comment

Gas service and water service would appear to require the diversion of West Commercial Street westbound traffic. The Applicant must provide a plan to accommodate traffic during this work.

Response:

The utility work in the street will require temporary traffic controls. Given the existing pavement width on the street at approximately 44', we believe there will be adequate area to allow for the maintenance of two-way traffic during the duration of work for the utility services. Similar circumstances have existed for other projects in the vicinity including the Canal Landing development and satisfactory measures for the maintenance of two-way traffic flow were able to be maintained. As a last resort the completion of the work during nighttime hours may be a possible alternative. The diversion of traffic may involve the use of temporary measures, including barrels, jersey barriers and the use of full-time traffic control personnel.

Comment

The Applicant states that current traffic and pedestrian patterns will be maintained; however, the CM plan shows a construction fence with Jersey barrier that would block the shoulder along West Commercial Street. This shoulder is used by pedestrians and bicyclists. The Applicant should clarify their proposed impact on the roadway, and include a pedestrian management plan if needed. Any construction site that forces pedestrians into vehicle traffic is not acceptable.

Response:

The intent will be not to disrupt pedestrian and bicyclist along West Commercial Street. The placement of any construction barriers will be performed to allow for continuation of two-way travel flow as well as pedestrians movements along the street. The Street has approximately 44' of paved width so we believe that the existing travel conditions should be maintainable while also achieving proper separation of the work zone from the traveling public for safety etc. The contractor will maintain the shoulder at all times except during utility trench work and they will place Jersey Barriers/fencing outside of the shoulder.

Comment

The Applicant should clarify the plan for contractor parking should on-site parking prove insufficient. No on-street parking along West Commercial Street is permitted.

Response:

It is understood that no parking on West Commercial Street will be allowed so the contractor will not use any on-street parking during the course of the work. There will be parking available either onsite or at the nearby Star Match building site.

Lauren Swett - Civil

Comment

In their online application, their numbers indicate that they are creating 3.6 acres of new impervious surface. Per the statute, Site Law applies to "structures" as follows: http://www.mainelegislature.org/legis/statutes/38/title38sec482.html
482. 6. B. "Buildings, parking lots, roads, paved areas, wharves or areas to be stripped or graded and not to be revegetated that cause a total project to occupy a ground area in excess of 3 acres. Stripped or graded areas that are not revegetated within a calendar year are included in calculating the 3-acre threshold." I do believe they will need to do a SLOD application, but it will be Delegated Review with the City.

Response:

We agree that the project requires SLODA approval under the City's delegated authority.

Ben Pearson, P.E. DPW

Comment

It appears that the submitted Construction Management Plan does not include a dewatering plan. Likely used an older template than the current one (https://www.portlandmaine.gov/DocumentCenter/View/18030/General-Construction-Management- Template). If this plan moves forward, a dewatering plan is required. It is likely that they will need to pump groundwater from the site during construction and we want to know what their plans are.

Response:

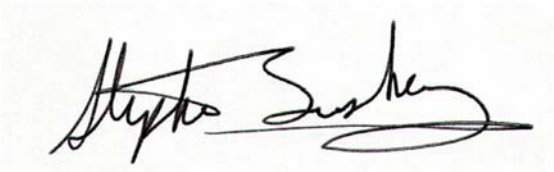
Based on the findings of the geotechnical investigations groundwater is not expected to be encountered during the performance of work. The Erosion Control plan contains a note regarding dewatering, if required, restricting

all dewatering effluent to be managed and discharged onsite or thru the use of a frac tank. No dewatering effluent will be allowed to be discharged to the City systems.

If you have any questions regarding the materials being submitted, please contact this office.

Sincerely,

GORRILL-PALMER

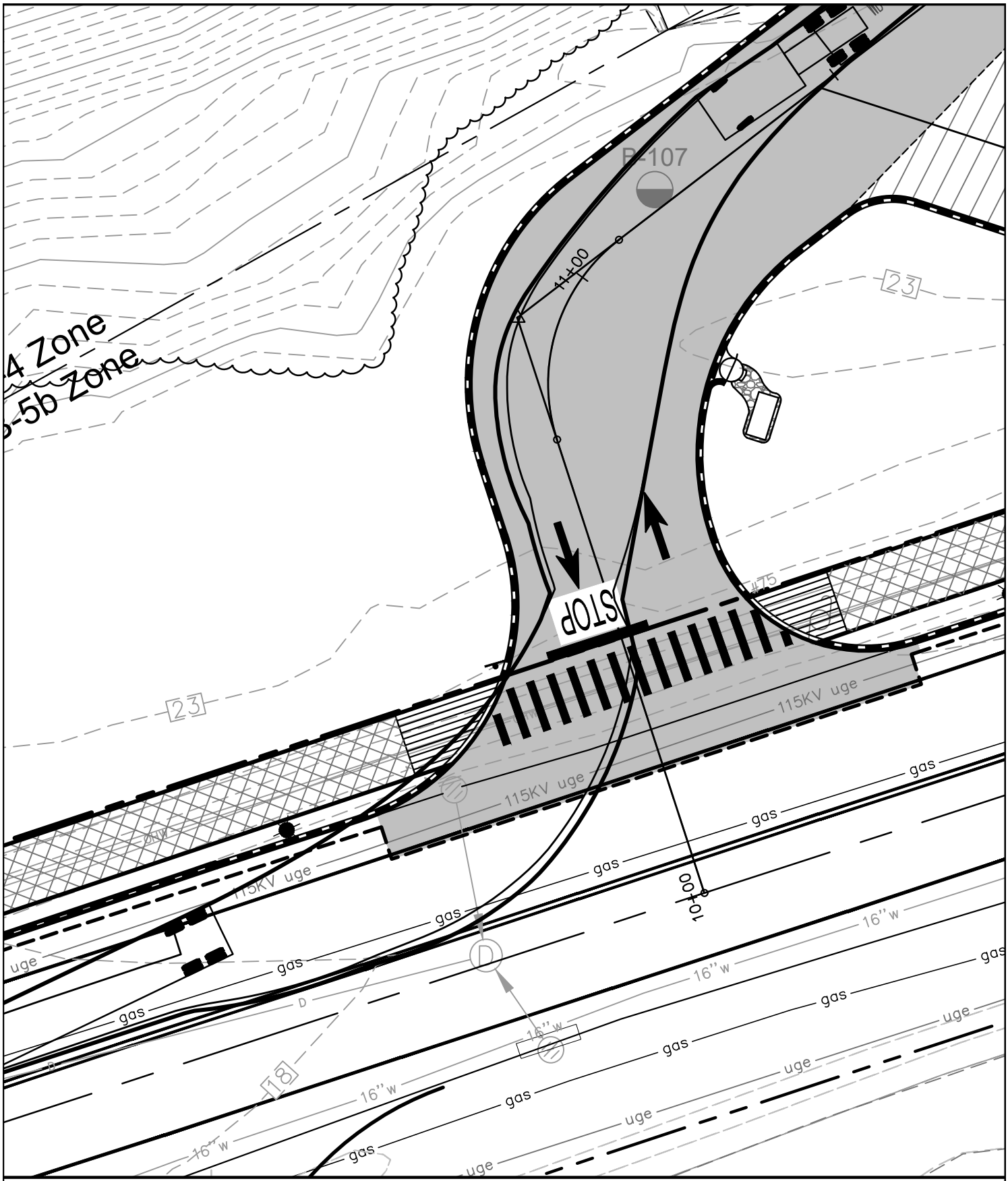


Stephen Bushey, PE
Senior Associate
Phone: 207-772-2515 x286
sbushey@gorrillpalmer.com

Attachments

c: FDS – Claiborne Williams
JBB – Vin Veroneau
SmithGroup – Greg Heppner
Landry French – Mason Rowell

u:\3572_va clinic west commercial st-portland, me\p applications\local\level iii site plan application\lor\lor#1\lor#1_tufts_01.30.2020.docx



VEHICLE TURNING - WB-62 AT WEST DRIVEWAY

VA Clinic, West Commercial Street, Portland, Maine

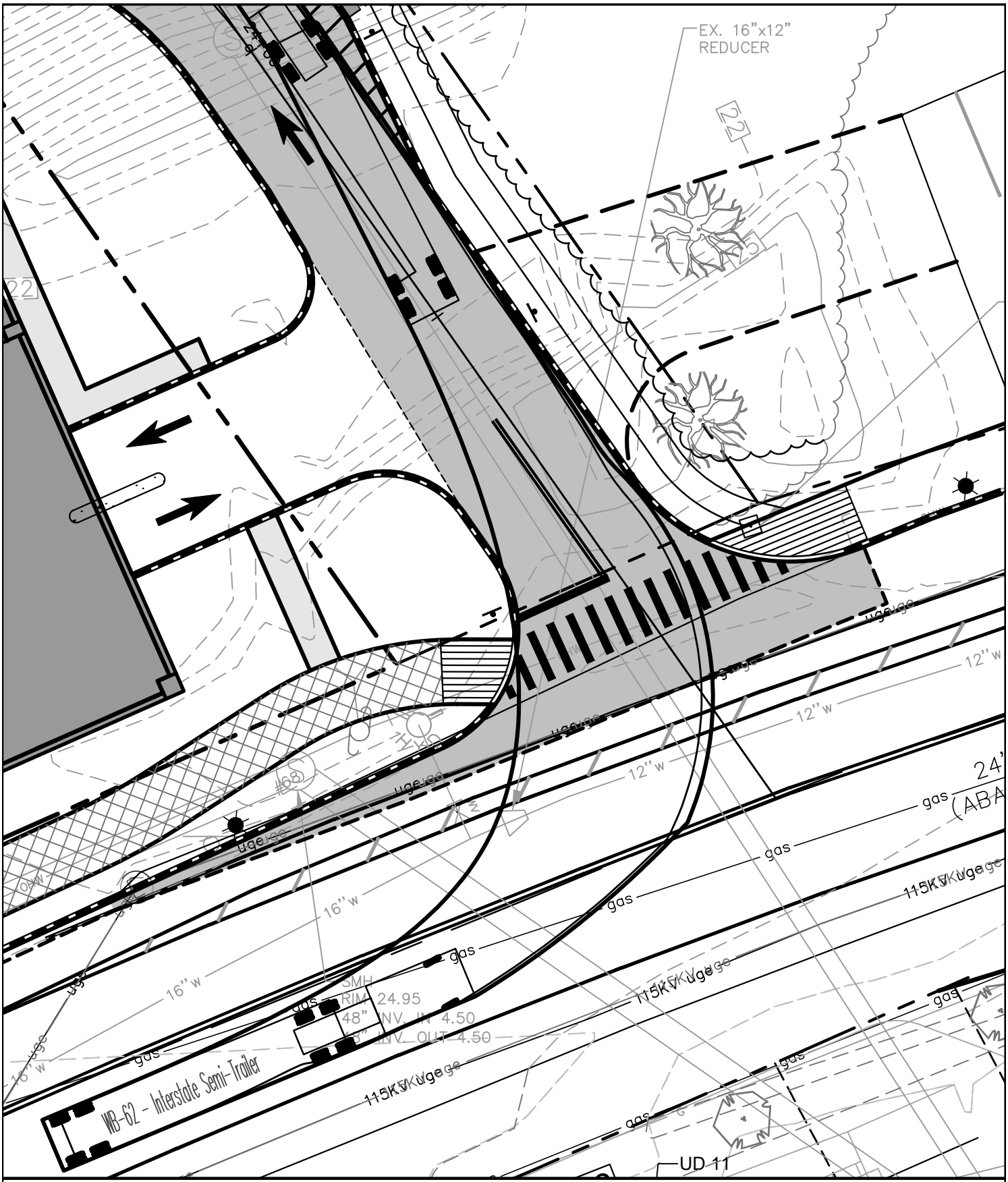
NORTH

Design: KAB	Date: JAN. 2020
Draft: CDD	Job No.: 3572
Checked: SRB	Scale: 1" = 20'
File Name: 3572–PBASE.dwg	

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Figure
1



VEHICLE TURNING - WB-62 AT EAST DRIVEWAY

VA Clinic, West Commercial Street, Portland, Maine

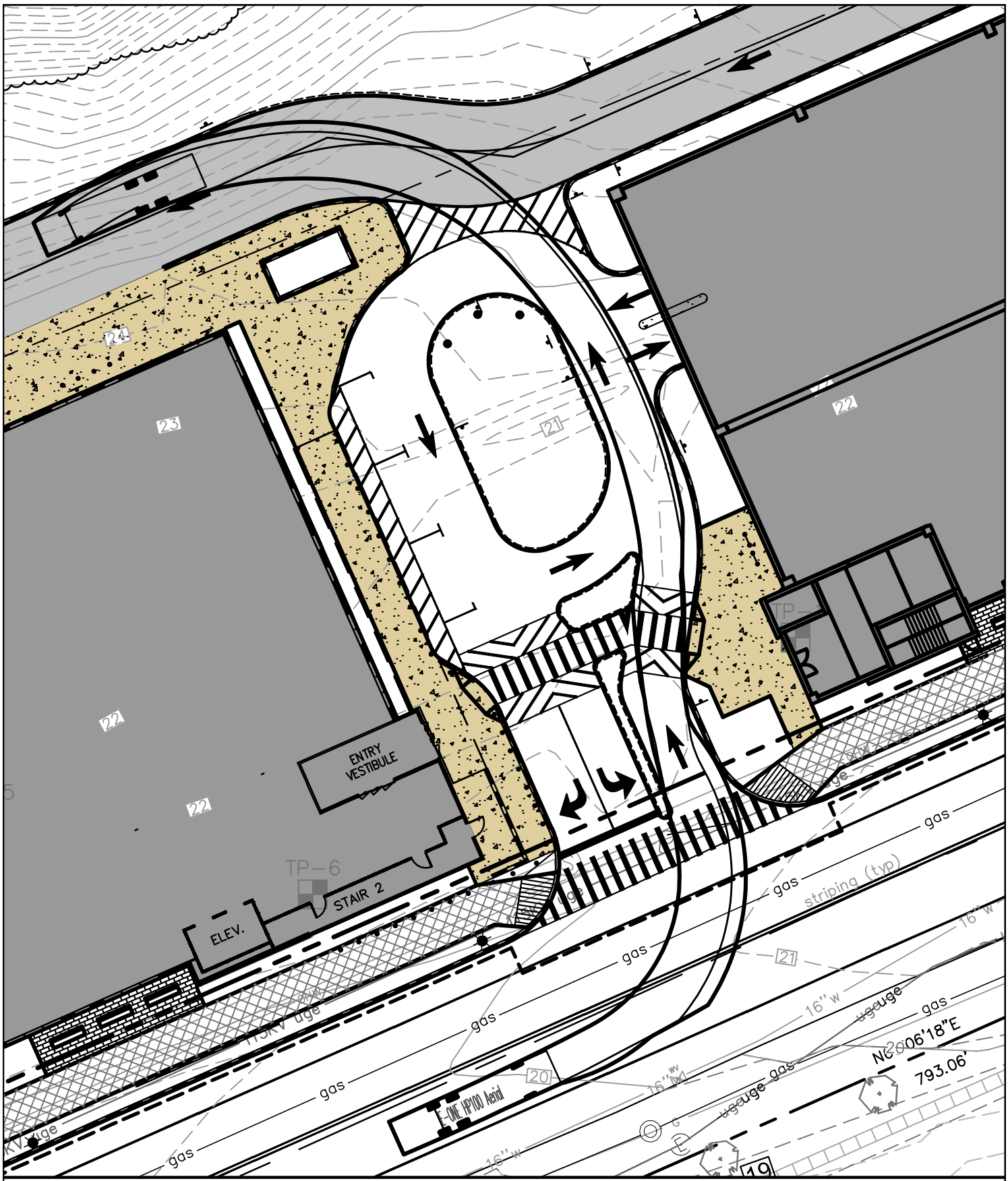
NORTH

Design: KAB	Date: JAN. 2020
Draft: CDD	Job No.: 3572
Checked: SRB	Scale: 1" = 20'
File Name: 3572–PBASE.dwg	

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Figure
2



VEHICLE TURNING - HP-100 AERIAL FIRE TRUCK AT CENTRAL DRIVEWAY

VA Clinic, West Commercial Street, Portland, Maine

NORTH

Design: KAB	Date: JAN. 2020
Draft: CDD	Job No.: 3572
Checked: SRB	Scale: 1" = 30'
File Name: 3572-PBASE.dwg	

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Figure
3

Planning and Urban Development Department
Planning Division

January 3, 2020

JB Brown & Sons
10 Free Street
Portland, Maine

Gorrill-Palmer, LLC
Sable Oaks Drive
South Portland, Maine

RE: Comments for Proposed Development – Level III Site Plan Review

Project Name:	VA Community Based Outpatient Clinic	Project ID:	PL-000927-2019
Address:	113 West Commercial Street	CBL:	060 A001
Applicant:	Gorrill-Palmer, LLC		
Planner:	Andrew Tufts		

Dear Applicant,

Thank you for submitting a level III site plan application for the redevelopment of an undeveloped site into approximately 62,300 SF of building space for a community based outpatient clinic and parking capacity for 400 parking spaces.. The project is being reviewed subject to the following applicable Land Use Code provisions:

- R4 & B5b Districts

The proposed development is also subject to relevant standards in the City of Portland Technical Manual.

Current Review Comments

Mike Tremblay, DPW P.E. Senior Engineer

Site Plan

- Regarding the three proposed driveways, the Applicant's explanation that the easternmost driveway is on the Emery Street ROW and therefore could be considered a street and not a driveway is not valid, as the garage driveway onto Emery Street would still be considered a third driveway. DPW appreciates that the large curb cut east of the site frontage will be closed in association with this project; this should be reflected in the site plan. DPW is still evaluating whether to support the Applicant's request to waive the requirement that a site only be served by two driveways.

- The Applicant's explanation that the central driveway will operate similarly to public parking garages on Fore Street, Union Street, and High Street. These locations have driveways that serve the garage only. The central driveway at the Project site serves not only garage users but pick-up/drop-off activity. The design of the driveway suggests that, if more than three vehicles are waiting for a pick-up, it could "clog" the central driveway, as there is insufficient width for vehicles to maneuver around a potential fourth vehicle in the pick-up queue. It is unclear how often this backup would happen, but if it does, then waiting vehicles and vehicles exiting the garage could potentially queue back far enough to block the garage entrance, and into West Commercial Street. One potential solution is to mark the rear driveway as an alternate exit.

- The central driveway reads as the main entrance to the site, and appears to provide the primary accessible entrance to the site from Commercial Street. However, it appears that the accessible route into the clinic is potentially circuitous. See screenshot below. Visitors arriving on foot to the site from the west must cross the central driveway along the shared use path, then cross it again in the internal crosswalk, in order to access the entry vestibule (red solid line). The pedestrian access to the vestibule directly from West Commercial Street appears to be blocked by bollards, and additionally, within the flare for the curb ramp serving the shared use path (blue dashed line). The presumed pedestrian path is unrealistic and a barrier against arriving to the site on foot. The Applicant should redesign how the driveway interacts with the pedestrian realm, if the driveway remains in future iterations of the design. DPW suggests that the entire area between and including the two crosswalks in the central driveway be tabled/raised (purple area in screenshot), creating a raised crosswalk along the shared-use path, and signaling to motorists that they are entering a potential pedestrian area as soon as they enter the site. This solution provides priority for pedestrians and bicyclists on the shared use path, and eliminates the tipdown required along the path that is likely creating difficulties in terms of accessing the site from the southwestern crosswalk.

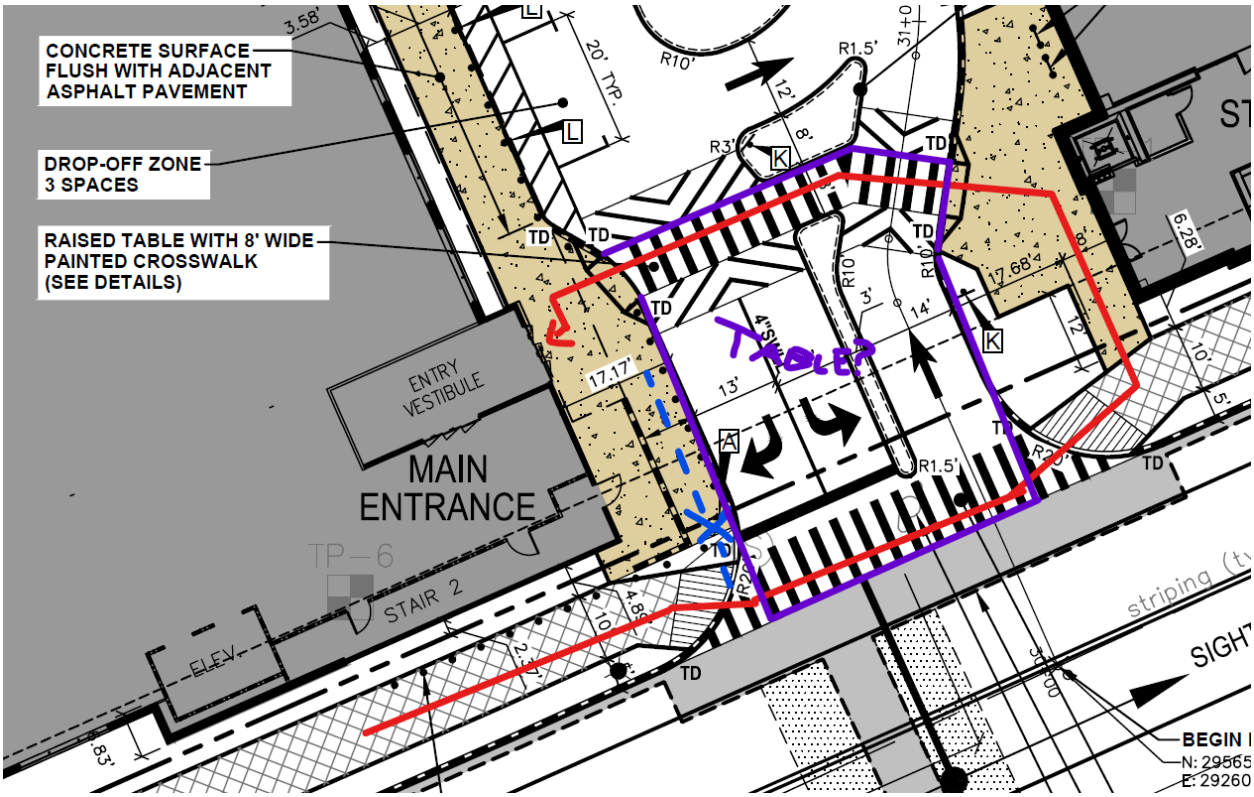
- The 24-foot rear driveway continues to be marked for one-way westbound traffic. In the response to comments letter dated 1/30/2020, the Applicant indicated that this would allow for two-way traffic between the surface parking lot and the east side of the clinic building. The plans should be clarified. Additionally, this access road could be used to access the pick-up/drop-off area, and parking garage, if the central driveway were eliminated.

- Along the western driveway, two lanes form after entering the site; one lane for the surface parking lot and one lane for the heavy-duty driveway. Splitting these lanes for such a short distance does not seem particularly necessary, and likely results in more impervious surface than required. The Applicant should clarify.

- DPW supports the use of porous pavement in the surface parking lot. The Applicant should be aware that this treatment requires regular maintenance, typically 2x per year, in order to be effective. This maintenance will be required in order to earn stormwater credits.

- DPW continues to seek review and comment on the layout of parking spaces within the parking garage. These plans should be uploaded once available.

- DPW is in ongoing discussions with the applicant with regard to stormwater management. Additional comment may be forthcoming with regard to drainage and flood management.



Construction Management Plan

- The locations of utility trenches and duration of work within West Commercial Street must be specified on the CM plan.

- Gas service and water service would appear to require the diversion of West Commercial Street westbound traffic. The Applicant must provide a plan to accommodate traffic during this work.

- The Applicant states that current traffic and pedestrian patterns will be maintained; however, the CM plan shows a construction fence with jersey barrier that would block the shoulder along West Commercial Street. This shoulder is used by pedestrians and bicyclists. The Applicant should clarify their proposed impact on the roadway, and include a pedestrian management plan if needed. Any construction site that forces pedestrians into vehicle traffic is not acceptable.

- The Applicant should clarify the plan for contractor parking should on-site parking prove insufficient. No on-street parking along West Commercial Street is permitted.

Lauren Swett - Civil

- As previously noted, the project will meet the area thresholds for Site Location of Development, but also meets the SLODA area thresholds for Delegated Review. An application that includes the application form as well as narrative that addresses all applicable Site Law standards should be provided. Many of these items are already addressed as part of the Level III Site Plan Application. The Applicant will be required to contact applicable review agencies including MHPC, MNAP, and MDIF&W. Paper copies are required to be submitted to the City for submission to the Maine DEP.

- The project will require new electrical, gas, sewer, and water services to the clinic and power and sewer to the garage, which are existing within West Commercial Street. The Applicant shall confirm with each of the respective utilities the ability to serve the project and provide the City with documentation from each utility. The Existing Conditions & Removal Plan also notes "Relocate Utility Pole (By Others) Requires Coordination with CMP"; the Applicant should provide clarification on the plans for the utility pole relocation.

- The project is required to comply with stormwater management regulations in accordance with Maine DEP Chapter 500 and City of Portland Technical Manual Chapter 5 stormwater regulations. The project will also be required to meet the standards as required for a Site Location of Development permit.

    - Basic Standards: The Applicant is providing erosion and sedimentation controls in conformance with the Basic Standards.
    - General Standards: The proposed stormwater management system achieves the required developed area treatment standard of 80% by treating 85.59% of the developed area. However, the overall treatment percentage for impervious areas fall below the 95% treatment standard, treating 93.16% of the new impervious area. The applicant proposes to increase the runoff treatment depth from the porous pavement section and employ a catch basin filter cartridge in the loading dock truck well in order to supplement the

impervious area that cannot be treatment due to grade restrictions and existing utilities within the ROW. We are in agreement with this approach to providing treatment.

- Flooding Standards: The Applicant has requested a waiver from the flooding standard. The increase in flow at POI is significant, and is not at a level where we would typically allow for a waiver. The Applicant has noted that this is a location that currently sees offsite/street flooding, and that the project will only result in a small increase in the existing negative condition. The Applicant should provide additional on-site stormwater storage – the project should not increase stormwater flow to the City's infrastructure, and should not make a flooding condition offsite worse. We will continue to review the details of the stormwater design, but suggest that the Applicant consider their alternatives for meeting the Flooding Standard.

Ben Pearson, P.E. DPW

It appears that the submitted Construction Management Plan does not include a dewatering plan. Likely used an older template than the current one (https://www.portlandmaine.gov/DocumentCenter/View/18030/General-Construction-Management-Template)

If this plan moves forward, a dewatering plan is required. It is likely that they will need to pump groundwater from the site during construction and we want to know what their plans are.

Jeff Tarling, City Arborist

In review of the tree & landscape plan for the proposed development at 113 West Commercial Street would like to offer the following review & comments:

a) Existing site conditions, tree saves, limit of clearing - Unfortunately, the proposed project does not include much in the way of 'tree saves' of the existing mature trees on the site and the clearing limit extends up the current slope towards the residential Danforth Street backyard edge. This is likely due to the grading needed to accommodate the building size and proposed surface parking.

After reviewing the 'Exist & Removals' sheet and the landscape plan for both the East & West side, I would recommend that the residential side of the project receive landscape buffering treatment mimicking the natural mix of vegetation currently on site. This would include native plant selections, that could include: plants like Red Oak, Bear Oak, Swamp White Oak, Grey Birch, River Birch, Pitch Pine, Red Cedar, along with native shrub types that would fit into the site conditions of dry gravel soils, full sun. This planting could use smaller plant sizes and grouped together in groves. The end result would be that the proposed project fit into the existing landscape if extensive site work wasn't needed... or close to what is existing. This recommendation would help buffer the project and improve the residential view towards the Fore River.

b) Street trees - West Commercial Street is a major connector arterial and gateway into Portland, thus street trees and landscape are important features. Overhead utility lines are existing along West Commercial Street bordering the project site. Street trees along this section of West Commercial Street need to have a lower growing height and or canopy shape and location as to avoid future conflict with these lines. We can work with the project team on both potential tree types and spacing.

c) Parking lot trees & landscape - The surface parking area will need to meet parking lot tree & landscape standards. These standards help projects meet both the buffering needed for surface lots and the environmental benefits of shading pavement reducing the urban 'heat island' effect. We can work with the project team on plant suggestions and spacing while recognizing space for snow storage. We have seen some impressive, sustainable landscape featuring low maintenance plantings of Sweet Fern, Bayberry for screening and tough trees like Honeylocust for the parking lot, as an example.

d) Invasive plants - In larger sites like West Commercial Street we try to look at the level of invasive plants and controlling them during the construction phase if possible. This helps reduce the spread of the plants after construction when they might have new 'opportunities' and helps keep them from spreading to nearby backyards. We would request the project take closer look at invasives and include a plan of action to reduce their spread.

https://www.maine.gov/dacf/mnap/features/invasive_plants/invsheets.htm

https://www.maine.gov/dacf/mnap/features/invasive_plants/invasives_gallery.htm

Overall the tree and landscape recommendations should help the project fit in knowing it is next to a residential area with important view sheds to the Fore River. Fortunately, the higher elevation of the existing residential area is favorable.

Fire – Chief Robert Thompson

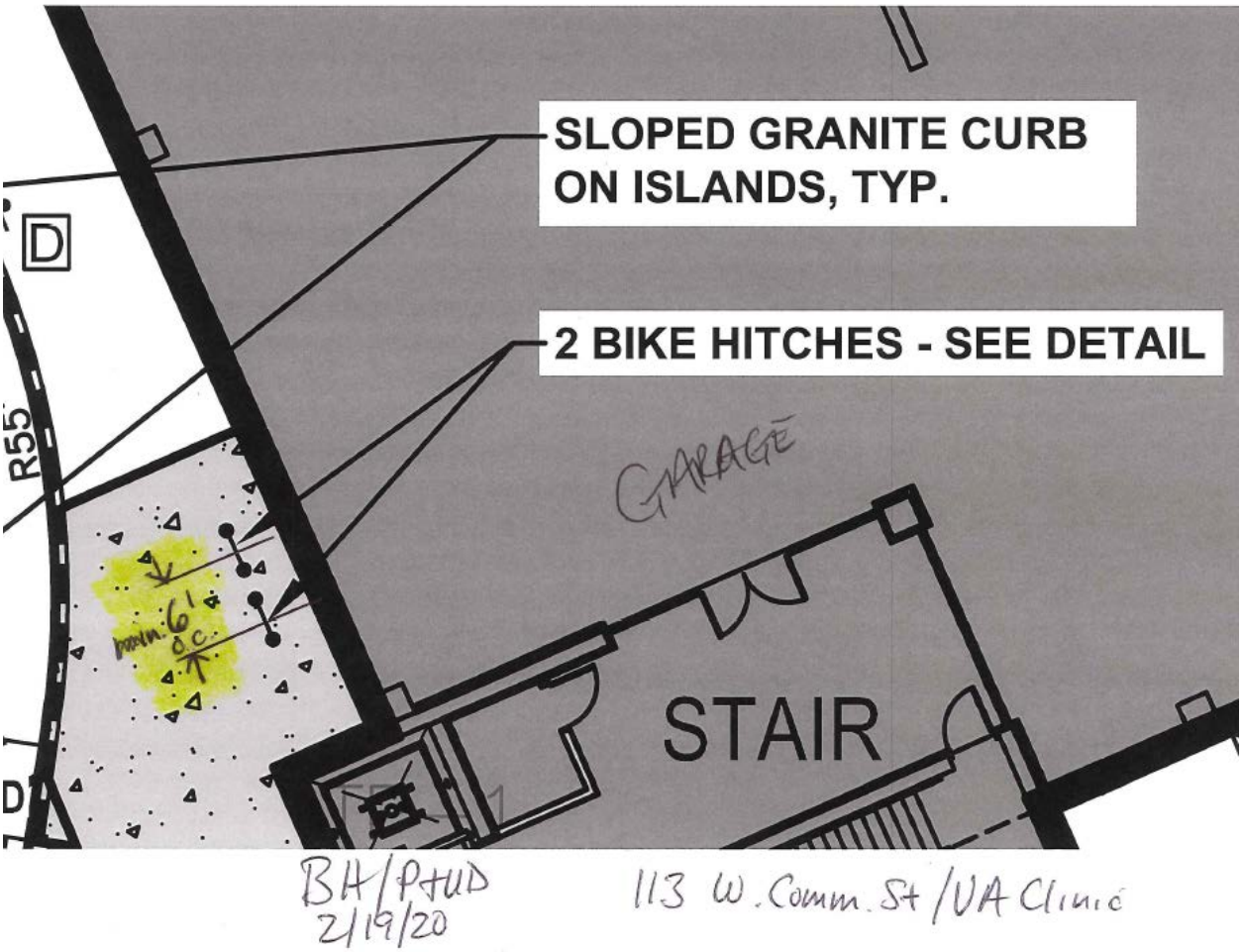
- This site plan needs to be submitted to City of Portland Public Works Engineering so the E911 A ddressing Officer can assign an official street address to the project.
- The address of the parking garage shall be 101 W. Commercial Street
- The address of the office building shall be 141 W. Commercial Street
- The street address of each building shall be clearly marked on the front of the building, as appr oved by the Fire Department
- Elevators shall be a minimum of 84″ x 24″
- Any canopy or archway shall provide a minimum clearance of 13′ 6″.

Transportation – Bruce Hyman

- In response to the bike parking proposed as part of the project. I've noted two groupings of two bike racks for a combined proposed bike parking of 8 spaces. Given the location of the future clinic adjacent to the West Commercial Street Shared Use Pathway, I would recommend a minimum of ten bike racks for a bike parking capacity of 20 bikes initially. In the forthcoming TDM Plan, I recommend it state that the parking utilization will be monitored and the parking supply increased as use/demand warrants.

- I would suggest 5 bike racks located at the employee entrance side of the clinic and 5 racks located at the patient/client entrance side of the building. There appears to be ample concrete surfaces at both locations upon which to mount surface mount Downtown Racks as noted on the Detail Sheet C-10.1. The Site Plan notes 'Bike Hitches' which are a different Dero bike rack and the detail and the plan note should be reconciled.

- I also note that the spacing of the racks shown in both locations is only 4' when scaled off the plans. In the configuration shown (end-to-end), the racks are to be spaced a minimum of 6' on center. This is the same configuration and spacing used at the WEX site. The 3'-4' spacing used on the plans is when the racks are placed side-by-side, not as shown in the plans.



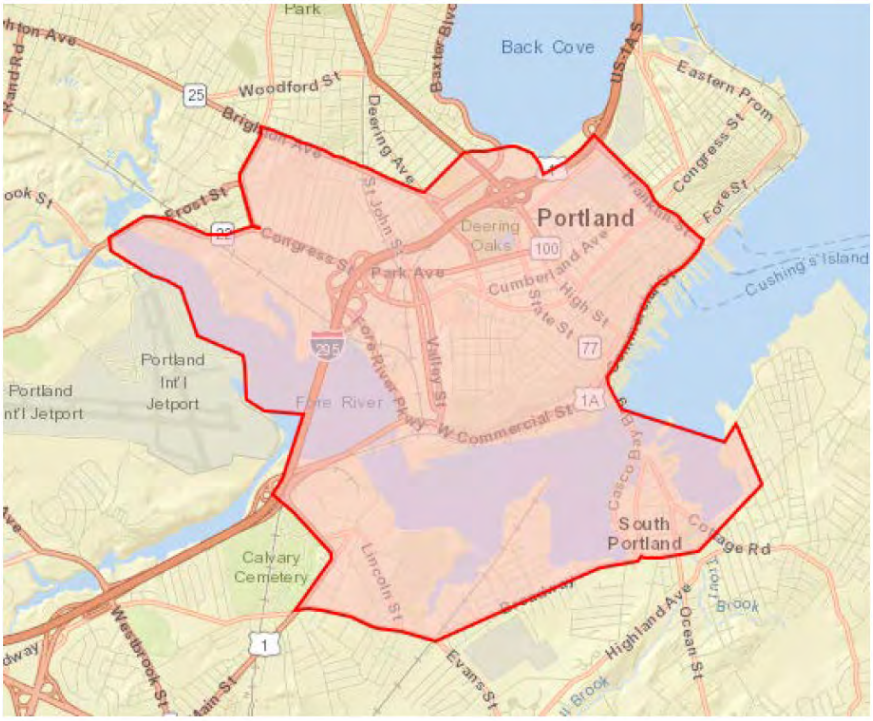
GENERAL APPLICATION DOCUMENT

PROJECT DESCRIPTION

PROJECT OVERVIEW

In July 2018, the Department of Veterans Affairs issued a Request for Lease Proposal (RLP) No. 36C10F18R0566 seeking approximately 62,300 SF of building space for a Community Based Outpatient Clinic (CBOC) and parking capacity for 400 parking spaces within an area as identified on Figure 1.

The development team of FB Stonewater, JB Brown & Sons, Landry French Construction, Smith Group Architecture and Gorrill Palmer was assembled and submitted a Proposal to develop vacant property along West Commercial Street. The property, schematic plans and overall lease agreement terms were found to be acceptable to the VA and in September 2019, the developer and VA initiated actions to proceed with design and permitting of the VA Clinic at the West Commercial Street site.



DEVELOPMENT PROPOSAL

LOCATION

The proposed site for the CBOC is located on West Commercial Street in Portland, ME within the Area of Consideration as shown in the RLP. The site is 8.40 acres in size and is unencumbered by existing structures for preservation, reuse, or demolition. An abandoned rail spur exists on the site without any record of an easement found. The developable portion of the site has approximately 5.17 acres of land and 1,400 LF of street frontage on West Commercial Street. Approximately 4 acres of the developable site is Zoned B-5b, Commercial, which is where the CBOC will be located. The other 4 acres (on the uphill slope) is zoned R-4, Residential. A Medical Clinic is a permitted use in the Commercial Zone and this makes the CBOC a use-by-right without need to seek special permitting on the site.

The proposed CBOC site is near I-295 and I-95 (Maine Turnpike) providing convenient access from the north and south and Route 77 providing access from South Portland and Cape Elizabeth and points west. The site is also approximately one-half of a mile from the western edge of Portland's Historic downtown and Central Business District. Maine Medical Center, a 637-bed teaching hospital, is less than one-mile away to the north of the CBOC site and Mercy Hospital's Fore River Campus is located less than ½ mile from the site. The topography of the site includes a relatively level area (coinciding with the commercial zone) and a steeper area which is part of the residential zone. The site provides views south to the Fore River, South Portland

and Cape Elizabeth. West Commercial Street is a main entrance route to Portland and the CBOC's location and orientation will serve as a gateway to patients and travelers. As a result, the CBOC will visually communicate the VA's brand to the local public, establishing the VA as a recognized identity in the Portland community.



Important features that support the site selection by the VA include:

- Site is within the RLP's Area of Consideration;
- Zoned for Medical Clinic use;
- Conveniently accessed by major highways and downtown Portland; and
- Prominent site for VA branding.

SITE DESIGN

Clarity of site circulation is paramount for the success of the building, mitigating visitor anxiety at arrival and departure. The main public entrance to the 62,170 SF two-story (34,155 SF footprint) CBOC is located on West Commercial Street. The entrance is made prominent by elevated architectural masses on corresponding corners of the Clinic and a proposed 382-space precast concrete parking structure. A canopy is provided at the CBOC's entrance with space for three cars to drop-off and pickup. An outside seating gathering plaza is located adjacent to the entrance to allow family and patients a chance to spend time outside the CBOC in good weather.

The entrance to the 382-space patient garage is immediately to the east, directly off the entrance drive. The parking structure has three levels (two covered from weather) and is served by two passenger elevators in a weather tight vestibule. The garage pedestrian entrance is across from the CBOC's main entrance with well-marked crosswalks between them. The garage has two vehicular exits, one at the main entrance drive for quick pick-up and another at its east end leading to West Commercial

Staff parking is located on the west side of the Clinic and contains 152 spaces with its own entrance from West Commercial Street. A staff building entrance is located adjacent to the staff parking. Both the main

and staff entrances are separated from drive lanes by site bollards. Service vehicles enter at the east end of the site (behind the garage) and are restricted to the drive lane behind the garage and CBOC. The ambulance dock, mobile imaging station, dumpsters and loading dock are located behind the Clinic, out of site from patients and visitors. The CBOC and garage are located close to the street to limit the need for cutting into the hill behind the building and to control site costs. The basis for positioning of the buildings is primarily to allow patient/visitors access to the garage while being separated from the staff parking area. VA staff are to also enter the building separately from patients/visitors. Due to the long linear nature of the site, three access driveways are proposed. Each will have ample separation from nearby driveways including those on the opposite side of the street.

Service vehicles will exit the site onto West Commercial at the west end of the staff parking. Patient and service traffic are designed to avoid crossing each other on the site as much as possible. Development of this site requires modest cutting into the slope on its north side. Covered entries are provided at the mobile imaging pad, ambulance entry and a single loading dock at the rear of the building. The CBOC's main entrance is over 1,000' from the nearest main intersection (West Commercial Street and Beach Street).

Along the site frontage, the site design includes the development of a 10' wide paved pathway. This is consistent with the City's long-term goals as outlined in the West Commercial Street Multi-Modal Corridor Study. The City is pursuing development of the pathway from a point west of the site to a point east of the site. The development of the pathway along the site frontage will involve new curbing placement, a retaining wall to overcome topography and utility adjustments to the poles and to the existing sewer interceptor. The site lies within the Waterfront TIF District and it is expected that tax revenue attributable to the proposed development will be used to support the costs of this pathway.

Feature include:

- Prominent site entrance with segregated traffic patterns;
- Covered patient parking adjacent to the CBOC;
- Separate staff parking and entrance; and
- Discreetly located building service area.

BUILDING DESIGN

The primary concept for the buildings aims at creating a gateway through which patients and visitors enter the site, offering a clear means of access from West Commercial Street. This is achieved by raising the public lobbies and vertical circulation in the front corners of the Clinic and parking structure as a welcoming beacon. The design extends the public zones for each building across the frontage along West Commercial to take advantage of views to the Fore River and to create a positive environment for patients and family. Full-height glazing in the Clinic ensures that natural light will not only shower the public zones, but that it will also reach deep down clinical corridors to enrich the caregiver experience, as well.

The corner lobbies which create the gateway are designed with glass, not only to offer intelligibility to the users, but also to honor our veterans through the use of patriotic super-graphics on the backdrop of each lobby. The building communicates appreciation for the sacrifice of our service members, as well as give them



a respectful welcome at the front door. This motif is carried through the materiality of the building with a dual meaning for each material, one which speaks to the character of those for which the building serves, and the other to reference the local vernacular. Corrugated metal represents the unwavering strength of our service members and speaks to industrial military hangars and barracks, as well as referencing Portland's waterfront industry and shipping containers.

Along the parking structure, the corrugated metal is perforated and backlit, illustrating the underlying responsibility of the call to arms. In the same spirit, a randomized color variation in the brick represents the diverse cultural backgrounds of our veterans, while also nodding to Portland's traditional New England red brick. On the rear elevation, out of public view, a more cost-effective concrete masonry unit veneer is used.

BUILDING COMPONENTS

The Clinic is broken up into two major components: the frontage, which celebrates public functions, and the clinical box, designed for efficient team-based care. The building design climbs two stories with rooftop mechanical units, screened with a similar corrugated metal as the street-facing façade. The building envelope is designed to respond to the challenges of the local climate. Walls are designed to prevent moisture penetration and minimize heat loss and gain throughout the year. Exterior steel and metals are coated or galvanized to prevent corrosion, and the building envelope will minimize air leakage to and from occupied spaces and ensure condensation control with a continuous weather barrier. The brick, composite metal panel, and corrugated metal panel systems will layer onto 3" rigid insulation, air vapor barrier, exterior sheathing, and 8" cold-formed metal framing. The parking structure will be selectively clad in a randomized fashion with clip-mounted, perforated, and back-lit Kalzip metal panels.

All window glazing shall be low-E, insulated and laminated. Storefront doors shall be low-E, insulated and tinted. Window systems shall be double glazed and provided with a continuous thermal break between inner and outer sash. Windows in the clinical areas have been appropriately sized to allow natural light in and afford privacy to patients and staff. Frames shall be thermally broken. Windows in the security exam or holding rooms will be 7/16" thick laminated glass. The laminated glass will be placed on the interior of double-

glazed windows. The roof system will be designed according to the recommendations of the National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual. Low slope roof systems will be designed per FM global criteria, to local environmental conditions, utilizing sloped structural system. Roofing membrane system will be a layering of white EPDM roofing, coverboard, tapered insulation, vapor barrier, on metal decking. Roof walkways will be made of prefabricated roof walk pad with nonslip surfaces, on access routes to mechanical equipment that requires recurrent maintenance. Roof ladders, stair, and platforms will be provided as necessary to ensure the safety of maintenance workers.

Insulated galvanized metal doors or aluminum storefront doors will be provided, as appropriate. All doors will be a minimum of 3 feet wide in non-patient areas, and 3 feet 6 inches in patient areas. The main entrance doors will be automatic sliding doors of anodized aluminum construction with safety glazing. They will comply with the same energy efficiency requirements as the window systems. At the main entrance, staff entrance, and ambulance entrance, vestibules will provide an airlock. Other swinging exterior doors will be heavy duty, insulated, full-flush hollow steel construction. All exterior doors will be weather-stripped, self-closing, and outward opening. Latch guards and hinges with non-removable pins will deter tampering or unauthorized entry. Exterior details will be designed to preempt bird roosting.

Exterior structures that will be included in the overall campus design scheme include:

- Covered vehicle drop-off area at the main building entrance
- Staff-entry canopy
- Ambulance drop-off and canopy
- Mobile imaging pad and canopy
- Covered loading dock area

All covered walkways and service overhangs will be constructed of non-combustible materials and are integrated into the architectural style of the building. Walkways will be illuminated with integrated fixtures controlled by the site lighting system. Where required by the AHJ, walkways and overhangs will be fully sprinklered. Any service and equipment yards will be blocked from public view by screen walls that are architecturally compatible with the main building. The facility is designed to meet Federal and Local requirements for fire safety, physical security, accessibility, seismic, and sustainability standards per the terms of the solicitation for proposals and will be fully compatible with the VA's intended use.

Features include:

- Modern quality building with durable exterior materials;
- Articulated building elements for pleasing aesthetics and patient way finding;
- Covered and protected entrances; and
- Weather resistant and energy efficient envelope.

PLANNING & TENANT IMPROVEMENT

The VA space program is located on two floors in the CBOC. The program spaces have been laid-out with an emphasis on efficient and understandable layouts. The first floor is populated with Patient Aligned Care Team (PACT) spaces for ease of access to the greatest number of patients. Specialty clinics such as dental, eye, audiology, and mental health are located on the second level with ease of access by two-passenger elevators for redundancy. One freight elevator is also included. Each floor is organized by a light-filled lobby

and linear waiting area providing quick access to patient care areas. Floor plans are easily understandable with super graphics at clinic entrances and open patient corridors and secured staff circulation cores. All corridors are 6 feet in width and security measures will be included. Exterior windows are provided at the end of major circulation corridors for natural light and connection to the exterior. Minimum 9'-0" high ceilings will be provided throughout with 10' ceilings in larger spaces (>500SF).

Features include:

- Patient-centered design focused around team- based care;
- Efficient layouts for state-of-the-art treatment;
- Clear and consistent patient waiting and circulation patterns with abundant natural light; and
- Separation of open patient and secured staff circulation.

EXISTING CONDITIONS

The site is characterized as a relatively open space with limited vegetation of the lower flat area adjacent the street and a denser vegetative coverage along the steeper embankment at the rear of the site. A portion of the site frontage contains a granular lot area where vehicles, trailers, and equipment occasionally are parked. The site was formerly a rail yard and remnant tracks remain on the property.

- **Drainage** – Drainage in West Commercial Street is limited to just several catch basins that are tied to the CSO system. These are located to the west end of the site, thus the ability to convey stormwater off the site will require careful consideration.

- **Soils/Topography** – Preliminary investigations conducted by S.W. Cole Engineering and Summit Geoengineering indicate site soils consist of sand and gravel of thickness from 25' to 35' below grade with no initial evidence of shallow ledge, at least within the likely development area adjacent West Commercial Street. The top 2-foot layer of material does contain evidence of the site's historical rail use, including coal ash and brick fragments and this material will be properly buried onsite or removed for offsite disposal. This is relatively common on the Portland Peninsula. We are not aware of any wetland or natural resources on the site as evidenced by a wetlands review conducted by Rich Jordon PWS/CPESC, formerly of TRC, who found none of those features on the site. Depth to groundwater exceeds 10' thus, no impacts or constraints due to shallow groundwater are anticipated. The building foundations are planned as spread footings and deep foundations such as piles or other ground improvements are not anticipated for construction.

  The site topography consists of ground elevations varying from elevation 20.0' (NGVD29=City Datum) to elevation 25.0' within the flatter area from the ROW line back 160' or so. A steeper incline has the topography rising from elevation 25.0' up to elevation 95.0' or so at the rear of the property. The low sag in West Commercial Street is about elevation 14.85' and the crest in the street is about elevation 23.5'.

- **Surrounding Land Use** – The site is located along a gateway to the waterfront. AADT traffic volumes[1] along West Commercial Street are as follows:

  - AADT 16 US 1A Commercial Street Eastbound E/O Cassidy Point – 10,320
  - AADT 16 US 1A Commercial Street Westbound E/O Cassidy Point - 10,110

[1] *See 2017 Maine DOT Transportation Count Book*

The site is located directly opposite the relatively new Canal Landing Boat repair and maintenance facility that occupies about 17 acres on the south side of the street. That facility includes multiple large buildings and a recently completed travel lift basin along the site's privately-owned waterfront. The boat facility includes three driveway openings along West Commercial Street. West Commercial Street in front of most of the site consists of an 80' wide ROW and approximately 44' of pavement (containing two 14' wide travel lanes and 8' paved shoulders on each side).

North of the site there are residential properties along Danforth Street situated prominently well above due to a steep rise in topography. To the east is located commercial office property and to the west is a small seasonal restaurant. Southeast of the site is the Maine DOT International Marine Terminal that has been recently expanded for additional rail operations and support of Eimskip shipping terminal activity.

UTILITIES

- **Sanitary Sewer** – There is an existing 48" RCP Interceptor sewer located generally along the length of the site frontage of West Commercial Street. Tie-in to this sewer pipe will be required along with backflow prevention. The line is less than 10' off the front line and perhaps as little as 5' off the front line; it does not appear the pipe will result in conflict with any foundation construction, particularly for any building portion that is within the 10' maximum setback zone. Temporary sheeting and shoring during foundation installation may be required. There are also interceptor structures located on the far west end of the site that relate to the CSO and overflow lines to the river.

- **Water Supply** –There is an existing 16" supply main within West Commercial Street, running the length of the site. The main is located however mostly on the south side of the street, thus trenching across West Commercial Street will be required. This will involve multiple crossing of other utilities in the street that are of major consequence, including the 48" sanitary interceptor, an existing oil-encased 115 KVA underground electrical transmission line, and a 10" high pressure gas main. PWD records indicate water flows more than 1,200 GPM with pressures exceeding 100 psi, available in the vicinity.

- **Natural Gas** – A high pressure main is located within West Commercial Street. We believe that natural gas service will be readily available to the project, subject to confirmation by Unitil who is the supplier in the area.

- **Power** – Central Maine Power maintains overhead three phase electrical distribution along West Commercial Street in front of the site. There is an existing overhead system running the length of the site frontage. The location of the overhead lines will require careful review to assess setback from any proposed building walls and roofline, particularly if any portion of the building is located within the 10' maximum property line setback. CMP typically requires a 10' separation from their overhead lines to the building, and this may require even greater separation during construction. The new facility requires an underground 3-phase service extension to a new pad mount transformer(s).

  CMP also maintains an existing underground oil-encased 115 KVA transmission line that is located along the site frontage. The line is generally located 24" to 48" below grade. CMP also maintains an underground distribution bank on the south side West Commercial Street. Neither of these facilities are expected to be impacted by the development.

- **Communications** – Consolidated Communications (aka Fairpoint) and Spectrum provide telephone and cable services in the region and both have facilities on the existing overheads fronting the site. Other providers include Firstlight aka Oxford Networks, Maine Fiber, and the Portland Fire Department, all of whom may also have wires on the poles. High-speed data communications are also likely available at this location, subject to confirmation by one or more of these providers.

CONSTRUCTION SCHEDULE

The project is currently under design with a targeted construction start date for March 2020 and construction completion in early 2022.

A Construction Management Plan has been prepared by Landry French Construction and is appended to the Construction Management Plan section of this application.

GENERAL APPLICATION DOCUMENTS

RIGHT, TITLE & INTEREST

J.B. Brown & Sons currently owns the property as evidenced in the deed recorded in CCRD Book 29147 page 254 attached to this section. FDS JBB Portland LLC currently is entered into a Lease Agreement with the federal government for a 20-year period as evidenced by the attached redacted documents.

MAINE REAL ESTATE TAX PAID

RELEASE DEED

MAINE CENTRAL RAILROAD COMPANY, a corporation duly organized and existing under the laws of the State of Maine, with offices at 1700 Iron Horse Park, North Billerica, Middlesex County, Massachusetts (the "Grantor") in consideration of Seven Hundred Ninety Three Thousand and 00/100 ($793,000.00) Dollars paid to it by **J.B. BROWN & SONS,** with a mailing address of 36 Danforth Street, Portland, ME 04101 (the "Grantee") hereby grants to the Grantee all the Grantor's right, title and interest, without any warranties or covenants of title whatsoever, in a certain parcel of land, and the buildings, bridges, structures, crossings, fixtures and improvements thereon, if any, situated in Portland, County of Cumberland, State of Maine (the "Premises") described as follows:

SEE EXHIBIT "A" ATTACHED HERETO AND
MADE A PART HEREOF BY THIS REFERENCE.

This conveyance is subject to the following reservations, conditions, covenants and agreements:

1. This conveyance is made without granting any right of way, either by necessity or otherwise, over any remaining land or location of the Grantor.

2. ~~The Grantor hereby reserves an exclusive, permanent right of way and easement in, on, over, under, across and through the Premises for the purpose of accessing, constructing, installing, operating, maintaining, modifying, repairing, replacing, relocating and removing a telecommunications system or other system for transmission of intelligence or information by any means, whether now existing or hereafter devised, including such poles, pipes, wires, fibers, fiberoptic cables, repeater stations, attachments, appurtenances, structures or other equipment and property of any description necessary or useful for the same (the "Telecommunications Easement"). The Grantor further reserves the right to freely lease, license, mortgage, assign, pledge and otherwise alienate the Telecommunications Easement. The Grantee hereby covenants with the Grantor to recognize the Telecommunications Easement and, without the payment of any further consideration, to execute, acknowledge and deliver such instruments suitable for recording with the registry of deeds as the Grantor may reasonably~~

~~require to acknowledge title to the Telecommunications Easement in the Grantor. The Grantor covenants to reasonably repair and restore the surface of the easement area after any work.~~

3. ~~The Grantor excepts from this conveyance any and all railroad tracks, railroad track materials (including, but not limited to, ties, connections, switches and ballast) and/or related equipment of any description located in whole or in part within the Premises (the "Trackage") and this conveyance is subject to the right of the Grantor to enter the Premises from time to time and at any and all times within the ninety (90) day period commencing with and subsequent to the date of delivery of this deed, with such men, equipment and materials as, in the reasonable opinion of the Principal Engineering Officer of the Grantor, are necessary for the removal of the Trackage. Days during the months of December, January, February and March shall not be included in the aforesaid ninety (90) day period. If the Trackage is not removed from the Premises by the expiration of said ninety (90) day period, the Trackage shall be deemed abandoned by the Grantor and shall then become the property of the Grantee.~~

4. ~~The Grantor excepts from this conveyance any and all advertising signs and/or billboards located upon the Premises which are not owned by the Grantor. Furthermore, this conveyance is subject to the right of the owners of said signs and/or billboards to go upon the Premises and remove them within ninety (90) days from the date of delivery of this deed.~~

5. By the acceptance of this deed and as part consideration therefor, the Grantee hereby assumes any and all agreements, covenants, obligations and liabilities of the Grantor in respect to any underground facilities, drainage culverts, walls, crossings and/or other structures of any nature and description located in whole or in part within the Premises.

6. By the acceptance of this deed and as part consideration therefor, the Grantee agrees to irrevocably waives, gives up and renounces any and all claims or causes of action against the Grantor in respect of claims, suits and/or enforcement actions (including any administrative or judicial proceedings and any remedial, removal or response actions) ever asserted, threatened, instituted or requested by any person and/or governmental agency on account of: (a) any release of oil or hazardous materials or substances of any description on, upon or into the Premises in contravention of any ordinance, law or statute (including, but not limited to, the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S.C. Section 9601, et seq., as amended); and (b) any and all damage to real or personal property, natural resources and/or harm or injury to persons alleged to have resulted from such release of oil or hazardous materials or substances.

7. ~~By the acceptance of this deed and as part consideration therefor, the Grantee hereby agrees to build and forever maintain fences (together with any necessary gates), suitable to the Principal Engineering Officer of the Grantor, along the boundaries of the Premises which are common to remaining land or location of the Grantor (the "Fences"), if Fences are ever required in the sole and reasonable opinion of said Principal Engineering Officer.~~

8. ~~This conveyance is subject to the following restriction for the benefit of other land or location of the Grantor, to wit: that from the date of delivery of this deed, the Grantor shall not be liable to the Grantee or any lessee or user of the Premises (or any part thereof) for any damage to any buildings or property upon them caused by fire, whether communicated directly or indirectly by or from locomotive engines of any description upon the railroad operated by the Grantor, or otherwise.~~

9. ~~By the acceptance of this deed and as part consideration therefor, the Grantee hereby agrees to make no use of the Premises which, in the sole and reasonable opinion of the Principal Engineering Officer of the Grantor, adversely affects, increases or decreases drainage to, from, upon or in any remaining land or location of the Grantor. The Grantee agrees to indemnify and save the Grantor harmless from and against any and all loss, cost, damage or expense including, but not limited to, the cost of defending all claims and/or suits for property damage, personal injury or death arising out of or in any way attributable to any breach of the foregoing covenant.~~

10. ~~The Grantor excepts from this conveyance any and all overhead, surface or underground signal and communication line facilities of the Grantor located within the limits of the Premises and this conveyance is subject to the Grantor's use of any such facilities in their present locations and entry upon the Premises from time to time to maintain, repair, replace, renew, relay or remove such facilities.~~

11. The strikeout sections in this Deed are intentionally deleted.

12. Whenever used in this deed, the term "Grantor" shall not only refer to the **MAINE CENTRAL RAILROAD COMPANY**, but also its successors, assigns and affiliates and the term "Grantee" shall not only refer to the above-named Grantee, but also the Grantee's successors, assigns and grantees, as the case may be.

13. The several exceptions, reservations, conditions, covenants and agreements contained in this deed shall be deemed to run with the land and be binding upon the Grantee forever. In addition to the acceptance and recording of this deed, the Grantee hereby signifies assent to the said several exceptions, reservations, conditions, covenants and agreements, by joining in its execution.

IN WITNESS WHEREOF, the said **MAINE CENTRAL RAILROAD COMPANY** has caused this release deed to be executed in its name and its corporate seal to be hereto affixed by David A. Fink, its President, thereunto duly authorized this 21st day of November, 2011.

GRANTOR:
MAINE CENTRAL RAILROAD COMPANY

Witness

By: David A. Fink
David A. Fink, President

SEAL

GRANTEE:
J.B. BROWN & SONS

Witness

By: Vincent P. Veroneau

Print Name: Vincent P. Veroneau

COMMONWEALTH OF MASSACHUSETTS

Middlesex, ss. 11/21, **2011**

On this 21st day of November, 2011, before me, the undersigned notary public, personally appeared the above-named David A. Fink, the President of the **MAINE CENTRAL RAILROAD COMPANY** as aforesaid, proved to me through satisfactory evidence of identification, which was personal knowledge, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose.

Notary Public: Roland L. Theriault
My Commission Expires:

ROLAND L. THERIAULT
Notary Public
Commonwealth of Massachusetts
My Commission Expires
August 5, 2016

STATE OF MAINE

Cumberland, **ss.** 11/23, **2011**

On this 23rd day of November, 2011, before me, the undersigned notary public, personally appeared the above-named Vincent P. Veroneau, of **J.B. Brown & Sons**, as aforesaid, proved to me through satisfactory evidence of identification, which was personally known to me, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose.

Notary Public:
My Commission Expires:

Attorney at Law
David L. Galgay Jr
BAR # 003643

Exhibit A

A certain lot or parcel of land, with the buildings thereon, situated on the northerly side of West Commercial Street, in the City of Portland, County of Cumberland, and State of Maine, bounded and described as follows:

Beginning at a point on the northerly sideline of West Commercial Street, on the westerly sideline of the former Emery Street now land of J. B. Brown and Sons;

Thence, S 66°06'27" W along the northerly sideline of said West Commercial Street 784.47 feet;

Thence, S 71°39'57" W along the northerly sideline of said West Commercial Street 731.36 feet;

Thence, S 80°52'21" W along the northerly sideline of said West Commercial street 437.92 feet to the West Commercial Street off-ramp;

Thence, along said off-ramp, the following courses and distances:

Northwesterly, along a curve to the right having a radius of 1023.32 feet, a delta of 7°02'02", and whose chord bears N 88°49'29" W, a distance of 125.55 feet, an arc length of 125.63 feet;

N 66°06'38" W a distance of 93.96 feet;

Northwesterly, along a curve to the left, having a radius of 194.00 feet, a delta of 38°27'00", and whose chord bears N 85°20'08" W, a distance of 127.76 feet, an arc length of 130.19 feet;

S 75°26'22" W a distance of 33.57 feet;

Thence, N 81°44'16" W along land now or formerly of the State of Maine 171.41 feet;

Thence, N 08°15'44" E along land of said State of Maine 22.46 feet to the southerly sideline of Danforth Street;

Thence along said Danforth Street the following courses and distances:

N 83°43'02" E a distance of 96.39 feet;

Northeasterly, along a curve to the left, having a radius of 1042.16 feet, a delta of 12°51'52", and whose chord bears N 77°17'06" E, a distance of 233.50 feet, an arc length of 233.99 feet;

N 70°51'10" E a distance of 187.93 feet;

Northeasterly, along a curve to the right, having a radius of 800.00 feet, a delta of 2°21'41", and whose chord bears N 72°02'04" E, a distance of 32.97 feet, an arc length of 32.97 feet to land now or formerly of South Rise Condominiums;

Thence along said South Rise Condominium land the following courses and distances:
S 11°41'22" E a distance of 168.00 feet;
N 81°56'51" E a distance of 271.00 feet;
N 77°01'13" E a distance of 96.62 feet;
N 75°17'24" E a distance of 51.37 feet to land now or formerly of Shaw;

Thence, N 72°46'26" E along land of said Shaw 94.47 feet;

Thence, N 35°07'51" W along land of said Shaw 69.73 feet to the southerly terminus of "K" Street;

Thence, along said "K" Street, along the southerly side of a 40 foot passageway and the terminus of "E" Street the following courses and distances:

N 55°46'28" E a distance of 17.74 feet;
N 55°46'28" E a distance of 58.47 feet;
N 54°19'46" E a distance of 397.81 feet to land now or formerly of the City of Portland;

Thence, S 35°05'23" E along land of said City of Portland 56.55 feet;

Thence, N 69°03'30" E along land of said City of Portland and land now or formerly of Noonan 85.21 feet;

Thence, N 34°36'51" W along land of said Noonan 92.60 feet to land now or formerly of McFarland;

Thence, N 54°37'05" E along land now or formerly of McFarland, Curtis, Dilworth, Moberg, McDonough and Robertson 367.27 feet to land now or formerly of Pollard & Lantos;

Thence, S 35°47'03" E along land of said Pollard & Lantos 119.22 feet;

Thence, N 54°52'09" E along land of said Pollard & Lantos, and land now or formerly of Bessire and Dyro 441.22 feet to the centerline of Emery Street;

Thence, S 35°05'32" E along the centerline of Emery Street, 153.86 feet;

Thence, N 55°14'50" E a distance of 30.00 feet to the easterly sideline of Emery Street;

Thence, S 35°05'32" E along said easterly sideline, 24.61 feet to the intersection of the easterly side of Emery Street at its intersection with the southerly sideline of Salem Street;

Thence, S 55°14'50" W along land now or formerly of J. B. Brown 60.00 feet;

Thence, S 35°05'22" E along land now or formerly of J. B. Brown 172.39 feet to West Commercial Street and the point of beginning, containing 10.65 acres, more or less. Also

conveying all right, title and interest of Maine Central Railroad Company in and to Emery Street lying within and adjacent to the land herein conveyed.

Reference, is made to a survey by Owen Haskell, Inc. dated October 13, 2011
Job # 2010-095P for a further description of the above described premises.

Reference is also made to the premises conveyed in that certain deed from the Portland Terminal Company to the Maine Central Railroad Company dated December 30, 1985 and recorded in the Cumberland County Registry of Deeds in Book 7026, Page 192.

3607968_1

Received
Recorded Register of Deeds
Nov 23,2011 12:54:33P
Cumberland County
Pamela E. Lovley

GENERAL APPLICATION DOCUMENT

TECHNICAL CAPABILITY

The applicant has retained a highly qualified team of professionals to undertake planning, permitting and design tasks on this project. Services will be provided by the following companies and their respective team leaders:

Civil Engineer	Stephen Bushey, P.E. Gorrill-Palmer Consulting Engineers 707 Sable Oaks Drive South Portland, Maine 04106 (207) 772-2515 – Work sbushey@gorrillpalmer.com
Architect	**VA Clinic** SmithGroup 100 High Street, Suite 1800 Boston,MA 02110 (617)-502-3558 Attn: Greg Heppner, AIA, NCARB Greg.heppner@smithgroup.com **Garage** Ryan Senatore 500 Congress Street, Suite 2 Portland, Maine 04101 (207) 747-5159 ryan@senatorearchitecture.com
Surveyor	Nick Elliston Titcomb Associates 133 Gray Road Falmouth, ME 04105 (207) 797-9199 – Work Nelliston@titcombsurvey.com
Traffic Engineer	William Bray, P.E. Traffic Solutions 17 Mountview Drive Gorham, Maine 04038 (207) 400-6890 – Work trafficsolutions@maine.rr.com
Geotechnical Consultant	Bill Peterlien, P.E. Summit Geoengineering Services 145 Lisbon Street PO BOX 7216 Lewiston, Maine 04243 (207)576-3313 bpeterlein@summitgeoeng.com

Developer	Claiborne Williams FD Stonewater 1001 N. 19th Street, Suite 930 Arlington, VA 22209 (202) 669-8142 cwilliams@fdstonewater.com Vin Veroneau – President/CEO J.B. Brown & Sons 10 Free Street Portland, Maine 04101 (207) 774-5908 veroneau@jbbrown.com
Construction Manager	Kevin French Landry French Construction 160 Pleasant Hill Road Scarborough, Maine 04074 (207) 730-5563 kfrench@landryfrenchconstruction.com

The team of consultants retained has expertise and experience in the design of similar institutional projects. Resumes of key personnel for development team can be provided upon request.

GENERAL APPLICATON DOCUMENT

FINANCIAL CAPACITY

The Applicant, FBS JBB Portland, LLC has adequate financial resources to undertake this project as evidenced by the following:

- FB Stonewater is a boutique real estate brokerage, investment, development and asset management firm with national capabilities. They have completed over 1 million square feet of high-quality development projects for federal and commercial tenants while also managed over $500 million in real estate assets, totaling more than 5 million square feet. The firm has greater than 25 years of ownership and asset management and considered highly qualified to manage and support the proposed project. See http://fdstonewater.com/html/ for further background on the firm.

- JB Brown & Sons is a commercial property management and development company with perhaps the longest history of property ownership in the City. Long known for its stable ownership and conservative long-term outlook of real estate in the City, the firms partnering with FB Stonewater will provide a most capable team to meet the needs of the Veterans Administration. JB Brown & Sons has owned the development site since 2011. The property was original owned by JJB going back to the 1800's until Portland Terminal Co purchased in the early 1900s and conducted railroad activity on the site for nearly 100 years.

The estimated full cost of the project is projected to be $30 million. A copy of the Financial Capacity letter is included with this section.

November 12, 2019

City of Portland Planning Division
389 Congress Street, 4th Floor
Portland, ME 04101

Re: J.B. Brown & Sons - VA Building - West Commercial Street

Dear Planning Board Members:

I am writing to support the proposed Veteran's Administration project on West Commercial Street being developed by FDS JBB Portland JV, LLC.

J.B. Brown & Sons, a partner in the development company, is an experienced developer and commercial real estate owner and manager in the Greater Portland area. The company has completed a number of successful projects in recent years including the 25 High Street condominium project, the Portland Marriott Courtyard, and is currently under construction of the recently approved residential/retail building at 40 Free Street in Portland, to name a few. Financially, the company is stable with sufficient cash flow, liquidity, and balance sheet strength to finance the project. We provide financing for a number of the company's projects, and all loan obligations and deposit accounts with NBT Bank have been handled in a fully satisfactory manner.

We have reviewed the preliminary information for the proposed project, and based on the information we have, NBT Bank has provided preliminary terms for financing the project. Our interest remains subject to full credit underwriting by NBT's credit department and approval from NBT's loan committee. Based on the company's track record and financial strength, I have a high degree of confidence that NBT's loan committee will approve the loan request and provide a commitment to finance the project.

Please do not hesitate to contact me if you have further questions.

Respectfully,

Kimberly Twitchell
Regional President
NBT Bank

5 Widgery Wharf, Portland, Maine 04101
Phone: 207-808-4487 · Fax 207.773.5015

GENERAL APPLICATION DOCUMENT

ZONING ASSESSMENT

See attached Zoning Assessment Table and project site plans for additional information.

ZONING ANALYSIS Relevant Zone(s) B-5b and Waterfront TIF District

All Projects:

	Required	Proposed
Lot Size	None	8.4 AC
Area Per Dwelling Unit		
Minimum Street Frontage		
Front Yard ~~Minimum~~ Setback		
Front Yard Maximum		
Rear Yard	10 FT	8.9 FT
Yard Right	NONE	123 FT
Yard Left	NONE	5 FT
Side Street Setback		
Step Back		
Maximum Lot Coverage	100%	<60%
Minimum Lot Coverage		
Maximum Height	55 FT	
Open Space		
Maximum Impervious Area		
Pavement Setback		
Floor Area Ratio		
Off Street Parking Spaces		
Loading Bays	155	540
Other 1		
Other 2		
Other 3		

NOT APPLICABLE

Planned Residential Unit Developments (PRUD) Requirements

	Required	Proposed
Minimum Lot Size		
Minimum Lot Area per Dwelling		
Maximum # Units per Building		
Maximum Building Length		
Maximum Accessory Building Length		
Minimum Setbacks		
Minimum Building Separation		
Minimum Open Space		

Affordable Housing Density Bonuses (if applicable)

	Bonus Increase or Decrease	Maximum Allowable With Bonus	Proposed
Density			
Height			
Setback Reduction			
Recreation Space			
Maximum Accessory Building Length			
Minimum Setbacks			
Minimum Building Separation			
Minimum Open Space			
Explanatory Text 1 (optional):			
Explanatory Text 2 (optional):			
Explanatory Text 3 (optional):			

GENERAL APPLICATION DOCUMENT

WAIVER REQUESTS

The Accompanying Waiver Table provides a description of the applicable waiver requests and supporting evidence for these requests.

Standard to be Waived: Cite Ordinance or Technical Manual Standard	**Cite Standard Language:** Cite specific language of applicable Ordinance or Technical Manual Standard	**Waiver Being Sought:** Describe waiver being sought. Ex. – We are requesting a two-way parking lot drive aisle width of 20'.	**Justification for Waiver:** Address specific waiver criteria, if applicable, and document reasons for the waiver request.
Technical Standard – Transportation Standards – Number of Driveways 1.7.2.8	*No more than two (2) driveways shall be permitted for ingress and egress purposes to any commercial, industrial or residential (with 10 or more parking spaces) site.*	We are requesting three site driveways along West Commercial Street due to the site conditions including length/street frontage and proposed driveway separation.	The site conditions include narrow lot depth that restrict ease of onsite circulation. The staff parking lot requires a driveway connection as it is separate by distance to the parking garage. The parking garage is proposed to have two entrances (one on each end of the building) and the lot depth doesn't' allow for easy connectivity and consolidation of these access conditions.
Technical Standards – Transportation Standards –Bicycle Parking (14-526 (a) 4 b)	*(b) Non-residential structures. Two (2) bicycle parking spaces for every ten (10) vehicle parking spaces for the first one hundred (100) required vehicle parking spaces, plus one (1) bicycle parking space for every twenty (20) required motor vehicle parking space over one hundred (100) required vehicle parking spaces.*	The applicant is requesting a waiver of the required number of bicycle parking spaces as that would exceed well over 50 bike spaces which is considered excessive for the clinic use.	The proposed development is expected to generate a reduced demand for bicycle parking due to the services provided.

SITE DESIGN

The following statements are provided in accordance with the submission and Section 14-526 of the ordinance.

(d) Site Design Standards.

Massing, Ventilations and Wind Impact (14-526 (d) 1)

- *Wind and ventilation impacts on adjoining structures and/or adjacent public spaces. Wind study, if applicable.*
- *Bulk, location or height impacts on adjoining structures*
- *Identify and locate HVAC equipment and venting away from public spaces and residential properties*
- *Identify screening and manufacturing specifications for noise, if applicable*

1. *Massing, Ventilation and Wind Impact:*

   a. The project proposes construction of a new two-story VA Clinic building and a 3 level parking garage. The project will not result in any significant changes to the wind environment proximate to the site. There are no abutting structures or uses that might be impacted by the proposed buildings, as the site is somewhat isolated from nearby neighborhoods.

   b. The project will not result in any significant impacts to abutting properties and is consistent with the B-5b zone and other zoning/city standard considerations. The proposed Clinic and parking garage will be lower than the allowable building height in the zone and their unique positioning at the base of the West end bluff off Danforth Street overlooking the waterfront, will minimize any visual impacts to the residential areas nearby as well as fitting in well with the gateway that West Commercial Street provides.

   c. HVAC venting, if necessary, will be directed through building roof top mounted units and will not impact any adjacent public spaces or residential properties.

Shadows (14-526 (d) 2), if applicable

- Shadow analysis of impacts on publicly accessible open space (Technical Manual, Section 11)

2. *Shadows:*

   a. The buildings at the site will not cast significant shadows onto neighboring properties, or block access to direct sunlight for structures utilizing solar energy. The Site Layout Plan and Grading and Drainage Plan show the proposed site improvements and their relationships to property lines. The grading plan shows the relative elevations of the building with respect to elevations along the property lines.

Snow and Ice Loading (14-526 (d) 3)

- *Building design to prevent snow and ice from loading or falling onto adjacent properties or public ways.*

3. Snow and Ice Loading:

a. The buildings have been designed and located such that accumulated snow and ice will not fall onto adjacent properties or public ways. Snow will be removed from the parking lots and stockpiled within the site perimeter or if necessary removed from the site.

View Corridors (14-526 (d) 4), if applicable

- *Protection of designated view corridors (Portland Design Manual, Appendix 1)*

4. View Corridors:

a. The project entails construction of a two-story building and three level parking garage in manner that is compliant with the B-5b Zone. The site is considered a primary gateway entrance into the Old Port and the building will provide a great opportunity to enliven and bring increased vibrancy to this end of Commercial Street. The site does not block views from nearby properties. The site is not located within any corridors identified in the Downtown Vision View Corridor Protection Plan. The Boat Yard construction on the opposite side of the street introduces similarly sized buildings to the area.

Historic Resources (14-526 (d) 5), if applicable

- *Identify developments within Historic Districts or affecting Designated Landmarks*
- *Certificate of Appropriateness or other evidence*
- *Identify Developments within 100 feet of Historic Districts or affecting Designated Landmarks. Advisory HP review may be required*
- *Address preservation and documentation of Archaeological Resources*

5. Historic Resources:

a. The development is not located in a historic district, historic landscape district or City designated landmark.

b. The development is not located adjacent to or within 100 feet of a designated landmark, historic district, or historic landscape district.

c. There are no known remaining archaeological resources on the site.

Exterior Lighting (14-526 (d) 6)

- *Cut sheets of on-site light fixtures and any architectural or specialty lights (Technical Manual, Section 12)*
- *Engineered details for any lights proposed in street right-of-way (Technical Manual, Section 10)*

6. Exterior Lighting:

a. Site Lighting

(i) All new exterior lighting at the site will be full cutoff with no light emitted above the horizontal plane, and in accordance with Section 12 of the Technical Manual. A photometric Lighting Plan has been prepared by Swaney Lighting Consultants to demonstrate illumination levels throughout

the site will be consistent with City Standards. A copy of the cut sheets are included at the end of this section.

b. Architectural and Specialty Lighting

(i) Not applicable to the project.

c. Street Lighting

(i) There are existing area lights along drives West Commercial Street. Additional Trail/ Waterfront lighting will be positioned along the new 10' pathway in accordance with the Technical Manual.

Noise and Vibration (14-526 (d) 7)

- *Evidence of noise levels for equipment, such as equipment specifications, to demonstrate consistency with zoning requirements*

7. Noise and Vibration:

All heating, ventilation, air conditioning equipment including air handlers and generators are designed to meet local, state, and federal emissions and noise requirements. Most of the HVAC equipment is mounted in the middle of the roofs to minimize visibility. Any additional ground mounted equipment for the buildings will be screened. Equipment cut sheets can be provided upon request.

Signage and Wayfinding (14-526 (d) 8), if applicable

- *Signage plan showing the location, dimensions, height and setback of all existing and proposed signs. Signs in Historic Districts are reviewed by Historic Preservation staff*
- *Proposed commercial and directional signage on site*

8. Signage and Wayfinding:

a. All street and wayfinding signage shall meet the requirements of the Manual on Uniform Traffic Devices (MUTCD) and Division 22 of the City Code.

(i) The project is not located in a historic district or subject to Article IX.

(ii) Proposed wayfinding signage is identified in the Site plan.

(iii) All street and wayfinding signage shall meet the requirements of the Manual on Uniform Traffic Devices (MUTCD) and Division 22 of the City Code.

Zone Related Design Standards (14-526 (d) 9)

- Address Historic Preservation Design Review, if applicable
- Address any applicable design review standards by zone

- Address submission requirements from Design Manual, page 1, addressing neighborhood context
- Description of exterior materials, color, finish, and samples

9. Zoning Related Design Standards:

In accordance with part (c) of the Design Manual the following evidence of compliance is provided for each of the standards:

(c) B-5 and B5_b Urban Commercial Business Zones

(1) Standards

a. Shared Infrastructure – the development site does not specifically benefit from any substantial adjacent development given the site size and configuration, thus the opportunity to share infrastructure is limited. The objective of the parking garage positioning is to allow for shared use between the Clinic and tenants of the Star Match Building to the east. In fact, an additional parking deck is included in the design to allow for that shared parking capacity between the properties. The site development program is configured with three driveways that will also allow for shared use between the clinic and the parking garage, although shared vehicular access is not contemplated at this time.

b. The proposed buildings are positioned to comply with the maximum 10 foot building setback requirement from the street line thus satisfying this standard for proximity to the street.

c. The Clinic orientation prominently places the entry locations at the front of the building along with prominent window facades that will clearly communicate the VA mission and identify to the public. Tower elements on both the Clinic and garage building anchor and link each building and their entries to each other as well as to the street.

d. The surface parking lot for VA Clinic staff is located to the side of the building primarily due to the topographic limitations of the property. The parking garage is located in a manner to allow shared capacity with the Star Match Building to the east.

JOB _____ TYPE _____

NOTES _____ APPROVALS _____

FEATURES

- Elegant form factor
- High performance optics provide up to 17,500 delivered lumens
- Diffusion lens for low glare comfort
- NX™ wireless control options
- IP66

CERTIFICATIONS

c UL us LISTED

ida DARK SKY APPROVED 2016

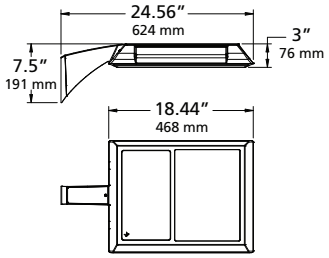
3000K and warmer CCTs only

DLC QPL LISTED PREMIUM

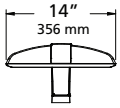
DLC QPL LISTED

SPECIFICATIONS





EPA Side View .64



EPA Front View .37

Weight: 21.5 lbs / 9.75 kg

ORDERING CODE

Series
ALT1 Altitude

LED Engine
No Lens
28L-20 3,000 lm
28L-40 5,000 lm
28L-60 7,500 lm
28L-85 10,000 lm
54L-95 12,500 lm
54L-120 15,000 lm
54L-155 17,500 lm

CCT
AM Amber
3K7 3000K, 70 CRI
4K7 4000K, 70 CRI
5K7 5000K, 70 CRI
3K8 3000K, 80 CRI
4K8 4000K, 80 CRI
3K9 3000K, 90 CRI

Distribution
FR Type 1/Front Row
2 Type II
3 Type III
4 Type IV
4W Type IV Wide
5QM Type V Square Medium
5QN Type V Square Narrow
5R Type V Rectangular
5W Type V Wide (Round)

Rotation
Blank for no rotation
L[1] Optic rotation left
R[1] Optic rotation right

Voltage
UNV 120-277V
347 347V
480 480V

Mounting
ASQ Arm Square pole
A34 Arm mt 3.3-4.2" OD pole
A46 Arm mt 4.5-6.0" OD pole
MAF Horizontal Slipfitter 2 3/8"OD arm
SVSF Vertical Slipfitter Mount square for 2" pipe tenon, (2-3/8" O.D.)
VSF Vertical Slipfitter Mount for 2" pipe tenon, (2-3/8" O.D.)
WB Wall Bracket for area wall mount

Fixture Finish
BL Black
DB Dark Bronze
GT Graphite
LG Light Gray
PS Platinum Silver
TT Titanium
WH White
CC Custom Color†
†Consult factory

Control Options
7PR 7 pin PCR, wireless control enabled
7PR-TL 7 pin PCR with twist lock photocontrol
7PR-SC 7 pin PCR with shorting cap
AD-01[2] AstroDIM: 50% output at midnight
AD-02[2] AstroDIM: 50% output midnight to 4 AM
AD-03[2] AstroDIM: 50% output 10PM
AD-04[2] AstroDIM: 50% output 10PM to 4AM
NXSP14F[2,3] Wired NX, PIR Occupancy Sensor, Dimming Daylight Harvesting, 14'
NXSP30F[2,3] Wired NX, PIR Occupancy Sensor, Dimming Daylight Harvesting, 30'
NXSPW14F[2,3] NX Wireless, PIR Occupancy Sensor, Dimming Daylight Harvesting, 14'
NXSPW30F[2,3] NX Wireless, PIR Occupancy Sensor, Dimming Daylight Harvesting, 30'
NXWE NX Wireless Enabled
SCL-8F Low voltage sensor for 3rd party wireless controls via 7PR. For mounting heights up to 8'
SCL-40F Low voltage sensor for 3rd party wireless controls via 7PR. For mounting heights 9' to 40'
SCP-8F Remote control programable line voltage sensor, use with SCPREMOTE
SCP-40F Remote control programable line voltage sensor, use with SCPREMOTE
SWP[2,3,4] Site Sync™ Pre Commission Wireless Module
SWPM-40F[2,3,4] Site Sync with Sensor 9' to 40' MH

Options
BC[5] Backlight Control
SF Single Fuse
DF Double Fuse
TB Terminal Block
CLR Clear Lens
HDL[6] Diffuse Lens

Control Accessories
SCPREMOTE Remote control for SCP option. Order at least one per project to program and control the occupancy sensor
SW7PR SiteSync™ on fixture module via 7PR
SWUSB SiteSync™ Software on USB
SWTAB SiteSync™ Windows Tablet
SWBRG SiteSync™ Wireless Bridge Node
SWFC SiteSync™ Field Commission Service
WIR-RME-L wiSCAPE™ External Fixture Module
NXOFM-1R1D-UNV NX External Contol Node

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1 Not available with 5QM and 5W distributions.
2 Not available with other sensor or wireless control options.
3 Not available in 480V.
4 Specify group and zone at time of order. See www.hubbelllighting.com/sitesync for more details. Order at least one SiteSync interface accessory SWUSB or SWTAB. Each option contains SiteSync License, GUI, and Bridge Node.
5 Not available with Type 5 distributions, CLR, or HDL option.
6 Only available in Type 3 or Type 5W

Kim Lighting reserves the right to change specifications without notice.

LUMINAIRE PERFORMANCE

LED #	Nominal Lumen Package	Nominal Wattage	Lens Options	Distribution	3000K 70CRI					4000K 70CRI					5000K 70CRI				
					Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
						B	U	G			B	U	G			B	U	G	
28L	3,000	20	No Lens	FR	3110	0	0	0	141	3274	0	0	0	149	3318	1	0	0	148
				FR-BC	2036	0	0	0	93	2143	0	0	0	97	2172	0	0	0	97
				2	2903	1	0	1	132	3056	1	0	1	139	3097	1	0	1	138
				2-BC	1771	0	0	0	80	1864	0	0	0	85	1889	0	0	0	84
				3	2945	1	0	1	131	3100	1	0	1	138	3141	1	0	1	140
				3-BC	1779	0	0	1	81	1873	0	0	1	85	1898	0	0	1	85
				4	2943	0	0	1	134	3098	0	0	1	141	3139	0	0	1	141
				4-BC	2189	0	0	1	100	2304	0	0	1	105	2335	0	0	1	104
				4W	2927	1	0	1	133	3081	1	0	1	140	3122	1	0	1	139
				4W-BC	1673	0	0	1	76	1761	0	0	1	80	1785	0	0	1	80
				5R	3025	2	0	2	137	3184	2	0	2	145	3227	2	0	2	144
				5QM	3069	2	0	0	139	3230	2	0	0	147	3273	2	0	0	146
				5QN	3051	2	0	0	139	3211	2	0	0	146	3254	2	0	0	145
				5W	3024	2	0	1	137	3183	2	0	1	145	3226	2	0	1	144
			Clear Lens	FR	2909	0	0	0	132	3062	0	0	0	139	3103	0	0	0	141
				2	2715	1	0	1	123	2858	1	0	1	130	2896	1	0	1	132
				3	2754	1	0	1	125	2899	1	0	1	132	2938	1	0	1	134
				4	2752	0	0	1	125	2897	0	0	1	132	2936	0	0	1	133
				4W	2738	1	0	1	124	2882	1	0	1	131	2920	1	0	1	133
				5R	2829	2	0	2	129	2978	2	0	2	135	3018	2	0	2	137
				5QM	2870	2	0	0	130	3021	2	0	0	137	3062	2	0	0	139
				5QN	2853	2	0	0	130	3003	2	0	0	137	3044	2	0	0	138
				5W	2829	2	0	1	129	2977	2	0	1	135	3017	2	0	1	137
			HDL Lens	3	2341	1	0	1	106	2464	1	0	1	112	2497	1	0	1	114
				5W	2405	1	0	1	109	2531	1	0	1	115	2565	1	0	1	117

Lumen Multiplier		
CCT	80 CRI	90 CRI
3000K	0.9119	0.7033
4000K	0.8941	N/A

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LUMINAIRE PERFORMANCE

LED #	Nominal Lumen Package	Nominal Wattage	Lens Options	Distribution	3000K 70CRI					4000K 70CRI					5000K 70CRI				
					Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
						B	U	G			B	U	G			B	U	G	
28L	5,000	40	No Lens	FR	4870	1	0	0	128	5127	1	0	0	135	5195	1	0	0	137
				FR-BC	3189	0	0	0	84	3356	0	0	0	88	3401	0	0	0	90
				2	4546	1	0	1	120	4785	1	0	1	126	4849	1	0	1	128
				2-BC	2773	0	0	1	73	2919	0	0	1	77	2958	0	0	1	78
				3	4611	1	0	2	121	4854	1	0	2	128	4919	1	0	2	129
				3-BC	2786	0	0	1	73	2933	0	0	1	77	2972	0	0	1	78
				4	4608	1	0	2	121	4851	1	0	2	128	4915	1	0	2	129
				4-BC	3428	0	0	1	90	3608	0	0	1	95	3656	0	0	1	96
				4W	4584	1	0	2	121	4825	1	0	2	127	4889	1	0	2	129
				4W-BC	2621	0	0	1	69	2758	0	0	1	73	2795	0	0	1	74
				5R	4737	2	0	2	125	4986	3	0	1	131	5053	3	0	3	133
				5QM	4806	2	0	1	126	5058	2	0	1	133	5126	2	0	1	135
				5QN	4777	2	0	0	126	5028	2	0	0	132	5096	2	0	0	134
				5W	4736	3	0	1	125	4985	2	0	2	131	5052	3	0	1	133
			Clear Lens	FR	4555	1	0	0	120	4795	1	0	0	126	4859	1	0	0	128
				2	4252	1	0	1	112	4476	1	0	1	118	4536	1	0	1	119
				3	4333	1	0	1	114	4561	1	0	1	120	4622	1	0	1	121
				4	4310	0	0	2	113	4537	1	0	2	119	4598	1	0	2	121
				4W	4287	1	0	2	113	4513	1	0	2	119	4573	1	0	2	120
				5R	4431	2	0	2	117	4663	2	0	2	123	4726	2	0	2	124
				5QM	4495	2	0	1	118	4731	2	0	1	125	4794	2	0	1	126
				5QN	4468	2	0	0	118	4703	2	0	0	124	4766	2	0	0	125
				5W	4430	3	0	1	117	4663	3	0	1	123	4725	3	0	1	124
			HDL Lens	3	3741	1	0	1	98	3937	1	0	1	104	3990	1	0	1	105
				5W	3891	2	0	1	102	4095	2	0	1	108	4150	2	0	1	109

Lumen Multiplier		
CCT	80 CRI	90 CRI
3000K	0.9119	0.7033
4000K	0.8941	N/A

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LUMINAIRE PERFORMANCE

LED #	Nominal Lumen Package	Nominal Wattage	Lens Options	Distribution	3000K 70CRI					4000K 70CRI					5000K 70CRI				
					Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
						B	U	G			B	U	G			B	U	G	
28L	7,500	60	No Lens	FR	7347	1	0	1	122	7733	1	0	1	129	7837	1	0	1	131
				FR-BC	4810	0	0	0	80	5063	0	0	0	84	5131	0	0	0	86
				2	6858	1	0	2	114	7218	1	0	2	120	7315	1	0	2	122
				2-BC	4183	0	0	1	70	4403	0	0	1	73	4462	0	0	1	74
				3	6956	1	0	2	116	7322	1	0	2	122	7420	1	0	2	123
				3-BC	4203	0	0	1	70	4424	0	0	1	74	4483	0	0	1	75
				4	6951	1	0	2	116	7317	1	0	2	122	7415	1	0	2	124
				4-BC	5171	0	0	2	86	5443	0	0	2	91	5516	0	0	2	92
				4W	6915	1	0	2	115	7278	1	0	2	121	7376	1	0	2	123
				4W-BC	3953	0	0	2	66	4161	0	0	2	69	4216	0	0	2	70
				5R	7145	3	0	3	119	7521	3	0	3	125	7622	3	0	3	127
				5QM	7249	3	0	1	121	7630	3	0	1	127	7732	3	0	1	129
				5QN	7206	3	0	0	120	7585	3	0	0	126	7687	3	0	0	128
				5W	7144	3	0	2	119	7520	3	0	2	125	7620	3	0	2	127
			Clear Lens	FR	6872	1	0	1	115	7233	1	0	1	121	7330	1	0	1	122
				2	6414	1	0	2	107	6751	1	0	2	113	6842	1	0	2	114
				3	6506	1	0	2	108	6848	1	0	2	114	6940	1	0	2	116
				4	6502	1	0	2	108	6844	1	0	2	114	6935	1	0	2	116
				4W	6468	1	0	2	108	6807	1	0	2	113	6899	1	0	2	115
				5R	6683	3	0	3	111	7035	3	0	3	117	7129	3	0	3	119
				5QM	6780	3	0	1	113	7137	3	0	1	119	7232	3	0	1	121
				5QN	6740	2	0	0	112	7094	3	0	0	118	7189	3	0	0	120
				5W	6682	3	0	2	111	7033	3	0	2	117	7128	3	0	2	119
			HDL Lens	3	5531	2	0	1	92	5821	2	0	1	97	5899	2	0	1	98
				5W	5680	2	0	1	95	5979	2	0	1	100	6059	2	0	1	101

Lumen Multiplier		
CCT	80 CRI	90 CRI
3000K	0.9119	0.7033
4000K	0.8941	N/A

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LUMINAIRE PERFORMANCE

LED #	Nominal Lumen Package	Nominal Wattage	Lens Options	Distribution	3000K 70CRI					4000K 70CRI					5000K 70CRI				
					Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
						B	U	G			B	U	G			B	U	G	
28L	10,000	85	No Lens	FR	9699	1	0	1	113	10209	1	0	1	119	10346	1	0	1	120
				FR-BC	6350	0	0	1	74	6684	0	0	1	78	6773	0	0	1	79
				2	9054	1	0	2	105	9530	2	0	2	111	9657	2	0	2	112
				2-BC	5523	0	0	1	64	5813	0	0	1	68	5891	0	0	1	68
				3	9183	1	0	2	107	9666	1	0	2	112	9795	1	0	2	114
				3-BC	5549	0	0	2	65	5841	0	0	2	68	5919	0	0	2	69
				4	9177	1	0	2	107	9660	1	0	2	112	9789	1	0	2	114
				4-BC	6827	0	0	2	79	7186	0	0	2	84	7282	0	0	2	85
				4W	9129	1	0	3	106	9609	1	0	3	112	9737	1	0	3	113
				4W-BC	5219	0	0	2	61	5493	0	0	2	64	5567	0	0	2	65
				5R	9433	3	0	3	110	9929	3	0	3	115	10062	3	0	3	117
				5QM	9570	3	0	1	111	10073	3	0	1	117	10208	3	0	1	119
				5QN	9514	3	0	0	111	10014	3	0	0	116	10148	3	0	0	118
				5W	9432	4	0	2	110	9927	4	0	2	115	10060	4	0	2	117
			Clear Lens	FR	9072	1	0	1	105	9549	1	0	1	111	9677	1	0	1	113
				2	8468	1	0	2	98	8913	1	0	2	104	9033	1	0	2	105
				3	8589	1	0	2	100	9041	1	0	2	105	9162	1	0	2	107
				4	8584	1	0	2	100	9035	1	0	2	105	9156	1	0	2	106
				4W	8538	1	0	2	99	8987	1	0	3	105	9108	1	0	3	106
				5R	8823	3	0	3	103	9287	3	0	3	108	9411	3	0	3	109
				5QM	8951	3	0	1	104	9422	3	0	1	110	9548	3	0	1	111
				5QN	8898	3	0	0	103	9366	3	0	0	109	9491	3	0	0	110
				5W	8822	3	0	2	103	9285	4	0	2	108	9410	4	0	2	109
			HDL Lens	3	7302	2	0	2	85	7685	2	0	2	89	7788	2	0	2	91
				5W	7499	2	0	1	87	7893	2	0	1	92	7999	2	0	1	93

Lumen Multiplier		
CCT	80 CRI	90 CRI
3000K	0.9119	0.7033
4000K	0.8941	N/A

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LUMINAIRE PERFORMANCE

LED #	Nominal Lumen Package	Nominal Wattage	Lens Options	Distribution	3000K 70CRI					4000K 70CRI					5000K 70CRI				
					Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
						B	U	G			B	U	G			B	U	G	
54	12,500	95	No Lens	FR	11792	1	0	1	125	12412	1	0	1	132	12578	1	0	1	134
				FR-BC	7848	0	0	1	83	8260	0	0	1	88	8371	0	0	1	90
				2	11210	2	0	2	119	11800	2	0	2	126	11958	2	0	2	126
				2-BC	5993	0	0	1	64	6308	0	0	1	67	6392	0	0	1	69
				3	11225	1	0	2	119	11815	2	0	2	126	11974	2	0	2	127
				3-BC	6273	0	0	2	67	6603	0	0	2	70	6691	0	0	2	72
				4	11311	1	0	2	120	11906	1	0	3	127	12065	1	0	3	128
				4-BC	7291	0	0	2	78	7674	0	0	2	82	7777	0	0	2	84
				4W	11203	2	0	3	119	11792	2	0	3	125	11950	2	0	3	127
				4W-BC	5603	0	0	2	60	5898	0	0	2	63	5977	0	0	2	65
				5R	11623	3	0	3	124	12234	3	0	3	130	12398	3	0	3	131
				5QM	11770	3	0	2	125	12389	3	0	2	132	12555	3	0	2	133
				5QN	11799	3	0	0	126	12420	3	0	0	132	12586	3	0	0	133
				5W	11594	4	0	2	123	12204	4	0	2	130	12367	4	0	2	131
			Clear Lens	FR	11029	1	0	1	117	11609	1	0	1	124	11765	1	0	1	125
				2	10485	2	0	2	112	11036	2	0	2	117	11184	2	0	2	119
				3	10555	1	0	2	112	11110	1	0	2	118	11259	1	0	2	120
				4	10579	1	0	2	113	11136	1	0	2	118	11285	1	0	2	120
				4W	10479	1	0	3	111	11029	2	0	3	117	11177	2	0	3	119
				5R	10871	3	0	3	116	11443	3	0	3	122	11596	3	0	3	123
				5QM	11009	3	0	2	117	11588	3	0	2	123	11743	3	0	2	125
				5QN	11036	3	0	0	117	11616	3	0	0	124	11772	3	0	0	125
				5W	10845	4	0	2	115	11415	4	0	2	121	11568	4	0	2	123
			HDL Lens	3	8736	2	0	2	93	9195	2	0	2	98	9318	2	0	2	100
				5W	9152	3	0	1	97	9633	3	0	1	102	9762	3	0	1	104

Lumen Multiplier		
CCT	80 CRI	90 CRI
3000K	0.9119	0.7033
4000K	0.8941	N/A

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LUMINAIRE PERFORMANCE

LED #	Nominal Lumen Package	Nominal Wattage	Lens Options	Distribution	3000K 70CRI					4000K 70CRI					5000K 70CRI				
					Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
						B	U	G			B	U	G			B	U	G	
54	15,000	120	No Lens	FR	14390	1	0	1	118	15146	1	0	1	124	15349	1	0	1	125
				FR-BC	9577	1	0	1	78	10080	1	0	1	83	10215	1	0	1	84
				2	13680	2	0	2	112	14399	2	0	2	118	14592	2	0	2	120
				2-BC	7313	0	0	2	60	7697	0	0	2	63	7800	0	0	2	64
				3	13698	2	0	3	112	14418	2	0	3	118	14611	2	0	3	120
				3-BC	7655	0	0	2	63	8057	0	0	2	66	8165	0	0	2	67
				4	13803	1	0	3	113	14528	1	0	3	119	14723	1	0	3	121
				4-BC	8897	0	0	2	73	9365	0	0	2	77	9490	0	0	2	78
				4W	13671	2	0	3	112	14390	2	0	3	118	14583	2	0	4	120
				4W-BC	6838	1	0	2	56	7197	1	0	2	59	7294	1	0	2	60
				5R	14184	4	0	4	116	14929	4	0	4	122	15129	4	0	4	124
				5QM	14363	3	0	2	118	15118	4	0	2	124	15321	4	0	2	126
				5QN	14399	4	0	4	118	15156	4	0	1	124	15359	4	0	1	126
				5W	14149	4	0	2	116	14893	4	0	2	122	15092	4	0	2	124
			Clear Lens	FR	13459	1	0	1	110	14167	1	0	1	116	14356	1	0	2	118
				2	12795	2	0	2	105	13468	2	0	2	110	13648	2	0	2	112
				3	12812	2	0	2	105	13486	2	0	2	111	13666	2	0	2	112
				4	12910	1	0	3	106	13589	1	0	3	111	13771	1	0	3	113
				4W	12787	2	0	3	105	13459	2	0	3	110	13640	2	0	3	112
				5R	13266	4	0	4	109	13964	4	0	4	114	14151	4	0	4	116
				5QM	13434	3	0	2	110	14140	3	0	2	116	14330	3	0	2	117
				5QN	13467	4	0	0	110	14175	4	0	0	116	14365	4	0	0	118
				5W	13234	4	0	2	108	13929	4	0	2	114	14116	4	0	2	116
			HDL Lens	3	10892	3	0	2	89	11464	3	0	2	94	11618	3	0	2	95
				5W	11250	3	0	1	92	11841	3	0	2	97	12000	3	0	2	98

Lumen Multiplier		
CCT	80 CRI	90 CRI
3000K	0.9119	0.7033
4000K	0.8941	N/A

Kim Lighting reserves the right to change specifications without notice.

LUMINAIRE PERFORMANCE

LED #	Nominal Lumen Package	Nominal Wattage	Lens Options	Distribution	3000K 70CRI					4000K 70CRI					5000K 70CRI				
					Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
						B	U	G			B	U	G			B	U	G	
54	17,500	155	No Lens	FR	17299	2	0	2	111	18208	2	0	2	117	18452	2	0	2	119
				FR-BC	11513	1	0	1	74	12118	1	0	1	78	12280	1	0	1	79
				2	16445	2	0	2	105	17310	2	0	3	111	17542	2	0	3	112
				2-BC	8791	0	0	2	56	9253	0	0	2	59	9377	0	0	2	60
				3	16467	2	0	3	106	17333	2	0	3	111	17565	2	0	3	113
				3-BC	9202	1	0	2	59	9686	1	0	2	62	9816	1	0	2	63
				4	16593	1	0	3	106	17465	1	0	3	112	17699	1	0	4	113
				4-BC	10696	1	0	2	69	11258	1	0	2	72	11409	1	0	2	73
				4W	16435	2	0	4	105	17299	2	0	4	111	17531	2	0	4	112
				4W-BC	8220	1	0	2	53	8652	1	0	2	55	8768	1	0	2	56
				5R	17051	4	0	4	109	17947	4	0	4	115	18188	4	0	4	117
				5QM	17267	4	0	2	111	18174	4	0	2	117	18418	4	0	2	118
				5QN	17309	4	0	1	111	18219	4	0	1	117	18463	4	0	1	118
				5W	17009	4	0	2	109	17903	4	0	2	115	18143	4	0	2	116
			Clear Lens	FR	16180	1	0	2	104	17030	1	0	2	109	17258	1	0	2	111
				2	15382	2	0	2	99	16190	2	0	2	104	16407	2	0	2	105
				3	15402	2	0	3	99	16212	2	0	3	104	16429	2	0	3	105
				4	15520	1	0	3	99	16336	1	0	3	105	16555	1	0	3	106
				4W	15372	2	0	4	99	16180	2	0	4	104	16397	2	0	4	105
				5R	15948	4	0	4	102	16787	4	0	4	108	17011	4	0	4	109
				5QM	16150	4	0	2	104	16999	4	0	2	109	17227	4	0	2	110
				5QN	16190	4	0	1	104	17041	4	0	1	109	17269	4	0	1	111
				5W	15909	4	0	2	102	16745	4	0	2	107	16969	4	0	2	109
			HDL Lens	3	13093	3	0	2	84	13782	3	0	2	88	13966	3	0	2	90
				5W	13524	3	0	2	87	14235	3	0	2	91	14426	3	0	2	92

Lumen Multiplier		
CCT	80 CRI	90 CRI
3000K	0.9119	0.7033
4000K	0.8941	N/A

Kim Lighting reserves the right to change specifications without notice.

SPECIFICATIONS

Housing:

- Low copper aluminum alloy die-casting is designed as one-piece with internal cooling fins.
- Solid, cast aluminum wall creates a thermal barrier between the optical and electrical compartments.
- Molded silicone gasket throughout insures the sealing between the two compartments and provides ingress protection.
- Housing is designed with integral LED heat sink utilized for thermal transfer and for securing the location of each LED module.
- IK09 rated enclosure protects electrical equipment against external mechanical impacts.

Lens Frame:

- One-piece low copper aluminum alloy die-cast is secured to housing with 6 screws.

Backlight Control

- Optional Backlight Control on each LED module to completely control unwanted backlight.

Lens

One-piece flat glass lens slips secure with clips. Extra silicone gasketing is provided to retain a clear optical compartment.

Optical Module:

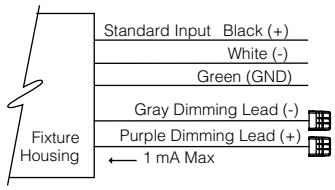
- LEDs shall be mounted to a metal printed circuit board assembly (MCPCB).
- Optical lenses shall be clear injection molded PMMA acrylic.
- Each MCPCB and optic shall be sealed to the diecast housing and sealed with a continuous one piece injection molded silicone rubber gasket.
- Patent Pending design of optical array shall independently shield each LED optic across the length of the aperture.
- Optional fixture finish optical surfaces shall not exceed BUG ratings of the standard white finish and shall be greater than or equal to the delivered lumens of the optional matte black optical surface finish.

Electrical Components

- Standard programmable driver allows for programmable drive current settings.
- Electrical components are stategically located in the driver gear compartment with a molded silicon grommet seal to provide separation from the optical chamber.
- Maximum lightning surge current 20KA with thermally protected varistor technology. Surge suppression is series circuited preventing total fixture failure. ANSI/IEEE C62.41 Category C High.
- Open circuit fault will turn off the luminaire in order to protect the sensitive electronics and acts as a signal for maintenance.
- Programmable Driver is rated for -40°C starting.
- "Thermal Shield", primary side, thermister provides protection for the sustainable life of electronic components (350mA to 700mA).

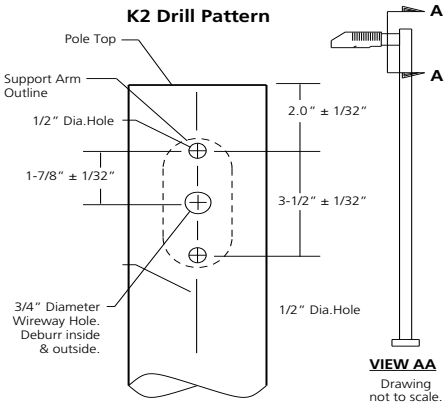
Dimming:

- Dimming range from 100% to 10% through the use of the standard 0-10V interface on the programmable driver.
- Modular wiring harness in the service area provides user access to the dimming circuitry.
- Dimming circuitry compatible with 0-10V, user-defined control devices.
- Optional factory programmed dimming profile.



Support Arm:

- Die-cast, low copper aluminum alloy, with splice access cover.
- Die-cast pole adaptor and an internal reinforcing plate are provided with a wire strain relief.
- The arm adapter is square or circular cut for specified pole size and shape.
- For field wire connections, a terminal block is mounted in the arm cavity and accessible behind the splice access cover. The block accepts #14 to #8 wire sizes and is factory prewired to the electrical module's quick-disconnect plug inside the electrical compartment.



Optional Slip-Fitter:

- Internally accessible slip-fitter attaches to a 1-1/4" to 2-3/8" tenon and allows hands-free wiring and maintenance.

Optional Wall Mount:

- Optional, cast aluminum mounting plate attaches to a wall over a junction box and the speed mount is bolted to the cover plate. To complete the wiring, the luminaire assembly slides over the mounting plate.

Fusing:

SF for 120, 277, and 347 Line volts

DF for 208, 240, and 480 Line volts

Hight temperature fuse holders factory installed inside the fixture housing.

Fuse is included.

Finish:

Fade and abrasion resistant, electrostatically applied, thermally cured, triglycidal isocyanurate (TGIC) polyester powdercoat.

Standard colors include (BL) Black, (DB) Dark Bronze, (GT) Graphite, (PS) Platinum Silver, (LG) Light Gray, (TT) Titanium, (WH) White, and (CC) Custom Color (Include RAL#).

Certifications and Listings:

- UL 1598 Standard for Luminaires.
- UL 8750 Standard for Safety for Light.
- ANSI C136.31-2010 3G Vibration tested and compliant.
- IDA approved, 3000K and warmer CCTs only
- IP66 Certified

CAUTION:

Fixtures must be grounded in accordance with national, state and/or local electrical codes. Failure to do so may result in serious personal injury.

WARRANTY:

For full warranty see: http://www.hubbelllighting.com/resources/warranty

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CONTROLS

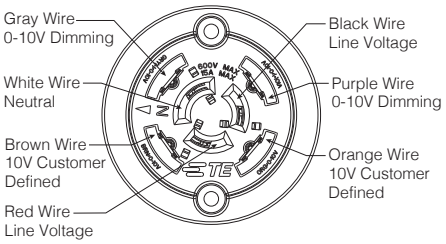
Photocell Receptacle

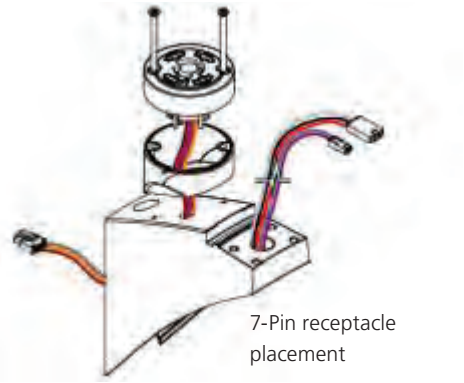
7PR

Fully gasketed and wired 7-pin receptacle option. Easy access location above the electrical compartment. 7-pin construction allows for a user-defined interface and provides a controlled definition of operational performance. ANSI twist-lock control module by-others.

Standard customer operation modes:

1. Traditional on/off photoelectric control.
2. 5-pin wireless photoelectric control for added dimming feature.
3. 7-pin wireless photoelectric control for dimming and additional I/O connections for customer use.





7-Pin receptacle placement

Wireless Controls

- Optional universal voltage (120-277V) for dusk to dawn energy savings.Photocontrol is factory installed inside the housing with a fully gasketed sensor on the side wall. For multiple fixture mountings, one fixture is supplied with a photocell to operate the others.

- Occupancy Sensor shall be programmable anduse passive infrared (PIR) sensing technology that reacts to changes in infrared energy (moving body heat) within the coverage area. Careful consideration must be given to obstructions that may block the sensor's line of sight.

- Factory default settings for SCP option shall be:- High mode: 10V - Low mode: 1V - Ramp-uprate: disabled - Fade-down rate: disabled -Photocell: Off - Sensitivity: Full - Time Delay:Fade to low: 5 minutes - Time Delay: Fade to off: 1 hour

- The SCP enables any wall mounted luminaire,in excess of 75 watts, to meet California Title 24 requirements with integral 10KA surge protection for added reliability and serviceability.For more detail: http://www.aal.net/products/sensor_control_programmable

AstroDIM

AstroDIM provides multi-stage night-time power reduction based on an internal timer referenced to the power on/off time. There is no need for an external control infrastructure. The unit automatically performs a dimming profile based on the predefined scheduled reference to the midpoint, which is calculated based on the power on/off times.

SiteSync™[1]

SiteSync™ wireless control system for reduction in energy and maintenance cost while optimizing light quality 24/7. See ordering information or visit www.hubbelllighting.com/products/sitesync for more details.

[1]PRECOMMISSIONED SITESYNC ORDERING INFORMATION: When ordering a fixture with the SiteSync lighting control option, additional information will be required to complete the order. The SiteSync Commissioning Form or alternate schedule information must be completed. This form includes Project location, Group information, and Operating schedules. For more detailed information please visit www.HubbellLighting.com/products/sitesync or contact Hubbell Lighting tech support at (800) 345-4928.

SiteSync fixtures with occupancy sensor (SWPM) require the mounting height of the fixture for selection of the lens.

[2]Voltage, [3]Color, [4]Pole Diameter,

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JOB _____ TYPE _____

NOTES _____ APPROVALS _____

FEATURES

- -5° to +10° tilt adjustment
- High performance optics deliver up to 8,500 lumens
- up or down mountable without modification
- Diffused lens option
- Programmable occupancy sensor (dimming)
- NX and SiteSync wireless controls
- Up to 130 lumens per watt

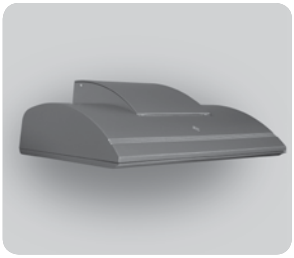
Certifications

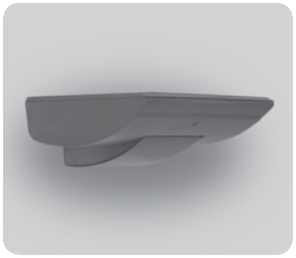
c UL us LISTED · ida DARK SKY APPROVED 2016 · DLC DLC PREMIUM LISTED

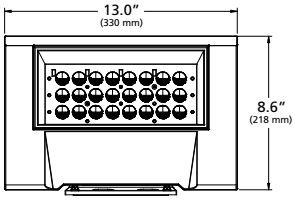
Downlight only, 3000K and warmer CCTs

IK08 IP66

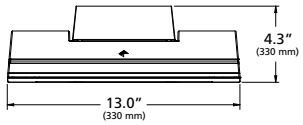
SPECIFICATIONS



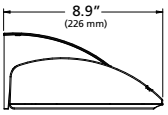




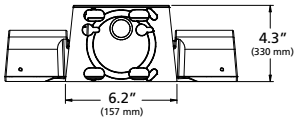
Above / Below
(Depending on mounting)



Front



Side



Backside

Weight: 20 lbs

ORDERING CODE

Fixture	Mounting	Source	Wattage	Light Engine	Distribution	Voltage
WDS Wall Director Small	**D** Down	**24L** 24 LEDs	**30** 30 Watts	**3K7** 3000K/70CRI	**1** Type I	**UNV** 120-277V
	U[1] Up		**40** 40 Watts	**3K8** 3000K/80CRI	**2** Type II	**347**[3] 347V
			60 60 Watts	**4K7** 4000K/70CRI	**3** Type III	**480**[3] 480V
			75 75 Watts	**4K8** 4000K/80CRI	**4W** Type IV Wide	
				5K7 5000K/70CRI	**4F** Type IV Forward	
					WG[2] Wall Graze	
					SP Spot/Column	
					FTD[2] Forward Throw Diffuse	
					WTD[2] Wide Throw Diffuse	

Fixture Finish	Control Options	Options	Accessories
BLS Black Gloss Smooth	**PC** Button Photocell	**EM**[5] Internal Emergency Battery Backup	**SCPREMOTE** SCP configuration tool
BLT Black Matte Textured	**SCP-8F**[4] Programmable Occ. Sensor (<9' height)	**SF** Single Fuse & Fuse holder	**SWUSB** SiteSync Software on USB
DBS Dark Bronze Gloss Smooth	**SCP-20F**[4] Programmable Occ. Sensor (9' - 20' height)	**DF** Double Fuse & Fuse holder	**SWTAB** SiteSync Windows® Tablet
GTT Graphite Matte Textured	**SWP**[5] SiteSync Wireless Pre-Commission		**SWBRG** SiteSync Software Bridge Node
LGS Light Grey Gloss Smooth	**NXWE**[6] NX Wireless Enabled		
PSS Platinum Silver Smooth			
VGS Verde Green Smooth			
WHS White Gloss Smooth			
CC Custom Color†			

†Consult factory

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[1] Not available with EM option or with SCP & SWPM sensor options.
[2] WG, FTD, and WTD come with a diffused lens.
[3] 60 and 75 watt versions only
[4] SCP and EM are not compatible
[5] Universal voltage only (120-277), not available with PC option.
[6] 120-347V only

NX DISTRIBUTED INTELLIGENCE™

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LUMINAIRE PERFORMANCE

LED #	Nominal Lumen Package	Nominal Wattage	Lens Options	Distribution	3000K					4000K					5000K				
					Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
						B	U	G			B	U	G			B	U	G	
24L	3,000	29	Clear Lens	1	3433	1	0	0	119	3519	1	0	0	122	3560	1	0	0	123
				2	3351	1	0	1	116	3436	1	0	1	119	3475	1	0	1	120
				3	3340	1	0	1	116	3424	1	0	1	119	3463	1	0	1	120
				4F	3343	1	0	1	116	3427	1	0	1	119	3466	1	0	1	120
				4W	3172	1	0	1	110	3252	1	0	1	113	3289	1	0	1	114
				SP	3600	3	0	0	125	3691	3	0	0	128	3733	3	0	0	129
			Diffuse Lens	WG	3372	2	0	1	117	3456	2	0	1	120	3496	2	0	1	121
				FTD	2855	1	0	1	99	2927	1	0	1	101	2960	1	0	1	103
				WTD	3151	1	0	1	109	3230	1	0	1	112	3267	1	0	1	113
	4,500	42	Clear Lens	1	4593	1	0	0	111	4708	1	0	0	113	4762	1	0	0	115
				2	4484	1	0	1	108	4596	1	0	1	111	4649	1	0	1	112
				3	4468	1	0	1	108	4581	1	0	1	110	4633	1	0	1	112
				4F	4472	1	0	1	108	4585	1	0	1	110	4637	1	0	1	112
				4W	4244	1	0	1	102	4350	1	0	1	105	4400	1	0	1	106
				SP	4817	3	0	0	116	4938	3	0	0	119	4994	3	0	0	120
			Diffuse Lens	WG	4511	2	0	1	109	4624	2	0	1	111	4677	2	0	1	113
				FTD	3819	1	0	1	92	3915	1	0	1	94	3960	1	0	1	95
				WTD	4215	1	0	1	102	4321	1	0	1	104	4371	1	0	1	105
	6,000	59	Clear Lens	1	6333	1	0	1	108	6492	1	0	1	111	6566	1	0	1	112
				2	6182	1	0	1	106	6338	1	0	1	108	6410	1	0	1	110
				3	6161	1	0	2	105	6316	1	0	2	108	6388	1	0	2	109
				4F	6166	1	0	2	105	6321	1	0	2	108	6393	1	0	2	109
				4W	5851	1	0	2	100	5998	1	0	2	103	6067	1	0	2	104
				SP	6641	4	0	0	114	6808	4	0	0	116	6886	4	0	0	118
			Diffuse Lens	WG	6219	3	0	1	106	6376	3	0	1	109	6449	3	0	1	110
				FTD	5266	1	0	1	90	5398	2	0	1	92	5460	2	0	1	93
				WTD	5812	1	0	1	99	5958	1	0	1	102	6026	1	0	1	103
	7,500	74	Clear Lens	1	7879	1	0	1	106	8077	1	0	1	109	8170	1	0	1	110
				2	7692	1	0	1	104	7885	1	0	1	107	7975	1	0	2	108
				3	7665	1	0	2	104	7858	1	0	2	106	7948	1	0	2	107
				4F	7672	1	0	2	104	7865	1	0	2	106	7955	1	0	2	107
				4W	7280	1	0	2	98	7463	1	0	2	101	7548	1	0	2	102
				SP	8263	4	0	0	112	8471	4	0	0	114	8567	4	0	0	116
			Diffuse Lens	WG	7738	3	0	1	105	7933	3	0	1	107	8023	3	0	1	108
				FTD	6552	2	0	1	89	6717	2	0	1	91	6793	2	0	2	92
				WTD	7231	2	0	1	98	7413	2	0	1	100	7498	2	0	1	101

Electrical Characteristics												Dimming				
System Watts	Current	Line Voltage		Amps AC						Min. Power Factor	Max THD (%)	Dimming Range	Source current out		Absolute voltage	
		VAC	Hz	120	208	240	277	347	480				Min	Max	Min	Max
29	350mA	120-480	50/60	0.24	0.14	0.12	0.10	0.08	0.06	>0.9	20	10% to 100%	0mA	1mA	0V	10V
42	500mA			0.38	0.22	0.19	0.16	0.13	0.09							
59	725mA			0.48	0.27	0.24	0.21	0.16	0.12							
74	925mA			0.67	0.39	0.34	0.29	0.23	0.17							

TM-21 LIFETIME CALCULATION

Projected Lumen Maintenance (25°C / 77°F)						
HOURS	0	25,000	36,000	50,000	100,000	Reported L70
Projected Lumen Maintenance	100%	97%	95%	93%	86%	> 60,000 hrs

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P 626.968.5666 | F 626.369.2695 | www.kimlighting.com | Rev. Oct. 22, 2019

HUBBELL® Lighting

SPECIFICATIONS

Housing

- Optical housing is a one-piece, die-cast low copper (<0.6%) aluminum alloy with integral heat sink. The housing rotates against mounting arm housing to provide -5° to 10° of adjustment with degree markers cast into the housing. At 0 adjustment, lens is totally concealed from view above horizontal with fixture mounted in the downward position.
- Mounting arm housing is one-piece die-cast, low copper (<0.6%) aluminum alloy with provisions for tilt mechanism. Mounting arm fastens to the mounting plate with keyhole slots freeing both hands for securing and wiring. One stainless steel socket-head screw on the tilt mechanism frees the optical housing to rotate for aiming. Tightening the screws locks the housing and lens frame together with sealing provided by a silicone gasket. For visual aiming, adjustment may be accomplished with the fixture on.
- Lens Frame is a one-piece, die-cast low copper (<0.6%) aluminum alloy with integral cooling fins to dissipate driver thermal.
- Luminaire housing shall be free of any visible heat fins, hardware or fasteners.
- Bracketry and hardware shall be stainless steel.

Optical Array

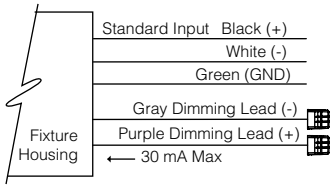
- LEDs shall be mounted to a metal printed circuit board assembly (MCPCB).
- Optical lenses shall be clear injection molded PMMA acrylic.
- Secondary lens is impact resistant 1/8" tempered glass with anti-reflective coating.

Electronic Module

- Drivers shall be in direct contact with the die-cast aluminum lens frame across the entire surface area of the widest face for maximum thermal transfer.
- "Thermal Shield", secondary side, thermistor provides protection for the sustainable life of LED module and electronic components.
- Drivers shall have greater than a 0.9 power factor, less than 20% harmonic distortion, and be suitable for operation in -40°C to 40°C ambient environments
- Luminaires shall have integral surge protection that shall be U.L. recognized and have a surge current rating of 10,000 Amps using the industry standard 8/20uSec wave and surge rating of 372J. Surge protection device shall be wired in series.
- Drivers shall be U.L recognized.
- Drivers shall not be compatible with current sourcing dimmers, consult factory for current list of known compatible dimming systems approved dimmers include Lutron Diva AVTV, Lutron Nova NFTV and NTFTV.

Dimming

- 10% to 100% dimming by the use of standard 0-10V interface driver.
- The thermal shield works in conjunction with the control system to assure that overheating will not harm the LEDs.
- The wiring harness is connected with the use of the Purple lead as the positive (+) and the Grey lead as the negative (-) to an available control signal (by others).



Specifications

- Luminaire shall be capable of operating at 100% brightness in a 40°C environment. Both driver and optical array shall have integral thermal protection that will dim the luminaire upon detection of temperatures in excess of 85°C.
- Luminaires not configured with a control system shall be provided with 0-10 purple and gray dimming leads.

Controls

- Optional universal voltage (120-277V) button photocontrol for dusk to dawn energy savings. Photocontrol is factory installed inside the housing with a fully gasketed sensor on the side wall. For multiple fixture mountings, one fixture is supplied with a photocell to operate the others.
- Occupancy Sensor shall be programmable and use passive infrared (PIR) sensing technology that reacts to changes in infrared energy (moving body heat) within the coverage area. Careful consideration must be given to obstructions that may block the sensor's line of sight.
- Factory default settings for SCP option shall be: - High mode: 10V - Low mode: 1V - Ramp-up rate: disabled - Fade-down rate: disabled - Photocell: Off - Sensitivity: Full - Time Delay: Fade to low: 5 minutes - Time Delay: Fade to off: 1 hour
- The SCP enables any wall mounted luminaire, in excess of 30 watts, to meet California Title 24 requirements with integral 10KA surge protection for added reliability and serviceability. For more detail: http://www.aal.net/products/sensor_control_programmable
- SiteSync™ wireless control system for reduction in energy and maintenance cost while optimizing light quality 24/7. See ordering information or visit www. hubbelllighting.com/products/sitesync for more details.
- Hubbell Control Solutions' NX Distributed Intelligence™ lighting control platform utilizes a Distributed Network Architecture (DNA) that connects intelligent devices including luminaires, controllers, panels, occupancy sensors, photocells, wall switches and dimmers, creating a system with an unmatched level of reliability, scalability and simplicity

Options

- Integral battery backup provides emergency path of egress lighting for the required 90 minutes for 0°C ambient environments or -20°C with thermal jacket.
- Fusing:

SF for 120, 277 and 347 Line Volts
DF for 208, 240 and 480 Line Volts

High temperature fuse holders factory installed inside the fixture housing. Fuse is included.

Mounting and Installation

- JUNCTION BOX(By Others): Standard with steel, quick-mount junction box plate that mounts directly to 4" J-Box
- Mounting plate is stainless steel and features a one-piece EPDM gasket on back side of plate to firmly seal fixture to wall surface, forbidding entry of moisture and particulates.

Servicing

- Housing shall be able to hang freely in an open service position for inspection of primary wire connections. Once in service position, the housing shall be able to be removed for service by sliding the assembly to the left (for down mounting) or to the right (for up mounting) and disconnecting the wiring plugs.

Kim Lighting reserves the right to change specifications without notice.

SPECIFICATIONS

- Driver assembly shall be mounted to a prewired internal tray with quick disconnects for removal. Fusing SF for 120, 277, and 347 line volts DF for 208, 240, and 480 line volts high temperature fuse holders factory installed inside the fixture housing. Fuse is included.

Finish:

- Luminaire finish shall consist of a five stage pretreatment regimen with a polymer primer sealer, oven dry off, and top coated with a thermoset super TGIC polyester powder coat finish.
- Luminaire finish shall meet the AAMA 605.2 performance specification which includes passing a 3000 hour salt spray test for corrosion resistance.
- Standard colors include (BL) Black, (DB) Dark Bronze, (GT) Graphite, (LG) Light Gray, (PS) Platinum Silver, (TT) Titanium, (WH) White, and (CC) Custom Color (Include RAL#).

Certifications and Listings

- UL1598, UL 8750 and Canadian CSA Std. C22.2 no.250.
- IDA approved, down light only, 3000K and warmer CCTs only.
- 1.5G rated
- IP66 Compliant
- IK08 Certified

CAUTION:

- Fixtures must be grounded in accordance with national, state and/or local electrical codes, Failure to do so may result in serious personal injury.

WARRANTY:

- For full warranty see http://www.hubbelllighting.com/resources/warranty

Kim Lighting reserves the right to change specifications without notice.

BeveLED Block® Surface - BLSD5 Square Downlight

USAI® Lighting

SURFACE MOUNT



CONDUIT CUT OUT



usailighting.com/block

Keep ceiling height right where it is! Specifically designed to work with surface-mounted conduit and junction boxes, BeveLED BLOCK has a modern look that's perfect for lofts, offices, and open architectural spaces. Also available with solid-sides styling shown above, Block also creates a finished look when recessed conduit is possible.

FEATURES

- High performance architectural lighting solution for industrial or exposed concrete ceiling types where recessed lighting is not an option
- Convenient conduit cutouts provide access for surface-mounted conduit to pass through the luminaire
- Smooth, modular solid and keyhole slots are interchangeable and user configurable to allow for simple on site customization in the field.
- BeveLED BLOCK is available in a range of standard and custom colors to complement your project, whether an industrial or refined look is desired.
- Industry leading illumination and craftsmanship

BEVELED BLOCK DOWNLIGHT PERFORMANCE DATA

LED COLOR CHOICES

DELIVERED* PERFORMANCE:	Classic White 9W		12W		16W		24W		Warm Glow Dimming 16W	
Coloring Rendering Index:	80+	90+	80+	90+	80+	90+	80+	90+	80+	90+
Source Lumens:	1150	900	1300	1025	1725	1350	2400	1875	1275	1025
Lumens Per Watt:	100	74	93	73	93	72	86	67	69	55
Delivered Lumens:	850	675	1125	875	1475	1150	2050	1600	1100	875

*Performance based on 3000K. See IES files for exact values at usailighting.com.

CORRELATED COLOR TEMPERTURE	Classic White 2200K		2700K		3000K		3500K		4000K		Warm Glow Dimming 2700K		3000K		3500K
Coloring Rendering Index:	80+		80+	90+	80+	90+	80+	90+	80+	90+	80+	90+	80+	90+	80+
Multiplier for Lumen Output:	0.72		0.94	0.78	1.00	0.78	1.00	1.00	1.06	1.06	0.94	0.79	1.00	0.81	1.00

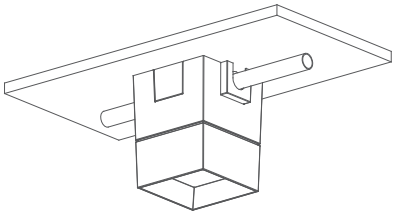
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New Windsor, NY 12553

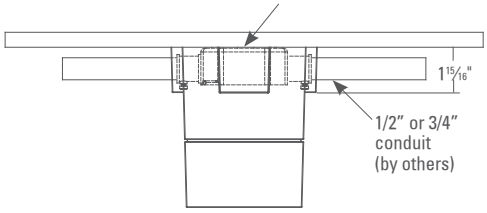
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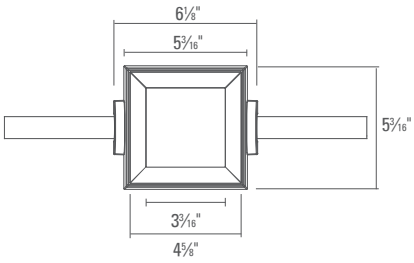
BeveLED Block® Surface - BLSD5
Square Downlight

USAI® Lighting

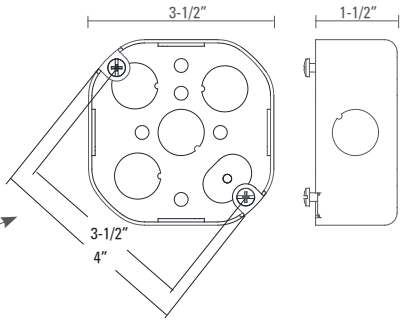
CC - CONDUIT CUTOUT MOUNTED



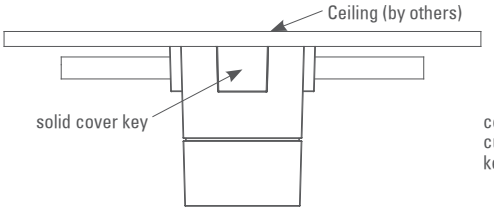


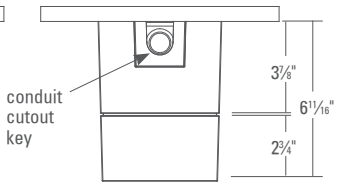


4"OCTAGONAL JUNCTION BOX DETAIL

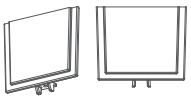


4"Ø X 1-1/2" DEEP
OCTAGON J-BOX (BY OTHERS)



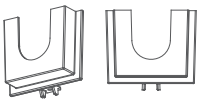


SOLID COVER KEY



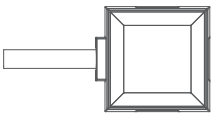
3 provided with
each CC style
BLSD5

CONDUIT CUTOUT KEY

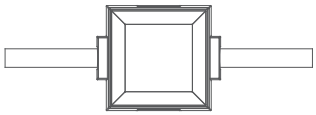


3 provided with
each CC style
BLSD5

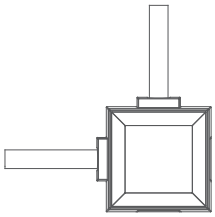
CONDUIT CUTOUT MOUNTING EXAMPLE



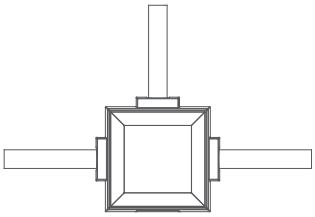
Conduit End



Straight Conduit

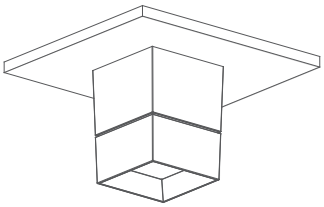


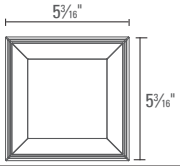
L Conduit



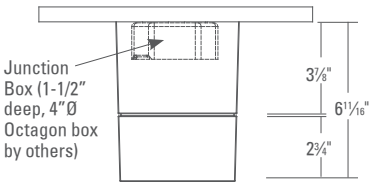
T Conduit

SJ - Surface mount to surface mounted 4"octagonal j-box
RB - Surface mount to recessed mounted 4"octagonal j-box

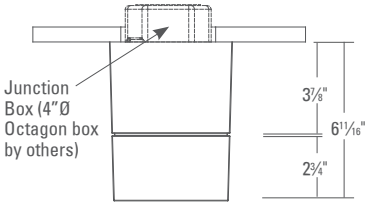




SJ - Surface mount to surface mounted 4"octagonal j-box



RB - Surface mount to recessed mounted 4"octagonal j-box



See drawing above for junction-box (by others) details.

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BeveLED Block® Surface - BLSD5
Square Downlight with Integral Driver

USAI® Lighting

FAMILY | LED COLOR CHOICES | FIXTURE

BLSD5								
BeveLED Block Downlight	**Wattage Options**	**LED Color Temperature Options**	**Beam Options**	**Lens Options**	**Body Finish Options**	**Mounting Options**	**Voltage Options**	**Dimming Driver Options**
BLSD5 BeveLED BLOCK 5" Square Downlight	**Classic White**			**S** Solite (provided standard) **BF** Borosilicate Frosted	**WH** White **BZ** Statuary Bronze **BL** Black **GR** Metalized Grey **SC** Conduit Silver **RAL** Custom Color (specify RAL #)	**CC** Conduit cutout for surface mounted 4" octagonal junction box **SJ** Surface mounted to surface mounted 4" octagonal junction box	**For use with CC and SJ Mounting** **UNV** 120V-277V	***For use with Universal Voltage 120V - 277V*** **D2** 0-10V dim, 10% (provided standard)
							120V	***For use with 120V only*** **D19** Phase dimming 1%, 120V only (1, 3)
						RB Surface mounted to recessed mounted 4" octagonal junction box	**For use with RB Mounting Only** **UNV** 120V-277V	***For use with Universal Voltage 120V - 277V*** **D2** 0-10V dim, 10% (provided standard) **D4A** Lutron ECO, 0.1% (2, 3, 4) **D4E** Lutron 5 ECO, 5% (1, 2, 3) **D4H** Lutron H ECO, 1% Fade (1, 2, 3) **D4P** Lutron ECO, 1% (2, 4) **D6A** EldoLED 0-10V, 0.1% (2) **D6B** EldoLED 0-10V, 0.1% (2) **D6E** EldoLED 0-10V, 1% (2) **D6F** EldoLED 0-10V, 1% (2) **D7** EldoLED DALI, 0.1% (2)
							120V	***For use with 120V only*** **D3** Lutron Hi-Lume 1% 2-wire, 120V only (2) **D19** Phase dimming 1%, 120V only (1, 3)
	09C3 9W LED **12C3** 12W LED **16C3** 16W LED **24C3** 24W LED	**22KS** 2200K, 80+ CRI **27KS** 2700K, 80+ CRI **27KH** 2700K, 90+ CRI **30KS** 3000K, 80+ CRI **30KH** 3000K, 90+ CRI **35KS** 3500K, 80+ CR **35KH** 3500K, 90+ CRI **40KS** 4000K, 80+ CR **40KH** 4000K, 90+ CRI	**25** 25° beam **50** 50° beam **90** 90° beam					
	Warm Glow Dimming							
	16WG2 16W LED	**2722KS -** 2700K-2200K, 80+ CRI **2722KH -** 2700K-2200K, 90+ CRI **3022KS -** 3000K-2200K, 80+ CRI **3022KH -** 3000K-2200K, 90+ CRI **3522KS -** 3500K-2200K, 80+ CRI	**30** 30° beam **50** 50° beam **90** 90° beam					

1 Not available with 9W
2 For use with RB mounting only
3 Not available for Warm Glow
4 Not available with 24W

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BeveLED Block® Surface - BLSD5
Square Downlight with Remote Driver

USAI® Lighting

FAMILY | LED COLOR CHOICES | FIXTURE

BLSD5							RM
BeveLED Block Downlight	**Wattage Options**	**LED Color Temperature Options**	**Beam Options**	**Lens Options**	**Body Finish Options**	**Mounting Options**	**Remote Power Supply**
	Classic White						
BLSD5 BeveLED BLOCK 5" Square Downlight	**09C3** 9W LED **12C3** 12W LED **16C3** 16W LED **24C3** 24W LED	**22KS** 2200K, 80+ CRI **27KS** 2700K, 80+ CRI **27KH** 2700K, 90+ CRI **30KS** 3000K, 80+ CRI **30KH** 3000K, 90+ CRI **35KS** 3500K, 80+ CR **35KH** 3500K, 90+ CRI **40KS** 4000K, 80+ CR **40KH** 4000K, 90+ CRI	**25** 25° beam **50** 50° beam **90** 90° beam	**S** Solite (provided standard) **BF** Borosilicate Frosted	**WH** White **BZ** Statuary Bronze **BL** Black **GR** Metalized Grey **SC** Conduit Silver **RAL** Custom Color (specify RAL #)	**CC** Conduit cutout for surface mounted 4" octagonal junction box **SJ** Surface mounted to surface mounted 4" octagonal junction box **RB** Surface mounted to recessed mounted 4" octagonal junction box	**RM** Remote Power Supply (Specify in table below) USAI Power Supply Must Be Specified
	Warm Glow Dimming						
	16WG2 16W LED	**2722KS -** 2700K-2200K, 80+ CRI **2722KH -** 2700K-2200K, 90+ CRI **3022KS -** 3000K-2200K, 80+ CRI **3022KH -** 3000K-2200K, 90+ CRI **3522KS -** 3500K-2200K, 80+ CRI	**30** 30° beam **50** 50° beam **90** 90° beam				

2. Specify Remote Power Supply

RPC-01				
Remote Power Supply	**Wattage Options**	**Voltage**	**Remote Dimming Type and Level**	**Remote Emergency Option**
RPC-01 BeveLED Block Remote Power Supply	**Classic White**	**UNV** 120V - 277V	**D4A** Lutron ECO, 0.1% (2, 3) **D4E** Lutron 5 ECO, 5% (1, 2) **D4H** Lutron H ECO, 1% Fade (1, 2) **D4P** Lutron ECO, 1% (3) **D6A** EldoLED 0-10V, 0.1% **D6B** EldoLED 0-10V, 0.1% **D6E** EldoLED 0-10V, 1% **D6F** EldoLED 0-10V, 1% **D7** EldoLED DALI, 0.1% **D18** Moon's DMX, 0.1% (2)	**EM5** EM battery requires remote enclosure by others, minimum size 11" L x 6.75" W x 3.25" H
	09C3 9W LED **12C3** 12W LED **16C3** 16W LED **24C3** 24W LED			
	Warm Glow	**120V** 120V Only	**D3** Lutron 2-wire, 1% **D19** Hatch Phase 2-wire, 1% (1, 2)	
	16WG2 16W LED			

1 Not available for 9W
2 Not available for Warm Glow
3 Not available for 24W

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BeveLED Block® Surface - BLSD5 Square Downlight

USAI® Lighting

KEY ACCESSORIES

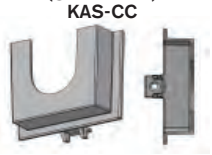
CONDUIT CUTOUT KEYS

Each conduit cutout canopy pendant is provided with three conduit cutout keys (KAS-CC-XX) and three solid cover keys (KAS-VK-XX) in the fixture finish specified. For more keys, or for extended length keys, please use the ordering table below.

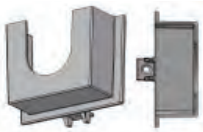
KEY ACCESSORY ORDERING INFORMATION

Fixture Family	Key Accessory	Finish
KAS Key Accessory Square	**CC*** Conduit Cutout Key **XC** Conduit Cutout Key, Extended Length **VK*** Solid Cover Key *3 provided with each conduit cutout canopy	**WH** White **SC** Conduit Silver **GR** Grey **BL** Black **BZ** Bronze **RAL** Custom Color

SQUARE CANOPY CUTOUT KEY (STANDARD) KAS-CC



SQUARE CANOPY CUTOUT KEY EXTENDED DEPTH KAS-XC



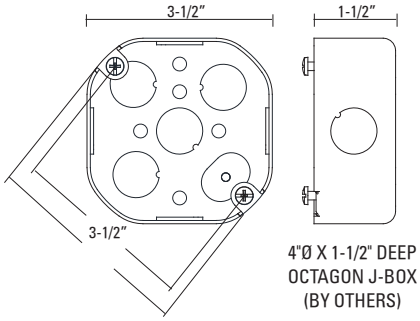
SQUARE SOLID COVER KEY (STANDARD) KAS-VK



CONDUIT CUTOUT MOUNTING EXAMPLE



4"OCTAGONAL JUNCTION BOX DETAIL



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BeveLED Block® Surface - BLSD5 Square Downlight

USAI® Lighting

BEVELED BLOCK SPECIFICATIONS

FIELD REPLACEABLE LED LIGHT ENGINE

is serviceable without tools. All USAI Lighting Classic White and Warm Glow Dimming light engines feature industry-leading color consistency

FIELD REPLACEABLE DRIVER

0-10V, 100%-10% solid state electronic constant current D2 dimming driver with a high power factor provided standard and sources 2mA. Other dimming drivers optionally available. D6 dimming drivers source 2mA. Driver complies with IEEE C62.41 surge protection. Some on-time delay may be experienced depending on control system used.

REMOTE LOCATION DRIVER

If a remote dimming driver is required, specify "RM" in the fixture part number and proceed to the RP table to complete the dimming driver specification. All remote power supplies must be clearly specified in the "RP" table, with one remote power supply required per fixture. Remote power supplies require enclosures by others that meet local codes and must be located in an accessible service panel within 100ft of the light fixture; see table below for coordination of enclosure sizes. All dimming drivers comply with IEEE C62.41 surge protection.

REMOTE LOCATION EMERGENCY

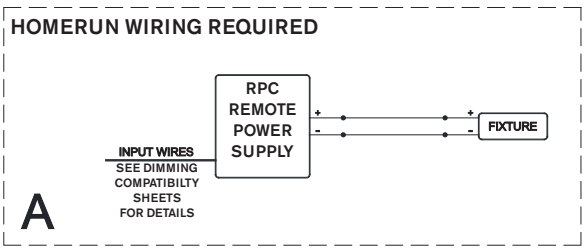
Remote emergency battery IOTA ILB-CP05 provides 5W to one fixture for 90 minutes. Remote power supplies with EM option require an enclosure by others with minimum size of 11"L x 6.75"W x 3.25"H that meets local codes. Emergency battery remote power supplies cannot be located any more than 50 feet from light fixture.

BEVELED BLOCK REMOTE POWER SUPPLY REQUIREMENTS AND WIRING DIAGRAM

Remote Power Supply Dimming Option			Wire Gauge Required*	Minimum Enclosure Size Required (by others) RP Only	RP with EM Option**
RPC-01-09C3 RPC-01-12C3 RPC-01-16C3 RPC-01-24C3 RPC-01-16WG2	**UNV-D4A**	Lutron ECO, 0.1% (2, 3)	14/12	6.25" L x 4" W x 2" H	11" L x 6.75" W x 3.25" H
	UNV-D4E	Lutron 5 ECO, 5% (1, 2)			
	UNV-D4H	Lutron H ECO, 1% fade (1, 2)			
	UNV-D4P	Lutron ECO, 1% (3)			
	UNV-D6A	EldoLED 0-10V, 0.1%	18/16		
	UNV-D6B	EldoLED 0-10V, 0.1%			
	UNV-D6E	EldoLED 0-10V, 1%			
	UNV-D6F	EldoLED 0-10V, 1%			
	UNV-D7	EldoLED DALI, 0%			
	UNV-D18	Moon's DMX 0.1% (2)	18/16	9" L x 4" W x 2" H	
	120V-D3	Lutron 2-wire phase, 1%	14/12	6.25" L x 4" W x 2" H	
	120V-D19	Hatch 2-wire phase, 1% (1,2)	14/12	5.75" L X 2.625" W X 2" H	

1 Not available for 9W
2 Not available for Warm Glow
3 Not available with 24W

* Wire gauge 14/12 = Maximum distance from light fixture to remote power supply is 100' using 12 gauge wire, 50' using 14 gauge wire.
* Wire gauge 18/16 = Maximum distance from light fixture to remote power supply is 100' using 16 gauge wire, 50' using 18 gauge wire.
** Emergency battery remote power supplies cannot be located any more than 50 feet from light fixture.



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BeveLED Block® Surface - BLSD5 Square Downlight

USAI® Lighting

BEVELED BLOCK SPECIFICATIONS

FIXTURE WEIGHT
BeveLED Block weighs 5 lbs

BODY
5-13/16" x 5-13/16" square die cast aluminum body available in a variety of powder coated paint finishes. Custom colors also available (provide RAL #).

MOUNTING
CC: Conduit cutout mounting fixtures are designed to mount to surface-mounted 4"octagonal junction boxes with surface-mounted conduit connections. CC housings have 4 keyslots, one in each side, and ship with one conduit cutout key and three solid cover keys installed in the housing. 2 additional conduit cutout keys are shipped with the fixture, and the different key types are interchangeable in the field. Please see installation instructions for drawings and more details.
RB: Recessed ceiling 4" octagonal junction box mounting fixtures are designed to mount to a ceiling retaining a recessed 4"octagonal junction box. The sides are solid and have no cutouts, please see drawings and installation instructions for more details.
SJ: Surface mounted 4" octagonal junction box mounting fixtures are designed to mount to a surface-mounted junction box that has electrical supply coming from the plenum (no surface-mounted conduit). The sides are solid and have no cutouts, please see drawings and installation instructions for more details

WARRANTY
Based on IESNA LM80-2008, BeveLED Block has a 50,000 hour rated life at 70% lumen maintenance (L70). USAI Lighting Warranty covers replacement parts for 5 years from date of shipment.

LISTINGS
Dry/Damp/Wet for RB and SJ mounting. CC mounting style is dry/damp only. NRTL/CSA-US tested to UL standards. IBEW union made.

NOTES
- Ambient temperatures at fixture location should not exceed 40°C during normal operation.
- Consult factory for video capture applications.

PHOTOMETRICS
Consult factory or website for IES files. Tested in accordance with IESNA LM79. www.usailighting.com/block

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USAI Lighting

DIMMING DRIVER COMPATIBILITY SELECTION GUIDE
D3 / DIML3

DIMMING DRIVER WIRING SCHEMES:

NOTES:
Wiring diagrams are examples of typical installations intended to illustrate the number of wires that must be run to fixture. These diagrams are not intended to specify all equipment necessary for a given dimming circuit. Refer to specific dimmer manufacturer's documentation for details.

IMPORTANT SAFETY INSTRUCTIONS - SAVE THESE INSTRUCTIONS

1. Keep these instructions in a safe place for future reference.
2. Only qualified electricians in accordance to local codes should install these fixtures.
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5. Cap any wires not used separately (not together).

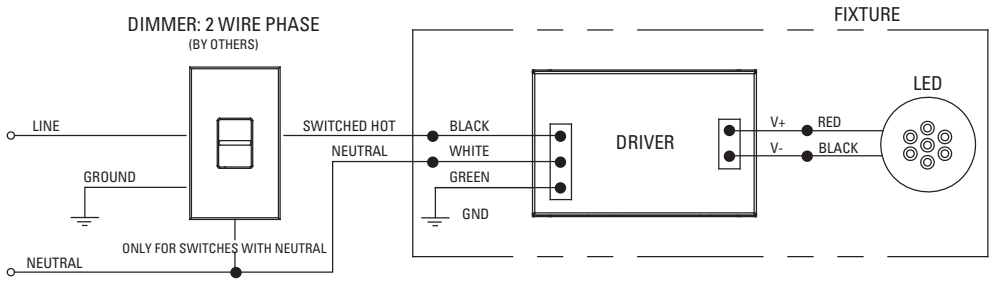
D3 / DIML3 LED: Lutron Hi-Lume A-Series 2 Wire Fwd Phase (with neutral) / LED Dimming Driver Wiring (Dims down to 1%) 120V

D3 / DIML3 Dimmer Compatibility Chart

Manufacturer	Product	Part Number	Dimmed Light Output Range	Qty Fixtures Per Dimmer* Fixture Wattage	
120V Only				39W and Less	40W - 80W
ETC	Sensor+ Cabinet	ELV10	100% - 1%	1 – 26	1 – 13
ETC	Unison DRd Cabinet	ELV10	100% - 1%	1 – 26	1 – 13
Lutron	Maestro Wireless® 600W dimmer	MRF2-6ND-120-	100% - 1%	1 – 8	1 – 4
Lutron	Maestro Wireless® 1000W dimmer	MRF2-10ND-120-	100% - 1%	1 – 13	1 – 6
Lutron	HomeWorks® QS adaptive dimmer	HQRD-6NA-	100% - 1%	1 – 8	1 – 4
Lutron	HomeWorks® QS 600W dimmer	HQRD-6ND-	100% - 1%	1 – 8	1 – 4
Lutron	HomeWorks® QS 1000 W dimmer	HQRD-10ND-	100% - 1%	1 – 13	1 – 6
Lutron	Caseta Wireless® Pro 1000W dimmer	PD-10NXD-	100% - 1%	1 – 13	1 – 6
Lutron	Stanza® dimmer	SZ-6ND-	100% - 1%	1 – 8	1 – 4
Lutron	RadioRA® 2 adaptive dimmer	RRD-6NA-	100% - 1%	1 – 8	1 – 4
Lutron	RadioRA® 2 1000 W dimmer	RRD-10ND-	100% - 1%	1 – 6	1 – 3
Lutron	myRoom DIN power module	MQSE-4A1-D	100% - 1%	1 – 6	1 – 3
Lutron	HomeWorks® QS wallbox power module	HQRJ-WPM-6D-120-	100% - 1%	1 – 26	1 – 13
Lutron	Homeworks® DIN power module	LQSE-4A1-D	100% - 1%	1 – 6	1 – 3
Lutron	HomeWorks® wallbox power module	HWI-WPM-6D-120	100% - 1%	1 – 26	1 – 13
Lutron	GRAFIK Eye® QS control unit	QSGR-, QSGRJ-	100% - 1%	1 – 26	1 – 13
Lutron	GRAFIK Eye® 3000 control unit	GRX-3100-, GRX-3500-	100% - 1%	1 – 26	1 – 13
Lutron	RPM-4U module	HW-RPM-4U-120, LP-RPM-4U-120	100% - 1%	1 – 26	1 – 13
Lutron	RPM-4A module	HW-RPM-4A-120, LP-RPM-4A-120	100% - 1%	1 – 26	1 – 13
Lutron	GP dimming panels	Various	100% - 1%	1 – 26	1 – 13
Lutron	Ariadni CL 250W dimmer	AYCL-253P-	100%-1%	1 – 8	1 – 4
Lutron	Diva CL 250W dimmer	DVCL-253P-, DVSCCL-253P-	100%-1%	1 – 8	1 – 4
Lutron	Grafik T CL or RF CL dimmer	GT-250M-, GTJ-250M-	100%-1%	1 – 8	1 – 4
Lutron	Nova T CL 250W dimmer	NTCL-250-	100%-1%	1 – 10	1 – 5

* NOTE: Refer to dimmer manufacturer's documentation for installation instructions and circuit details.

D3 / DIML3
2 WIRE PHASE DIMMING



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DIMMING DRIVER COMPATIBILITY SELECTION GUIDE
D4A / DIML4A and D4P / DIML4P

DIMMING DRIVER WIRING SCHEMES:

NOTES:
Wiring diagrams are examples of typical installations intended to illustrate the number of wires that must be run to fixture. These diagrams are not intended to specify all equipment necessary for a given dimming circuit. Refer to specific dimmer manufacturer's documentation for details.

IMPORTANT SAFETY INSTRUCTIONS - SAVE THESE INSTRUCTIONS

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D4A / DIML4A LED: Lutron Hi-Lume Premier EcoSystem LED Driver (Dims down to 0.1%)

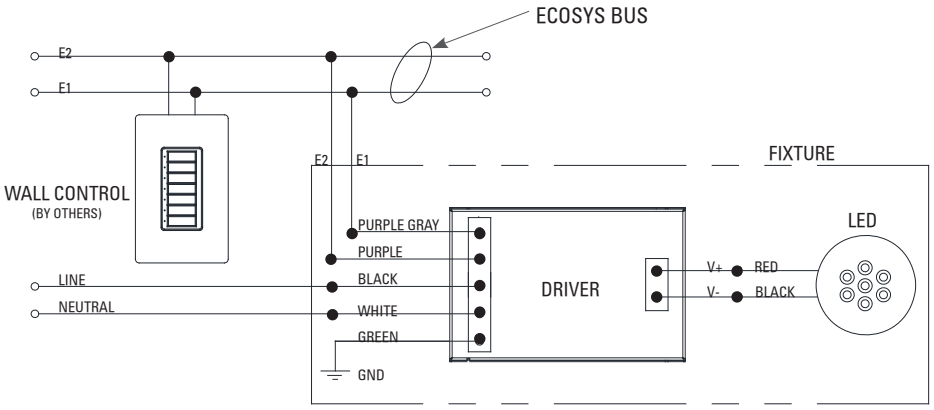
D4P / DIML4P LED: Lutron Hi-Lume Premier EcoSystem LED Driver (Dims down to 1%)

D4A / D4P EcoSystem Controls Dimmer Compatibility Chart

Manufacturer	Product	Part Number	Maximum Quantity Light Fixtures Per Control
120V / 277V			
Lutron	PowPak dimming module	RMJ-ECO32-DV-B	32
		FCJ/FCJS-ECO	3
120V ONLY			
Lutron	Energi Savr Node	QSN-1ECO-S	64
		QSN-2ECO-S	128
	GRAFIK Eye QS/ Homeworks QS control unit	QSGRJ-_ E, QSGR-_E	64
	Quantum Hub	QP2-_ _2C	128
		QP2-_ _4C	256
		QP2-_ _6C	384
		QP2-_ _8C	512
	HomeWorks QS / myRoom Plus power module	LQSE-2ECO-D	128

* NOTE: Number of fixtures may be higher if wattage is less than maximum values shown. Refer to dimmer manufacturer's documentation for installation instructions and circuit details.

D4A / DIML4A and D4P / DIML4P
EcoSystem CONTROLS



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DIMMING DRIVER COMPATIBILITY SELECTION GUIDE
D4E / DIML4E and D4H /DIML4H

DIMMING DRIVER WIRING SCHEMES:

NOTES:
Wiring diagrams are examples of typical installations intended to illustrate the number of wires that must be run to fixture. These diagrams are not intended to specify all equipment necessary for a given dimming circuit. Refer to specific dimmer manufacturer's documentation for details.

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2. Only qualified electricians in accordance to local codes should install these fixtures.
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4. Make sure all connections are in accordance with the National Electrical Code and any local regulations.
5. Cap any wires not used separately (not together).

D4E / DIML4E LED: Lutron 5 Series EcoSystem LED Driver / LED Dimming Driver Wiring (Dims down to 5%)

D4E / DIML4E EcoSystem Dimmer Compatibility Chart

Manufacturer	Product	Part Number	Dimmed Light Output Range	Qty Fixtures Per Control* Fixture Wattage	
120V / 277V				39W and Less	40W - 80W
Lutron	PowPak dimming module	RMJ-ECO32-DV-B	100%–5%	1–32	1 – 16
Lutron	Energi Savr Node	QSN-1ECO-S, QSN-2ECO-S	100%–5%	1–64	1 – 32
Lutron	GRAFIK Eye QS (120V ONLY)	QSGRJ- E, QSGR- E	100%–5%	1–64	1 – 32
Lutron	Quantum	Various	100%–5%	1–64	1 – 32

* NOTE: Number of fixtures may be higher if wattage is less than maximum values shown. Refer to dimmer manufacturer's documentation for installation instructions and circuit details.

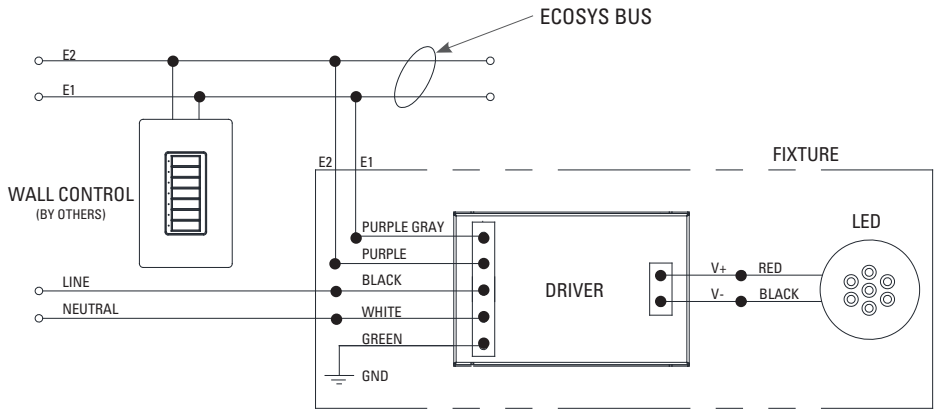
D4H / DIML4H LED: Lutron H Series EcoSystem LED Driver with Fade to Black (dims down to 1%)

D4H / DIML4H EcoSystem Dimmer Compatibility Chart

Manufacturer	Product	Part Number	Dimmed Light Output Range	Qty Fixtures Per Control* Fixture Wattage	
120V / 277V				39W and Less	40W - 80W
Lutron	PowPak dimming module	RMJ-ECO32-DV-B	100%–1%	1–32	1 – 16
Lutron	Energi Savr Node	QSN-1ECO-S, QSN-2ECO-S	100%–1%	1–64	1 – 32
Lutron	GRAFIK Eye QS (120V ONLY)	QSGRJ- E, QSGR- E	100%–1%	1–64	1 – 32
Lutron	Quantum	Various	100%–1%	1–64	1 – 32

* NOTE: Number of fixtures may be higher if wattage is less than maximum values shown. Refer to dimmer manufacturer's documentation for installation instructions and circuit details.

D4E / DIML4E and D4H / DIML 4H EcoSystem CONTROLS



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DIMMING DRIVER COMPATIBILITY SELECTION GUIDE
D6A / DIML6A and D6E / DIML6E
D6B / DIML6B and D6F / DIML6F

IMPORTANT SAFETY INSTRUCTIONS - SAVE THESE INSTRUCTIONS

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3. De-energize the electrical circuit at the circuit breaker prior to installation process or servicing.
4. Make sure all connections are in accordance with the National Electrical Code and any local regulations.
5. Cap any wires not used separately (not together).

D6A / DIML6A and D6E / DIML6E LED Dimming Compatibility Table

D6A / DIML6A and D6E / DIML6E are linearly programmed dimming drivers for use with the dimming controls listed in the table below.
D6A / DIML6A = EldoLED SOLOdrive 0-10V control dims from 100% to 0.1%
D6E / DIML6E = EldoLED ECOdrive 0-10V control dims from 100% to 1%

D6A / DIML6A and D6E / DIML6E Dimmer Compatibility Chart

Manufacturer	Product	Part Number	Dimmed Light Output Range			Qty Fixtures Per Dimmer*
120V & 277V			DIML6A		6E	Refer to manufacturer's dimmer load rating for maximum and minimum fixture quantities per dimmer. Enlighted compatible.
Lutron	Diva	DVTV/NFTV with PP-20	99% -	0.1%	1%	
Lutron	Nova T	NTFTV with PP-20	99% -	0.1%	1%	
Lutron	Energi Savr Node	QSN-4T16-S	100% -	0.1%	1%	
Lutron	GP Dimming Panels	TVM2 Module	99% -	0.1%	1%	
Lutron	Interfaces	GRX-TVI w/ GRX3503	100% -	0.1%	1%	
Sensor Switch	nIO	nIO EZ	100% -	0.1%	1%	
enlighted	Control Unit	CU-3E-1R	100% -	0.1%	1%	

D6B / DIML6B and D6F / DIML6F LED Dimming Compatibility Table

D6B / DIML6B and D6F / DIML6F are logarithmic-programmed dimming drivers for use with the dimming controls listed in the table below.
D6B / DIML6B = EldoLED SOLOdrive 0-10V control dims from 100% to 0.1% D6F / DIML6F = EldoLED ECOdrive 0-10V control dims from 100% to 1%

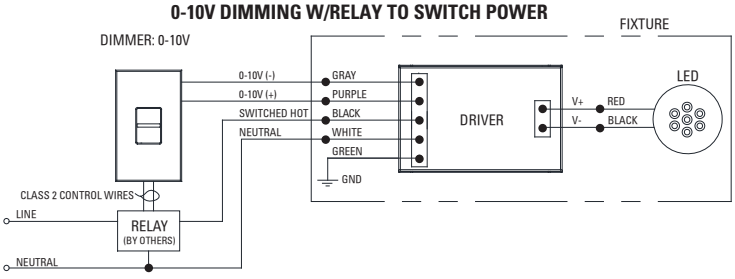
D6B / DIML6B and D6F / DIML6F Dimmer Compatibility Chart

Manufacturer	Product	Part Number	Dimmed Light Output Range			Qty Fixtures Per Dimmer*
120V & 277V			DIML6B		6F	Refer to manufacturer's dimmer load rating for maximum and minimum fixture quantities per dimmer. Enlighted compatible.
Bush-Jaeger	Electronic potentiometer	2112U-101	100% -	0.1%	1%	
Jung	Electronic potentiometer	240-10	100% -	0.1%	1%	
Leviton	Iluma Tech dimmer	IP710-DLX	100% -	0.1%	1%	
Lightolier (Philips)	Momentum (120V ONLY)	ZP600FAM120	100% -	0.1%	1%	
Merten	Electronic potentiometer	5729	100% -	0.1%	1%	
Pass & Seymour	Titan	CD4FB-W	100% -	0.1%	1%	
Watt Stopper	Miro	DCLV1	100% -	0.1%	1%	
Synergy	Wallbox Dimmers	ISD BC	100% -	0.1%	1%	
ABB	i-bus	SD/S 2.16.1	100% -	0.1%	1%	
Crestron	Modules	GLX-DIMFLV8, GLXP-DIMFLV8	100% -	0.1%	1%	
Crestron	Green Light	GLPAC-DIMFLV4-, GLPAC-DIMFLV8-	100% -	0.1%	1%	
Crestron	Green Light Power Pack	GLPP-DIMFLVEX-PM, GLPP-1DIMFLV2EX-PM, GLPP-1DIMFLV3EX-PM	100% -	0.1%	1%	
Crestron	DIN Rail Analog Output Module	DIN-A08	100% -	0.1%	1%	
Crestron	DIN Rail 0-10V Fluorescent Dimmer	DIN-4DIMFLV4	100% -	0.1%	1%	
Crestron	iLux 0-10V Dimmer Expansion Module	CLS-EXP-DIMFLV	100% -	0.1%	1%	
enlighted	Control Unit	CU-3E-1R	100% -	0.1%	1%	

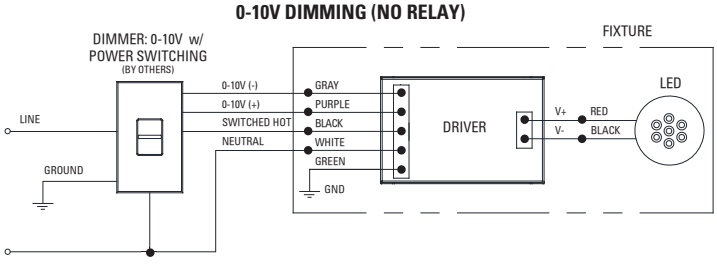
DIMMING DRIVER WIRING SCHEMES:

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D6 / DIML6
0-10V DIMMING W/RELAY TO SWITCH POWER



D6 / DIML6
0-10V DIMMING (NO RELAY)



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USAI Lighting

DIMMING DRIVER COMPATIBILITY SELECTION GUIDE
D7 / DIML7 and D7E

DIMMING DRIVER WIRING SCHEMES:

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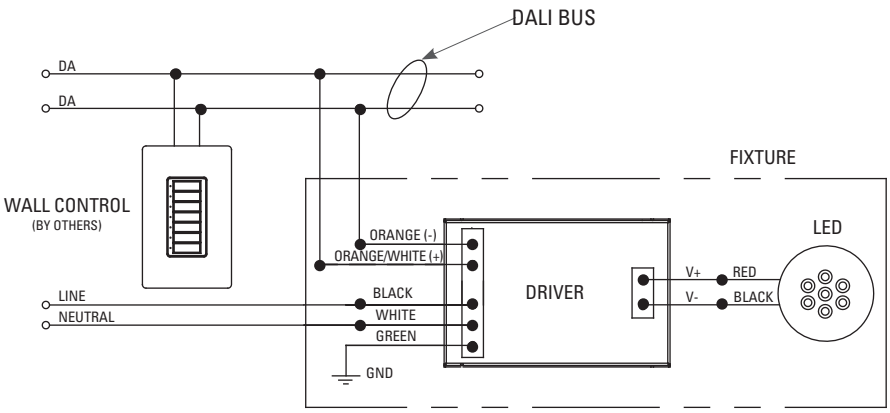
IMPORTANT SAFETY INSTRUCTIONS - SAVE THESE INSTRUCTIONS

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D7 / DIML7 and D7E Dimming Driver Wiring

D7 / DIML7 and D7E are linearly programmed dimming drivers.
D7 / DIML7 = EldoLED SOLOdrive DALI control dims from 100% to 0.1%
D7E = EldoLED ECOdrive DALI control dims from 100% to 1%

D7 / DIML7 / D7E
DALI CONTROLS



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USAI Lighting

DIMMING DRIVER COMPATIBILITY SELECTION GUIDE
D19 / DIML19

DIMMING DRIVER WIRING SCHEMES:

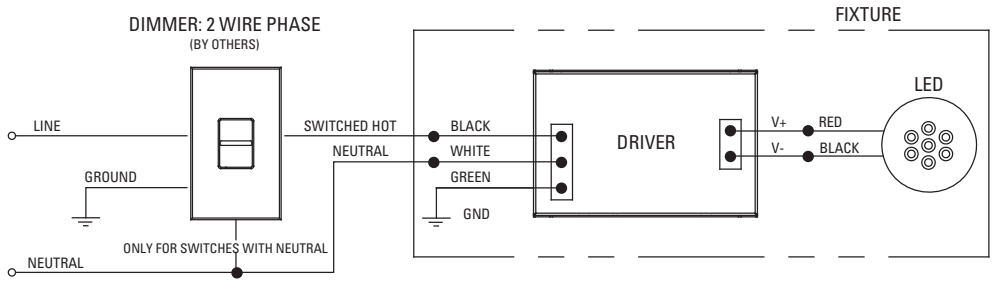
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D19 / DIML19 LED: Hatch XTC series or equivalent - Forward and Reverse Phase Dimming Driver. Dims down to 1% contingent upon dimmer specification and load. 120V only.

D19 / DIML19
2 WIRE PHASE DIMMING



D19 / DIML19 Dimmer Compatibility Chart

120V ONLY		
Forward Phase / TRIAC Dimming		
Manufacturer	Product	Qty Fixtures Per Dimmer
Leviton	IPL06-10Z	Use fixture wattage per fixture specification sheet to determine number of fixtures per dimmer. Max number of fixtures is limited by dimmer load rating.
	6613-xxx	
Lutron	S-600P	
	S-603P	
	DV-600P	
	DV-603P	
	DVSC-603P	
	CT-600P	
	CT-603P	

120V ONLY		
Reverse Phase / ELV Dimming		
Manufacturer	Product	Qty Fixtures Per Dimmer
Leviton	6615	Use fixture wattage per fixture specification sheet to determine number of fixtures per dimmer. Max number of fixtures is limited by dimmer load rating.
	IPE04-xxx	
Lutron	NTELV-300	
	NTELV-600	
	SELV-300P	
	SELV-303P	
	DVELV-300P	
	DVELV-303P	

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BEACON
design . performance . technology

DATE: | LOCATION:

TYPE: | PROJECT:

CATALOG #:

SRT2 EDGE-LIT

CEILING/SURFACE/GARAGE

DRIVE EDGE-LIT



FEATURES

- Edge-lit optical assembly delivers exceptional uniformity over the entire lens with indirect illumination that reduces glare and improves visual comfort
- Low profile housing intended for 8' - 20' mounting heights for surface, trunnion/yoke or pendant mounting
- Applications include parking garage, walkway or building canopies, corridors, tunnels, large stairwells and other interior applications
- Multiple optical distributions are available making the Beacon Edge-Lit luminaire both versatile and functional
- UL/cUL listed for wet locations, IP65 and 3G vibration rated
- Ambient temperatures of up to 40°C

CONTROL TECHNOLOGY

NX DISTRIBUTED™ INTELLIGENCE wiSCAPE™

RELATED PRODUCTS

Drive Edge-Lit SRT1 | Arceos™ ARS Surface | Endura

SRT1 PSG PAGE

SRT2 PSG PAGE

SRT BROCHURE

SPECIFICATIONS

HOUSING

- Die-cast aluminum housing ensures long electrical component life and luminaire performance
- Corrosion resistant powder coat finish both protects and provides architectural appearance
- One piece molded silicone gasket ensures weather proof seal
- Thermally isolated driver mounted to dedicated bracket reduces operating temperatures and increases driver life and reliability

OPTICS

- Edge-lit acrylic light guide provides blended non-pixelated light for unprecedented visual comfort
- Choice of multiple light outputs with lumen range of 4,000–16,000
- Five distribution types: Type V Square, Type V Rectangular, Type V Concentrated, Type V Wide or Asymmetric (Type 3/4)
- Wide variety of CCT's and CRI's offered: 3000K (70CRI), 3000K (80CRI), 3500K (80CRI), 4000K (70CRI), 4000K (80CRI) or 5000K (70 CRI) CCT

ELECTRICAL

- 120V–277V 50/60Hz with 347V and 480V available
- 0-10V dimming drivers are RoHS compliant and IP66
- Surge protection – Standard 10kA with optional end of life LED indicator

INSTALLATION

- Standard quick mount plate over standard 4" square junction box or octagonal box and allows for simplified fixture installation.
- Standard luminaire accepts a rigid or free-swinging 3/4" NPT stem for pendant mount via wet location j-box (by others)
- Optional bird deterrent shroud available for field installation
- Optional trunnion/yoke mount available for field installation

OPTIONS/CONTROLS

- Standalone occupancy sensor available for on/off or dimming operation
- NX Distributed Intelligence™ available with in fixture wireless control module, features dimming and occupancy sensor
- wiSCAPE® available with in fixture wireless control module, features dimming and occupancy sensor
- UL924 device available for standalone and wireless control override during power interruptions
- Uplight option provides approximately 800 lumens and consumes only 8 additional watts
- Integral battery backup option available with and without heater. Rated for 0°C (without heater) and -30°C (with heater)
- Emergency lighting relay available for generator or central inverter supplied lighting
- Vandal resistant wire guard available as an option for factory installation or as an accessory for field installation

CERTIFICATIONS

- Listed to UL1598 for use in wet location, listed for -40°C to 40°C applications
- IDA approved with zero uplight for 3000K and warmer CCTs
- IP65

WARRANTY

- 5 year warranty
- See HLI Standard Warranty for additional information

KEY DATA	
Lumen Range	4000–16000
Wattage Range	30–140
Efficacy Range (LPW)	110–135
Reported Life (Hours)	L70>50K
Weight lbs. (kg)	15 (5.8)

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HUBBELL Lighting

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DATE: LOCATION:

TYPE: PROJECT:

CATALOG #:

SRT2 EDGE-LIT

CEILING/SURFACE/GARAGE

ORDERING GUIDE

Example: SRT2 30 3K7 5QW UNV GT WG

CATALOG #

Series		Engine		CCT		Distribution		Voltage		Color/Finish		Options	
SRT2	Edge-Lit Parking Garage Size 2	**30**	30W Nominal 4000 lm	**3K7**	3000K, 70 CRI	**5QW**	Type Square Wide[1]	**UNV**	120V-277V	**BL**	Textured Black	**CD**	Continuous Dimming[6]
		50	50W Nominal 6000 lm	**3K8**	3000K, 80 CRI	**5RW**	Type 5 Rect. Wide[1]	**120**	120V	**DB**	Textured Dark Bronze	**WG**	Wire Guard
		65	65W Nominal 8000 lm	**35K8**	3500K, 80 CRI	**5C**	Type 5 Concentrated	**208**	208V	**GT**	Graphite Textured	**UD**	Uplight Module[3]
		85	85W Nominal 10000 lm	**4K7**	4000K, 70 CRI	**5W**	Type 5 Wide[4]	**240**	240V	**GYS**	Smooth Gray	**F**	Single Fuse (120, 277, 347V)[2]
		100	100W Nominal 12000 lm	**4K8**	4000K, 80 CRI	**ASY**	Asymmetric (Type 4)[1]	**277**	277V	**PS**	Smooth Plat. Silver	**F**	Double Fuse (208, 240, 480V)[2]
		120	120W Nominal 14000 lm	**5K7**	5000K, 70 CRI			**347**	347V	**WH**	Textured White	**E**	EM Battery Pack (0°C)[2]
		140	140W Nominal 16000 lm					**480**	480V	**CC**	Custom Color	**EH**	EM Battery w/Heater (-30°C)[2]
												ELR	Emergency Lighting Relay[3]
												LD3	36" Lead Length[5]
												LD6	72" Lead Length[5]
												LD9	108" Lead Length[5]
												SP10K	10kA Surge Protection with End of Life LED Indicator
												LMB	Less Mounting Bracket

Control Options

NX Standalone

NXOS-12F	NX Distributed Intelligence™, PIR Occ. Sensor, Dimming Daylight Harvesting, up to 12' MH
NXSP-30F	NX Distributed Intelligence™, PIR Occ. Sensor, Dimming Daylight Harvesting, up to 30' MH
NXOS924-12F	NX Distributed Intelligence™, PIR Occ. Sensor with UL924 dimming bypass module for controls override, up to 12' MH[3]
NXSP924-30F	NX Distributed Intelligence™, PIR Occ. Sensor, with UL924 dimming bypass module for controls override, up to 30' MH[3]

NX Networked – Wireless[1]

NXWE	NX Distributed Intelligence™ Wireless Enabled (module + radio)
NXOSW-12F	NX Distributed Intelligence™ Wireless, PIR Occ. Sensor, Dimming Daylight Harvesting, up to 12' MH
NXSPW-30F	NX Distributed Intelligence™ Wireless, PIR Occ. Sensor, Dimming Daylight Harvesting, up to 30' MH
NXWE924	NX Distributed Intelligence™ Wireless Enabled with UL924 dimming bypass module for controls override[3]
NXOSW924-12F	NX Distributed Intelligence™ Wireless, PIR Occ. Sensor with UL924 dimming bypass module for controls override, up to 12' MH[3]
NXSPW924-30F	NX Distributed Intelligence™ Wireless, PIR Occ. Sensor with UL924 dimming bypass module for controls override, up to 30' MH[3]

wiSCAPE® – Wireless[1]

WIR	Wireless Controls, wiSCAPE®
WIRSC	wiSCAPE® + occupancy sensor
WIR924	Wireless Controls, wiSCAPE® with UL924 dimming bypass module for controls override[3]
WIRSC924	wiSCAPE® + occupancy sensor with UL924 dimming bypass module for controls override[3]

Sensor Controls

SCP-8F	Remote control programmable line voltage sensor (8-12' recommended MH)
SCP-20F	Remote control programmable line voltage sensor (12-20' recommended MH)
SCP924-8F	Programmable sensor with UL924 dimming bypass module for controls override (8-12' recommended MH)[3]
SCP924-20F	Programmable sensor with UL924 dimming bypass module for controls override (12-20' recommended MH)[3]

Accessories (Order Separately)

☐	**SRT2-WG**	Wire Guard for SRT2 version
☐	**SRT-MB**	Mounting bracket for pre-installation
☐	**SRT2-BRD**	Bird deterrent shroud for SRT2 version, not available with uplight or trunnion mount
☐	**SRT2-TM**	Trunnion/Yoke accessory for SRT2 version
☐	**SCP-REMOTE**	Remote control for SCP option; order at least on per project to program and control

Notes:

1 Up to 85W light engines only
2 Must specify voltage, 120V or 277V for E and EH
3 Universal voltage only
4 100–140W light engines only
5 Standard wire lead length 24"
6 Specify when using external 0-10V dimming system

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HUBBELL Lighting

DATE: LOCATION:

TYPE: PROJECT:

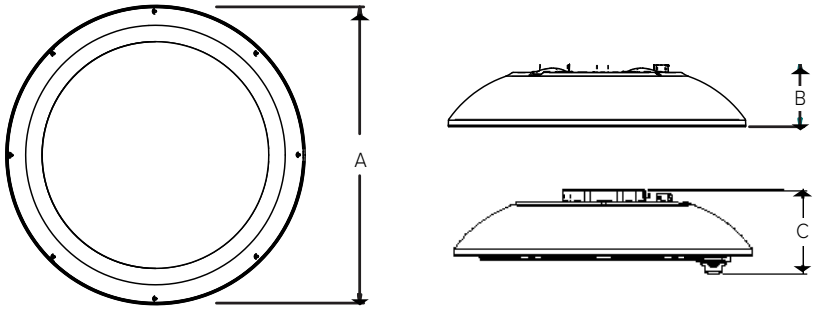
CATALOG #:

SRT2 EDGE-LIT

CEILING/SURFACE/GARAGE

DIMENSIONS

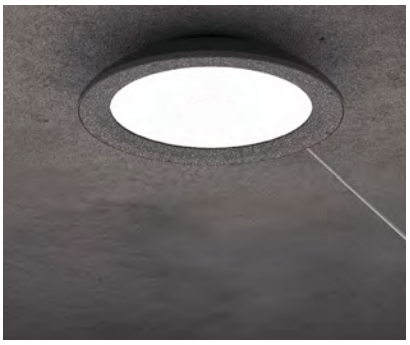
SRT2



A	B	C	Weight
18.5" (469mm)	4.0" (1mm)	5.2" (132mm)	15bs (6.8kg)

ADDITIONAL INFORMATION

MOUNTING



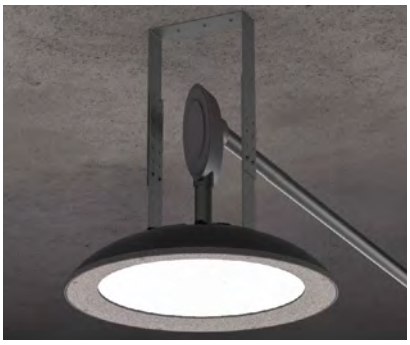
Surface Mount

Mounting plate with “quick mount” hanger for one person simple installation.



Pendant Mount

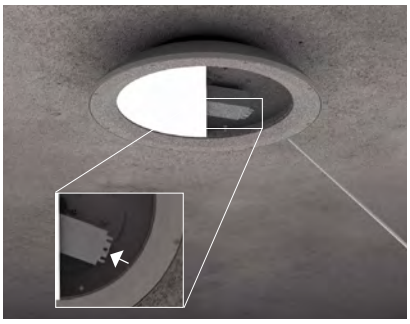
Standard 3/4" threaded entry for pendant applications.



Trunnion/Yoke Mount

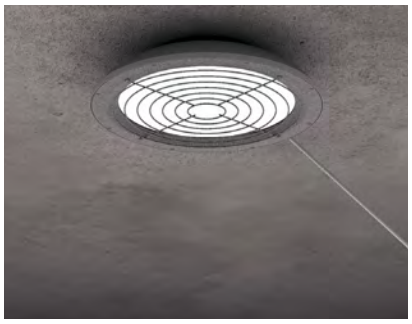
Multiple position trunnion mount adjusts 9" up and down for positioning in 1" increments.

ACCESSORIES AND SERVICES



Battery Backup

Integral battery backup option available on SRT2 version.



Wire Guard

An optional wire guard can be specified at the factory or as an accessory for field installation.



Bird Deterrent

An optional bird shroud deterrent can be specified at the factory or as an accessory for field installation.

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SRT2 EDGE-LIT

CEILING/SURFACE/GARAGE

ADDITIONAL INFORMATION (CONT'D)

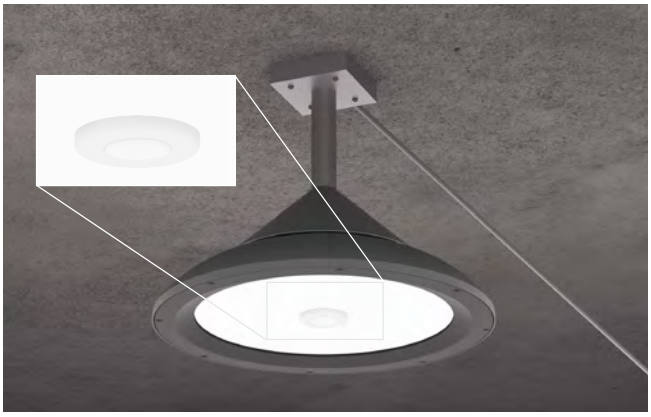
UPLIGHT

Optional uplight module provides 800 lumens of indirect illumination for improved visual quality while eliminating cave effect.

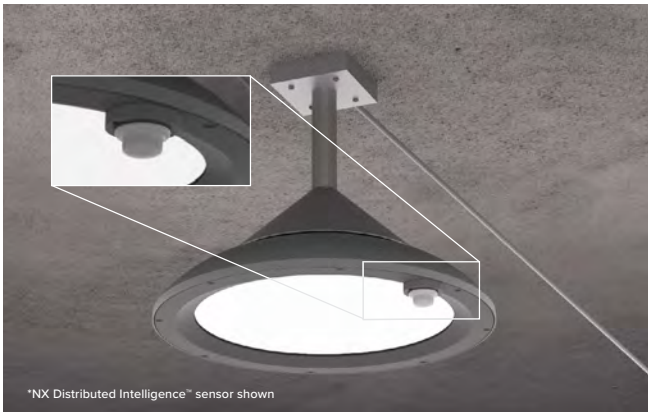




CONTROLS



Standalone Controls



Wireless Controls

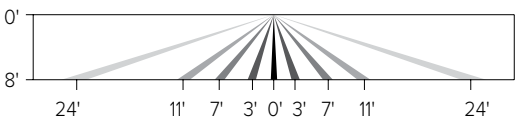
Optional passive infrared sensors are available for basic occupancy and daylight sensing. Programmable via remote or Bluetooth® phone app.

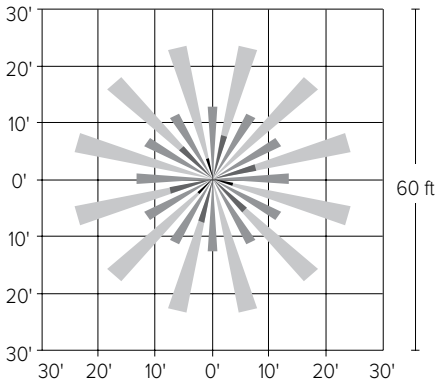
NX DISTRIBUTED™ INTELLIGENCE

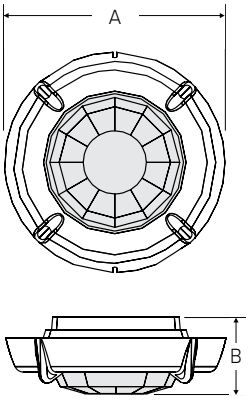
wiSCAPE™ WIRELESS OUTDOOR LIGHTING SYSTEM

Optional NX Distributed Intelligence™ and wiSCAPE® wireless controls are available for SRT2 versions (with or without occupancy sensing).

SCP-8F







A	B
2.3" (59mm)	.8" (20mm)

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CATALOG #:

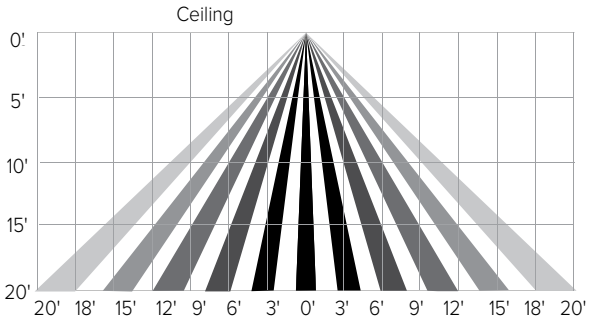
SRT2 EDGE-LIT

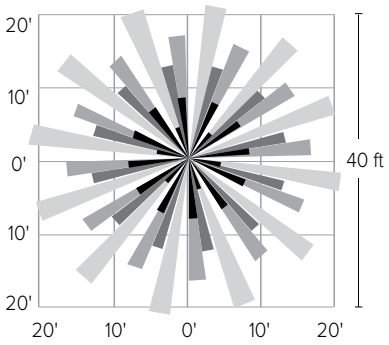
CEILING/SURFACE/GARAGE

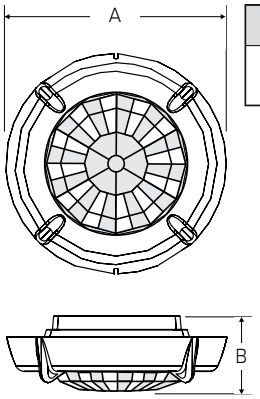
ADDITIONAL INFORMATION (CONT'D)

CONTROLS (CONT'D)

SCP-20F

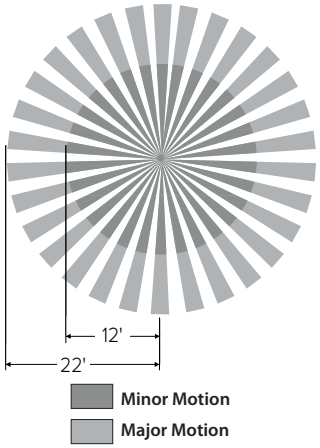


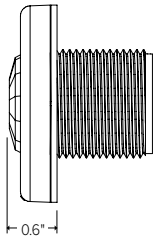


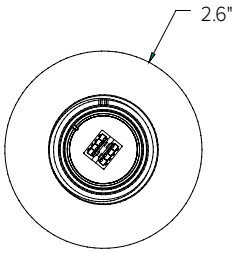


A	B
2.3" (59mm)	.8" (20mm)

NXOS12F

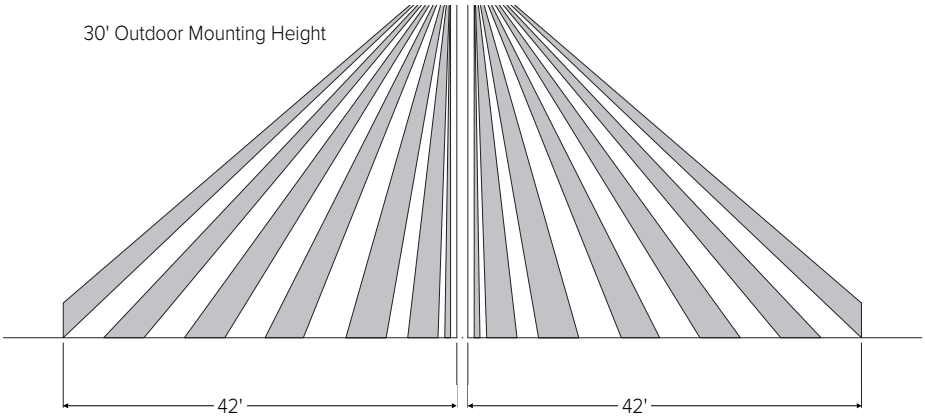


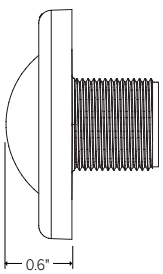


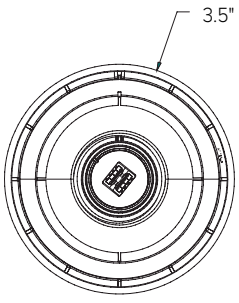


NXSMP-OMNI Range

NXSP30F







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HUBBELL Lighting

JOB _____ TYPE _____

NOTES _____ APPROVALS _____

FEATURES

- Elegant form factor
- High performance optics provide up to 17,500 delivered lumens
- Diffusion lens for low glare comfort
- NX™ wireless control options
- IP66

CERTIFICATIONS

c UL us LISTED

ida DARK SKY APPROVED 2016

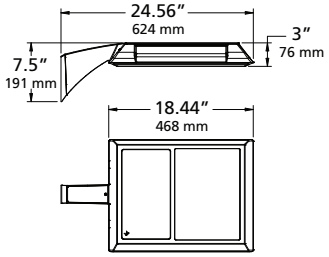
3000K and warmer CCTs only

DLC QPL LISTED PREMIUM

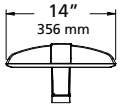
DLC QPL LISTED

SPECIFICATIONS





EPA Side View .64



EPA Front View .37

Weight: 21.5 lbs / 9.75 kg

ORDERING CODE

Series	LED Engine	CCT	Distribution	Rotation	Voltage	Mounting
ALT1 Altitude	No Lens	AM Amber	FR Type 1/Front Row	Blank for no rotation	UNV 120-277V	ASQ Arm Square pole
	28L-20 3,000 lm	3K7 3000K, 70 CRI	2 Type II	L[1] Optic rotation left	347 347V	A34 Arm mt 3.3-4.2" OD pole
	28L-40 5,000 lm	4K7 4000K, 70 CRI	3 Type III	R[1] Optic rotation right	480 480V	A46 Arm mt 4.5-6.0" OD pole
	28L-60 7,500 lm	5K7 5000K, 70 CRI	4 Type IV			MAF Horizontal Slipfitter 2 3/8" OD arm
	28L-85 10,000 lm	3K8 3000K, 80 CRI	4W Type IV Wide			SVSF Vertical Slipfitter Mount square for 2" pipe tenon, (2-3/8" O.D.)
	54L-95 12,500 lm	4K8 4000K, 80 CRI	5QM Type V Square Medium			VSF Vertical Slipfitter Mount for 2" pipe tenon, (2-3/8" O.D.)
	54L-120 15,000 lm	3K9 3000K, 90 CRI	5QN Type V Square Narrow			WB Wall Bracket for area wall mount
	54L-155 17,500 lm		5R Type V Rectangular			
			5W Type V Wide (Round)			

Fixture Finish	Control Options		Options	Control Accessories
BL Black	7PR 7 pin PCR, wireless control enabled	SCL-8F Low voltage sensor for 3rd party wireless controls via 7PR. For mounting heights up to 8'	BC[5] Backlight Control	SCPREMOTE Remote control for SCP option. Order at least one per project to program and control the occupancy sensor
DB Dark Bronze	7PR-TL 7 pin PCR with twist lock photocontrol	SCL-40F Low voltage sensor for 3rd party wireless controls via 7PR. For mounting heights 9' to 40'	SF Single Fuse	SW7PR SiteSync™ on fixture module via 7PR
GT Graphite	7PR-SC 7 pin PCR with shorting cap	SCP-8F Remote control programable line voltage sensor, use with SCPREMOTE	DF Double Fuse	SWUSB SiteSync™ Software on USB
LG Light Gray	AD-01[2] AstroDIM: 50% output at midnight	SCP-40F Remote control programable line voltage sensor, use with SCPREMOTE	TB Terminal Block	SWTAB SiteSync™ Windows Tablet
PS Platinum Silver	AD-02[2] AstroDIM: 50% output midnight to 4 AM	SWP[2,3,4] Site Sync™ Pre Commission Wireless Module	CLR Clear Lens	SWBRG SiteSync™ Wireless Bridge Node
TT Titanium	AD-03[2] AstroDIM: 50% output 10PM	SWPM-40F[2,3,4] Site Sync with Sensor 9' to 40' MH	HDL[6] Diffuse Lens	SWFC SiteSync™ Field Commission Service
WH White	AD-04[2] AstroDIM: 50% output 10PM to 4AM			WIR-RME-L wiSCAPE™ External Fixture Module
CC Custom Color†	NXSP14F[2,3] Wired NX, PIR Occupancy Sensor, Dimming Daylight Harvesting, 14'			NXOFM-1R1D-UNV NX External Contol Node
†Consult factory	NXSP30F[2,3] Wired NX, PIR Occupancy Sensor, Dimming Daylight Harvesting, 30'			
	NXSPW14F[2,3] NX Wireless, PIR Occupancy Sensor, Dimming Daylight Harvesting, 14'			
	NXSPW30F[2,3] NX Wireless, PIR Occupancy Sensor, Dimming Daylight Harvesting, 30'			
	NXWE NX Wireless Enabled			

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1 Not available with 5QM and 5W distributions.
2 Not available with other sensor or wireless control options.
3 Not available in 480V.
4 Specify group and zone at time of order. See www.hubbelllighting.com/sitesync for more details. Order at least one SiteSync interface accessory SWUSB or SWTAB. Each option contains SiteSync License, GUI, and Bridge Node.
5 Not available with Type 5 distributions, CLR, or HDL option.
6 Only available in Type 3 or Type 5W

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HUBBELL Lighting

LUMINAIRE PERFORMANCE

LED #	Nominal Lumen Package	Nominal Wattage	Lens Options	Distribution	3000K 70CRI					4000K 70CRI					5000K 70CRI				
					Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
						B	U	G			B	U	G			B	U	G	
28L	3,000	20	No Lens	FR	3110	0	0	0	141	3274	0	0	0	149	3318	1	0	0	148
				FR-BC	2036	0	0	0	93	2143	0	0	0	97	2172	0	0	0	97
				2	2903	1	0	1	132	3056	1	0	1	139	3097	1	0	1	138
				2-BC	1771	0	0	0	80	1864	0	0	0	85	1889	0	0	0	84
				3	2945	1	0	1	131	3100	1	0	1	138	3141	1	0	1	140
				3-BC	1779	0	0	1	81	1873	0	0	1	85	1898	0	0	1	85
				4	2943	0	0	1	134	3098	0	0	1	141	3139	0	0	1	141
				4-BC	2189	0	0	1	100	2304	0	0	1	105	2335	0	0	1	104
				4W	2927	1	0	1	133	3081	1	0	1	140	3122	1	0	1	139
				4W-BC	1673	0	0	1	76	1761	0	0	1	80	1785	0	0	1	80
				5R	3025	2	0	2	137	3184	2	0	2	145	3227	2	0	2	144
				5QM	3069	2	0	0	139	3230	2	0	0	147	3273	2	0	0	146
				5QN	3051	2	0	0	139	3211	2	0	0	146	3254	2	0	0	145
				5W	3024	2	0	1	137	3183	2	0	1	145	3226	2	0	1	144
			Clear Lens	FR	2909	0	0	0	132	3062	0	0	0	139	3103	0	0	0	141
				2	2715	1	0	1	123	2858	1	0	1	130	2896	1	0	1	132
				3	2754	1	0	1	125	2899	1	0	1	132	2938	1	0	1	134
				4	2752	0	0	1	125	2897	0	0	1	132	2936	0	0	1	133
				4W	2738	1	0	1	124	2882	1	0	1	131	2920	1	0	1	133
				5R	2829	2	0	2	129	2978	2	0	2	135	3018	2	0	2	137
				5QM	2870	2	0	0	130	3021	2	0	0	137	3062	2	0	0	139
				5QN	2853	2	0	0	130	3003	2	0	0	137	3044	2	0	0	138
				5W	2829	2	0	1	129	2977	2	0	1	135	3017	2	0	1	137
			HDL Lens	3	2341	1	0	1	106	2464	1	0	1	112	2497	1	0	1	114
				5W	2405	1	0	1	109	2531	1	0	1	115	2565	1	0	1	117

Lumen Multiplier		
CCT	80 CRI	90 CRI
3000K	0.9119	0.7033
4000K	0.8941	N/A

Kim Lighting reserves the right to change specifications without notice.

LUMINAIRE PERFORMANCE

LED #	Nominal Lumen Package	Nominal Wattage	Lens Options	Distribution	3000K 70CRI					4000K 70CRI					5000K 70CRI				
					Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
						B	U	G			B	U	G			B	U	G	
28L	5,000	40	No Lens	FR	4870	1	0	0	128	5127	1	0	0	135	5195	1	0	0	137
				FR-BC	3189	0	0	0	84	3356	0	0	0	88	3401	0	0	0	90
				2	4546	1	0	1	120	4785	1	0	1	126	4849	1	0	1	128
				2-BC	2773	0	0	1	73	2919	0	0	1	77	2958	0	0	1	78
				3	4611	1	0	2	121	4854	1	0	2	128	4919	1	0	2	129
				3-BC	2786	0	0	1	73	2933	0	0	1	77	2972	0	0	1	78
				4	4608	1	0	2	121	4851	1	0	2	128	4915	1	0	2	129
				4-BC	3428	0	0	1	90	3608	0	0	1	95	3656	0	0	1	96
				4W	4584	1	0	2	121	4825	1	0	2	127	4889	1	0	2	129
				4W-BC	2621	0	0	1	69	2758	0	0	1	73	2795	0	0	1	74
				5R	4737	2	0	2	125	4986	3	0	1	131	5053	3	0	3	133
				5QM	4806	2	0	1	126	5058	2	0	1	133	5126	2	0	1	135
				5QN	4777	2	0	0	126	5028	2	0	0	132	5096	2	0	0	134
				5W	4736	3	0	1	125	4985	2	0	2	131	5052	3	0	1	133
			Clear Lens	FR	4555	1	0	0	120	4795	1	0	0	126	4859	1	0	0	128
				2	4252	1	0	1	112	4476	1	0	1	118	4536	1	0	1	119
				3	4333	1	0	1	114	4561	1	0	1	120	4622	1	0	1	121
				4	4310	0	0	2	113	4537	1	0	2	119	4598	1	0	2	121
				4W	4287	1	0	2	113	4513	1	0	2	119	4573	1	0	2	120
				5R	4431	2	0	2	117	4663	2	0	2	123	4726	2	0	2	124
				5QM	4495	2	0	1	118	4731	2	0	1	125	4794	2	0	1	126
				5QN	4468	2	0	0	118	4703	2	0	0	124	4766	2	0	0	125
				5W	4430	3	0	1	117	4663	3	0	1	123	4725	3	0	1	124
			HDL Lens	3	3741	1	0	1	98	3937	1	0	1	104	3990	1	0	1	105
				5W	3891	2	0	1	102	4095	2	0	1	108	4150	2	0	1	109

Lumen Multiplier		
CCT	80 CRI	90 CRI
3000K	0.9119	0.7033
4000K	0.8941	N/A

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LUMINAIRE PERFORMANCE

LED #	Nominal Lumen Package	Nominal Wattage	Lens Options	Distribution	3000K 70CRI					4000K 70CRI					5000K 70CRI				
					Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
						B	U	G			B	U	G			B	U	G	
28L	7,500	60	No Lens	FR	7347	1	0	1	122	7733	1	0	1	129	7837	1	0	1	131
				FR-BC	4810	0	0	0	80	5063	0	0	0	84	5131	0	0	0	86
				2	6858	1	0	2	114	7218	1	0	2	120	7315	1	0	2	122
				2-BC	4183	0	0	1	70	4403	0	0	1	73	4462	0	0	1	74
				3	6956	1	0	2	116	7322	1	0	2	122	7420	1	0	2	123
				3-BC	4203	0	0	1	70	4424	0	0	1	74	4483	0	0	1	75
				4	6951	1	0	2	116	7317	1	0	2	122	7415	1	0	2	124
				4-BC	5171	0	0	2	86	5443	0	0	2	91	5516	0	0	2	92
				4W	6915	1	0	2	115	7278	1	0	2	121	7376	1	0	2	123
				4W-BC	3953	0	0	2	66	4161	0	0	2	69	4216	0	0	2	70
				5R	7145	3	0	3	119	7521	3	0	3	125	7622	3	0	3	127
				5QM	7249	3	0	1	121	7630	3	0	1	127	7732	3	0	1	129
				5QN	7206	3	0	0	120	7585	3	0	0	126	7687	3	0	0	128
				5W	7144	3	0	2	119	7520	3	0	2	125	7620	3	0	2	127
			Clear Lens	FR	6872	1	0	1	115	7233	1	0	1	121	7330	1	0	1	122
				2	6414	1	0	2	107	6751	1	0	2	113	6842	1	0	2	114
				3	6506	1	0	2	108	6848	1	0	2	114	6940	1	0	2	116
				4	6502	1	0	2	108	6844	1	0	2	114	6935	1	0	2	116
				4W	6468	1	0	2	108	6807	1	0	2	113	6899	1	0	2	115
				5R	6683	3	0	3	111	7035	3	0	3	117	7129	3	0	3	119
				5QM	6780	3	0	1	113	7137	3	0	1	119	7232	3	0	1	121
				5QN	6740	2	0	0	112	7094	3	0	0	118	7189	3	0	0	120
				5W	6682	3	0	2	111	7033	3	0	2	117	7128	3	0	2	119
			HDL Lens	3	5531	2	0	1	92	5821	2	0	1	97	5899	2	0	1	98
				5W	5680	2	0	1	95	5979	2	0	1	100	6059	2	0	1	101

Lumen Multiplier		
CCT	80 CRI	90 CRI
3000K	0.9119	0.7033
4000K	0.8941	N/A

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LUMINAIRE PERFORMANCE

LED #	Nominal Lumen Package	Nominal Wattage	Lens Options	Distribution	3000K 70CRI					4000K 70CRI					5000K 70CRI				
					Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
						B	U	G			B	U	G			B	U	G	
28L	10,000	85	No Lens	FR	9699	1	0	1	113	10209	1	0	1	119	10346	1	0	1	120
				FR-BC	6350	0	0	1	74	6684	0	0	1	78	6773	0	0	1	79
				2	9054	1	0	2	105	9530	2	0	2	111	9657	2	0	2	112
				2-BC	5523	0	0	1	64	5813	0	0	1	68	5891	0	0	1	68
				3	9183	1	0	2	107	9666	1	0	2	112	9795	1	0	2	114
				3-BC	5549	0	0	2	65	5841	0	0	2	68	5919	0	0	2	69
				4	9177	1	0	2	107	9660	1	0	2	112	9789	1	0	2	114
				4-BC	6827	0	0	2	79	7186	0	0	2	84	7282	0	0	2	85
				4W	9129	1	0	3	106	9609	1	0	3	112	9737	1	0	3	113
				4W-BC	5219	0	0	2	61	5493	0	0	2	64	5567	0	0	2	65
				5R	9433	3	0	3	110	9929	3	0	3	115	10062	3	0	3	117
				5QM	9570	3	0	1	111	10073	3	0	1	117	10208	3	0	1	119
				5QN	9514	3	0	0	111	10014	3	0	0	116	10148	3	0	0	118
				5W	9432	4	0	2	110	9927	4	0	2	115	10060	4	0	2	117
			Clear Lens	FR	9072	1	0	1	105	9549	1	0	1	111	9677	1	0	1	113
				2	8468	1	0	2	98	8913	1	0	2	104	9033	1	0	2	105
				3	8589	1	0	2	100	9041	1	0	2	105	9162	1	0	2	107
				4	8584	1	0	2	100	9035	1	0	2	105	9156	1	0	2	106
				4W	8538	1	0	2	99	8987	1	0	3	105	9108	1	0	3	106
				5R	8823	3	0	3	103	9287	3	0	3	108	9411	3	0	3	109
				5QM	8951	3	0	1	104	9422	3	0	1	110	9548	3	0	1	111
				5QN	8898	3	0	0	103	9366	3	0	0	109	9491	3	0	0	110
				5W	8822	3	0	2	103	9285	4	0	2	108	9410	4	0	2	109
			HDL Lens	3	7302	2	0	2	85	7685	2	0	2	89	7788	2	0	2	91
				5W	7499	2	0	1	87	7893	2	0	1	92	7999	2	0	1	93

Lumen Multiplier		
CCT	80 CRI	90 CRI
3000K	0.9119	0.7033
4000K	0.8941	N/A

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LUMINAIRE PERFORMANCE

LED #	Nominal Lumen Package	Nominal Wattage	Lens Options	Distribution	3000K 70CRI					4000K 70CRI					5000K 70CRI				
					Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
						B	U	G			B	U	G			B	U	G	
54	12,500	95	No Lens	FR	11792	1	0	1	125	12412	1	0	1	132	12578	1	0	1	134
				FR-BC	7848	0	0	1	83	8260	0	0	1	88	8371	0	0	1	90
				2	11210	2	0	2	119	11800	2	0	2	126	11958	2	0	2	126
				2-BC	5993	0	0	1	64	6308	0	0	1	67	6392	0	0	1	69
				3	11225	1	0	2	119	11815	2	0	2	126	11974	2	0	2	127
				3-BC	6273	0	0	2	67	6603	0	0	2	70	6691	0	0	2	72
				4	11311	1	0	2	120	11906	1	0	3	127	12065	1	0	3	128
				4-BC	7291	0	0	2	78	7674	0	0	2	82	7777	0	0	2	84
				4W	11203	2	0	3	119	11792	2	0	3	125	11950	2	0	3	127
				4W-BC	5603	0	0	2	60	5898	0	0	2	63	5977	0	0	2	65
				5R	11623	3	0	3	124	12234	3	0	3	130	12398	3	0	3	131
				5QM	11770	3	0	2	125	12389	3	0	2	132	12555	3	0	2	133
				5QN	11799	3	0	0	126	12420	3	0	0	132	12586	3	0	0	133
				5W	11594	4	0	2	123	12204	4	0	2	130	12367	4	0	2	131
			Clear Lens	FR	11029	1	0	1	117	11609	1	0	1	124	11765	1	0	1	125
				2	10485	2	0	2	112	11036	2	0	2	117	11184	2	0	2	119
				3	10555	1	0	2	112	11110	1	0	2	118	11259	1	0	2	120
				4	10579	1	0	2	113	11136	1	0	2	118	11285	1	0	2	120
				4W	10479	1	0	3	111	11029	2	0	3	117	11177	2	0	3	119
				5R	10871	3	0	3	116	11443	3	0	3	122	11596	3	0	3	123
				5QM	11009	3	0	2	117	11588	3	0	2	123	11743	3	0	2	125
				5QN	11036	3	0	0	117	11616	3	0	0	124	11772	3	0	0	125
				5W	10845	4	0	2	115	11415	4	0	2	121	11568	4	0	2	123
			HDL Lens	3	8736	2	0	2	93	9195	2	0	2	98	9318	2	0	2	100
				5W	9152	3	0	1	97	9633	3	0	1	102	9762	3	0	1	104

Lumen Multiplier		
CCT	80 CRI	90 CRI
3000K	0.9119	0.7033
4000K	0.8941	N/A

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LUMINAIRE PERFORMANCE

LED #	Nominal Lumen Package	Nominal Wattage	Lens Options	Distribution	3000K 70CRI					4000K 70CRI					5000K 70CRI				
					Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
						B	U	G			B	U	G			B	U	G	
54	15,000	120	No Lens	FR	14390	1	0	1	118	15146	1	0	1	124	15349	1	0	1	125
				FR-BC	9577	1	0	1	78	10080	1	0	1	83	10215	1	0	1	84
				2	13680	2	0	2	112	14399	2	0	2	118	14592	2	0	2	120
				2-BC	7313	0	0	2	60	7697	0	0	2	63	7800	0	0	2	64
				3	13698	2	0	3	112	14418	2	0	3	118	14611	2	0	3	120
				3-BC	7655	0	0	2	63	8057	0	0	2	66	8165	0	0	2	67
				4	13803	1	0	3	113	14528	1	0	3	119	14723	1	0	3	121
				4-BC	8897	0	0	2	73	9365	0	0	2	77	9490	0	0	2	78
				4W	13671	2	0	3	112	14390	2	0	3	118	14583	2	0	4	120
				4W-BC	6838	1	0	2	56	7197	1	0	2	59	7294	1	0	2	60
				5R	14184	4	0	4	116	14929	4	0	4	122	15129	4	0	4	124
				5QM	14363	3	0	2	118	15118	4	0	2	124	15321	4	0	2	126
				5QN	14399	4	0	4	118	15156	4	0	1	124	15359	4	0	1	126
				5W	14149	4	0	2	116	14893	4	0	2	122	15092	4	0	2	124
			Clear Lens	FR	13459	1	0	1	110	14167	1	0	1	116	14356	1	0	2	118
				2	12795	2	0	2	105	13468	2	0	2	110	13648	2	0	2	112
				3	12812	2	0	2	105	13486	2	0	2	111	13666	2	0	2	112
				4	12910	1	0	3	106	13589	1	0	3	111	13771	1	0	3	113
				4W	12787	2	0	3	105	13459	2	0	3	110	13640	2	0	3	112
				5R	13266	4	0	4	109	13964	4	0	4	114	14151	4	0	4	116
				5QM	13434	3	0	2	110	14140	3	0	2	116	14330	3	0	2	117
				5QN	13467	4	0	0	110	14175	4	0	0	116	14365	4	0	0	118
				5W	13234	4	0	2	108	13929	4	0	2	114	14116	4	0	2	116
			HDL Lens	3	10892	3	0	2	89	11464	3	0	2	94	11618	3	0	2	95
				5W	11250	3	0	1	92	11841	3	0	2	97	12000	3	0	2	98

Lumen Multiplier		
CCT	80 CRI	90 CRI
3000K	0.9119	0.7033
4000K	0.8941	N/A

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LUMINAIRE PERFORMANCE

LED #	Nominal Lumen Package	Nominal Wattage	Lens Options	Distribution	3000K 70CRI					4000K 70CRI					5000K 70CRI				
					Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w	Lumen	BUG Rating			lm/w
						B	U	G			B	U	G			B	U	G	
54	17,500	155	No Lens	FR	17299	2	0	2	111	18208	2	0	2	117	18452	2	0	2	119
				FR-BC	11513	1	0	1	74	12118	1	0	1	78	12280	1	0	1	79
				2	16445	2	0	2	105	17310	2	0	3	111	17542	2	0	3	112
				2-BC	8791	0	0	2	56	9253	0	0	2	59	9377	0	0	2	60
				3	16467	2	0	3	106	17333	2	0	3	111	17565	2	0	3	113
				3-BC	9202	1	0	2	59	9686	1	0	2	62	9816	1	0	2	63
				4	16593	1	0	3	106	17465	1	0	3	112	17699	1	0	4	113
				4-BC	10696	1	0	2	69	11258	1	0	2	72	11409	1	0	2	73
				4W	16435	2	0	4	105	17299	2	0	4	111	17531	2	0	4	112
				4W-BC	8220	1	0	2	53	8652	1	0	2	55	8768	1	0	2	56
				5R	17051	4	0	4	109	17947	4	0	4	115	18188	4	0	4	117
				5QM	17267	4	0	2	111	18174	4	0	2	117	18418	4	0	2	118
				5QN	17309	4	0	1	111	18219	4	0	1	117	18463	4	0	1	118
				5W	17009	4	0	2	109	17903	4	0	2	115	18143	4	0	2	116
			Clear Lens	FR	16180	1	0	2	104	17030	1	0	2	109	17258	1	0	2	111
				2	15382	2	0	2	99	16190	2	0	2	104	16407	2	0	2	105
				3	15402	2	0	3	99	16212	2	0	3	104	16429	2	0	3	105
				4	15520	1	0	3	99	16336	1	0	3	105	16555	1	0	3	106
				4W	15372	2	0	4	99	16180	2	0	4	104	16397	2	0	4	105
				5R	15948	4	0	4	102	16787	4	0	4	108	17011	4	0	4	109
				5QM	16150	4	0	2	104	16999	4	0	2	109	17227	4	0	2	110
				5QN	16190	4	0	1	104	17041	4	0	1	109	17269	4	0	1	111
				5W	15909	4	0	2	102	16745	4	0	2	107	16969	4	0	2	109
			HDL Lens	3	13093	3	0	2	84	13782	3	0	2	88	13966	3	0	2	90
				5W	13524	3	0	2	87	14235	3	0	2	91	14426	3	0	2	92

Lumen Multiplier		
CCT	80 CRI	90 CRI
3000K	0.9119	0.7033
4000K	0.8941	N/A

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SPECIFICATIONS

Housing:

- Low copper aluminum alloy die-casting is designed as one-piece with internal cooling fins.
- Solid, cast aluminum wall creates a thermal barrier between the optical and electrical compartments.
- Molded silicone gasket throughout insures the sealing between the two compartments and provides ingress protection.
- Housing is designed with integral LED heat sink utilized for thermal transfer and for securing the location of each LED module.
- IK09 rated enclosure protects electrical equipment against external mechanical impacts.

Lens Frame:

- One-piece low copper aluminum alloy die-cast is secured to housing with 6 screws.

Backlight Control

- Optional Backlight Control on each LED module to completely control unwanted backlight.

Lens

One-piece flat glass lens slips secure with clips. Extra silicone gasketing is provided to retain a clear optical compartment.

Optical Module:

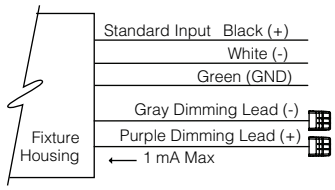
- LEDs shall be mounted to a metal printed circuit board assembly (MCPCB).
- Optical lenses shall be clear injection molded PMMA acrylic.
- Each MCPCB and optic shall be sealed to the diecast housing and sealed with a continuous one piece injection molded silicone rubber gasket.
- Patent Pending design of optical array shall independently shield each LED optic across the length of the aperture.
- Optional fixture finish optical surfaces shall not exceed BUG ratings of the standard white finish and shall be greater than or equal to the delivered lumens of the optional matte black optical surface finish.

Electrical Components

- Standard programmable driver allows for programmable drive current settings.
- Electrical components are stategically located in the driver gear compartment with a molded silicon grommet seal to provide separation from the optical chamber.
- Maximum lightning surge current 20KA with thermally protected varistor technology. Surge suppression is series circuited preventing total fixture failure. ANSI/IEEE C62.41 Category C High.
- Open circuit fault will turn off the luminaire in order to protect the sensitive electronics and acts as a signal for maintenance.
- Programmable Driver is rated for -40°C starting.
- "Thermal Shield", primary side, thermister provides protection for the sustainable life of electronic components (350mA to 700mA).

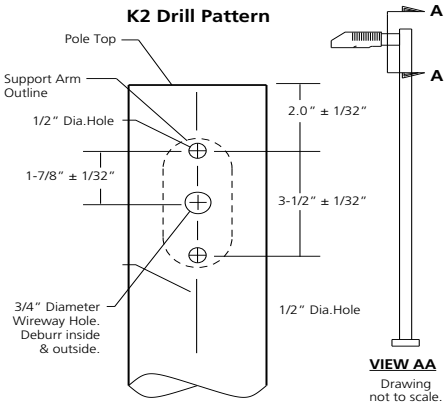
Dimming:

- Dimming range from 100% to 10% through the use of the standard 0-10V interface on the programmable driver.
- Modular wiring harness in the service area provides user access to the dimming circuitry.
- Dimming circuitry compatible with 0-10V, user-defined control devices.
- Optional factory programmed dimming profile.



Support Arm:

- Die-cast, low copper aluminum alloy, with splice access cover.
- Die-cast pole adaptor and an internal reinforcing plate are provided with a wire strain relief.
- The arm adapter is square or circular cut for specified pole size and shape.
- For field wire connections, a terminal block is mounted in the arm cavity and accessible behind the splice access cover. The block accepts #14 to #8 wire sizes and is factory prewired to the electrical module's quick-disconnect plug inside the electrical compartment.



Optional Slip-Fitter:

- Internally accessible slip-fitter attaches to a 1-1/4" to 2-3/8" tenon and allows hands-free wiring and maintenance.

Optional Wall Mount:

- Optional, cast aluminum mounting plate attaches to a wall over a junction box and the speed mount is bolted to the cover plate. To complete the wiring, the luminaire assembly slides over the mounting plate.

Fusing:

SF for 120, 277, and 347 Line volts

DF for 208, 240, and 480 Line volts

Hight temperature fuse holders factory installed inside the fixture housing.

Fuse is included.

Finish:

Fade and abrasion resistant, electrostatically applied, thermally cured, triglycidal isocyanurate (TGIC) polyester powdercoat.

Standard colors include (BL) Black, (DB) Dark Bronze, (GT) Graphite, (PS) Platinum Silver, (LG) Light Gray, (TT) Titanium, (WH) White, and (CC) Custom Color (Include RAL#).

Certifications and Listings:

- UL 1598 Standard for Luminaires.
- UL 8750 Standard for Safety for Light.
- ANSI C136.31-2010 3G Vibration tested and compliant.
- IDA approved, 3000K and warmer CCTs only
- IP66 Certified

CAUTION:

Fixtures must be grounded in accordance with national, state and/or local electrical codes. Failure to do so may result in serious personal injury.

WARRANTY:

For full warranty see: http://www.hubbelllighting.com/resources/warranty

Kim Lighting reserves the right to change specifications without notice.

CONTROLS

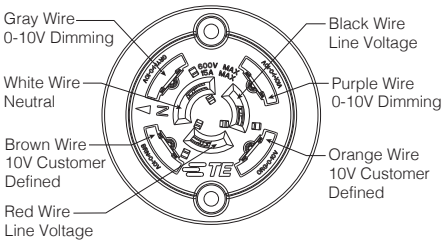
Photocell Receptacle

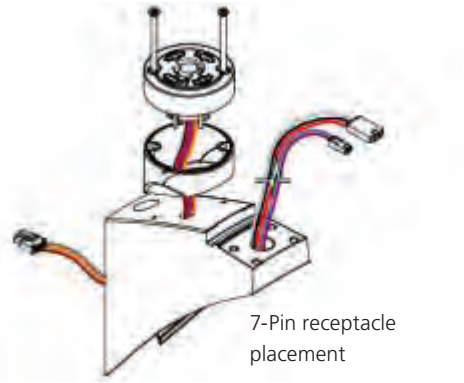
7PR

Fully gasketed and wired 7-pin receptacle option. Easy access location above the electrical compartment. 7-pin construction allows for a user-defined interface and provides a controlled definition of operational performance. ANSI twist-lock control module by-others.

Standard customer operation modes:

1. Traditional on/off photoelectric control.
2. 5-pin wireless photoelectric control for added dimming feature.
3. 7-pin wireless photoelectric control for dimming and additional I/O connections for customer use.





7-Pin receptacle placement

Wireless Controls

- Optional universal voltage (120-277V) for dusk to dawn energy savings.Photocontrol is factory installed inside the housing with a fully gasketed sensor on the side wall. For multiple fixture mountings, one fixture is supplied with a photocell to operate the others.

- Occupancy Sensor shall be programmable anduse passive infrared (PIR) sensing technology that reacts to changes in infrared energy (moving body heat) within the coverage area. Careful consideration must be given to obstructions that may block the sensor's line of sight.

- Factory default settings for SCP option shall be:- High mode: 10V - Low mode: 1V - Ramp-uprate: disabled - Fade-down rate: disabled -Photocell: Off - Sensitivity: Full - Time Delay:Fade to low: 5 minutes - Time Delay: Fade to off: 1 hour

- The SCP enables any wall mounted luminaire,in excess of 75 watts, to meet California Title 24 requirements with integral 10KA surge protection for added reliability and serviceability.For more detail: http://www.aal.net/products/sensor_control_programmable

AstroDIM

AstroDIM provides multi-stage night-time power reduction based on an internal timer referenced to the power on/off time. There is no need for an external control infrastructure. The unit automatically performs a dimming profile based on the predefined scheduled reference to the midpoint, which is calculated based on the power on/off times.

SiteSync™[1]

SiteSync™ wireless control system for reduction in energy and maintenance cost while optimizing light quality 24/7. See ordering information or visit www.hubbelllighting.com/products/sitesync for more details.

[1]PRECOMMISSIONED SITESYNC ORDERING INFORMATION: When ordering a fixture with the SiteSync lighting control option, additional information will be required to complete the order. The SiteSync Commissioning Form or alternate schedule information must be completed. This form includes Project location, Group information, and Operating schedules. For more detailed information please visit www.HubbellLighting.com/products/sitesync or contact Hubbell Lighting tech support at (800) 345-4928.

SiteSync fixtures with occupancy sensor (SWPM) require the mounting height of the fixture for selection of the lens.

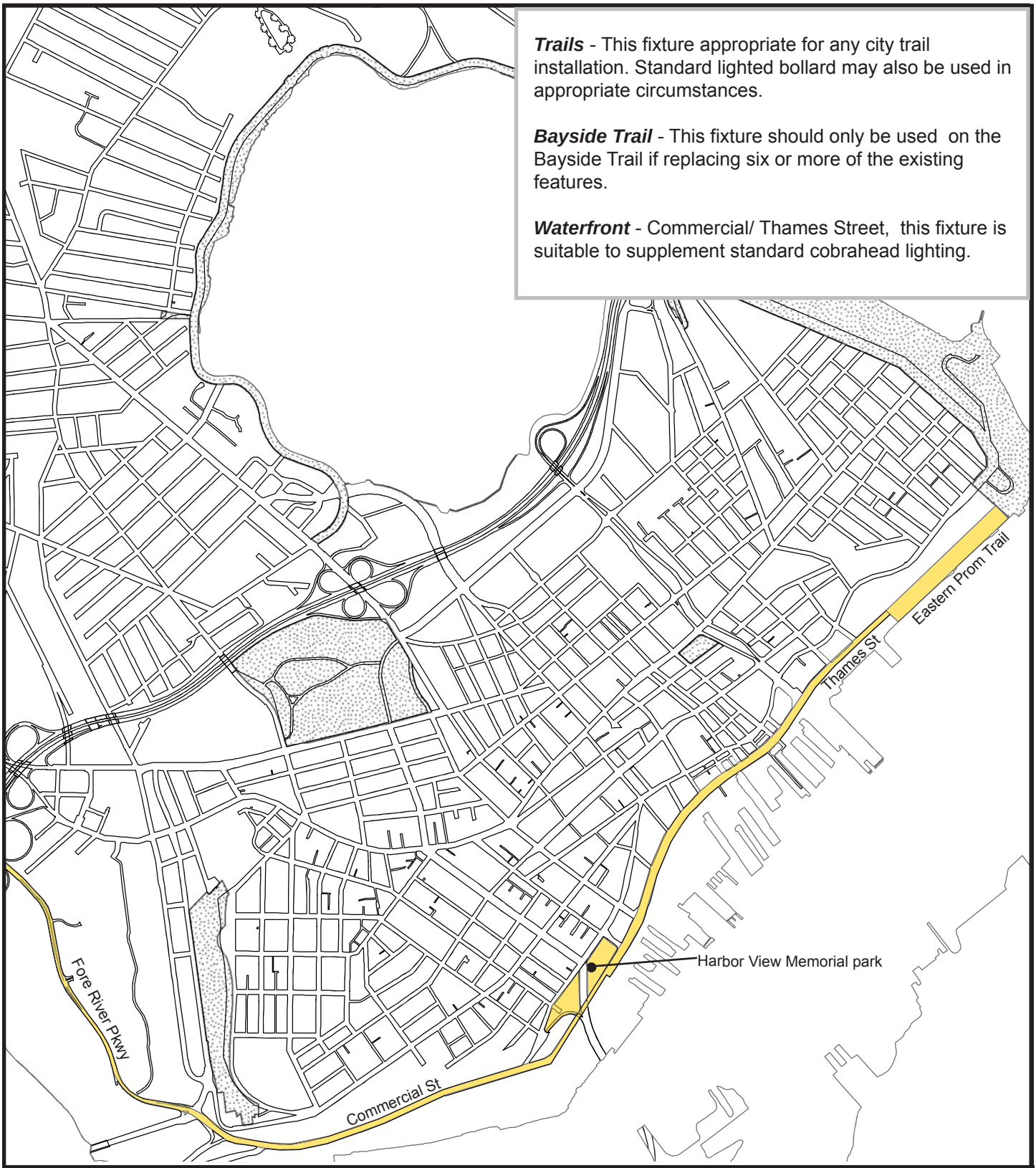
[2]Voltage, [3]Color, [4]Pole Diameter,

Kim Lighting reserves the right to change specifications without notice.

Trails - This fixture appropriate for any city trail installation. Standard lighted bollard may also be used in appropriate circumstances.

Bayside Trail - This fixture should only be used on the Bayside Trail if replacing six or more of the existing features.

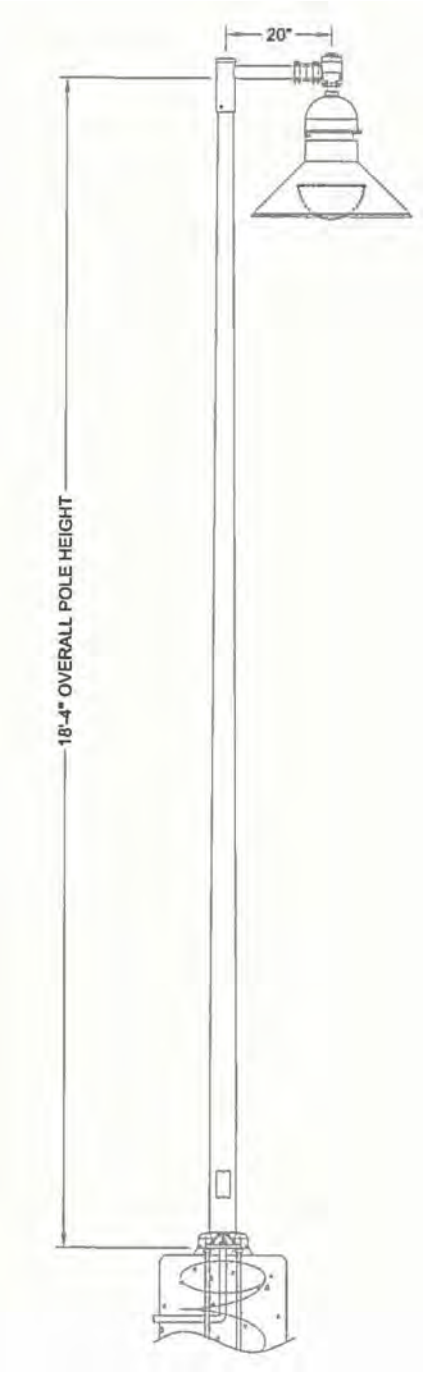
Waterfront - Commercial/ Thames Street, this fixture is suitable to supplement standard cobrahead lighting.



Date: **March, 2019**	**CITY OF PORTLAND, MAINE** TECHNICAL MANUAL	**MUNICIPAL STREET LIGHTING STANDARDS** SECTION 10	Figure: X-8A
Revised Date:	**MAP: Decorative Light - TRAILS/ WATERFRONT**		

PORTLAND | me

Street & Sidewalk Lighting
DECORATIVE LIGHT - TRAIL/WATERFRONT



LUMINAIRE
Holophane GlasWerks LED Hallbrook Series
Model: GELB-050-3K-AS-4-B-3-P7E-DM

Pendant mount
IES Type IV Distribution
Thermal resistant prismatic glass lens held in a formed aluminum door frame.
50 watts
Universal Voltage (120-277V)
Dimming driver with 7-pin photocontrol receptacle
LED 3000K color temperature

BRACKET ARM
Aluminum crossarm with a post-top fitting for a 2-3/8“ by 6” tenon.

SLIP FITTER
Holophane Glasswerks Slip Fitter
Model SG20/1-BK

2-3/8” O.D. with swivel cast fitter.

LIGHTING POLE
Holophane
Model: RTA1850E-PL-ND-BK-4

Aluminum pole shaft rated for a 90 mph wind load with a 1.3 gust factor.

Provide four hot-dipped galvanized steel L-type anchor bolts. Lighting pole shall be hot dipped galvanized prior to powder coat paint.

DIMENSIONS
Overall Height = 18’ 4”
Bracket Arm = 1’ 6“

FINISH
Black (standard) - polyester powder coat

APPLICATION
Trails: Appropriate for any city trail installation.
Waterfront (Commercial/Thames St): Supplemental pedestrian lighting to standard cobrahead lighting.

Spacing:
One side: 90’ - 125’ on center
Alternating sides: 175’ - 225’ ft on center

Follow established pattern. Single arm oriented over trail or street; Double-arm used in medians or similar.

Date: **March, 2019**	**CITY OF PORTLAND, MAINE** TECHNICAL MANUAL	**MUNICIPAL STREET LIGHTING STANDARDS** SECTION 10	Figure: X-8B
Revised Date:	**TRAILS / WATERFRONT (COMMERCIAL/THAMES STREET)**		

Att. H

J.B. Brown & Sons
10 Free Street, Suite 100
P.O. Box 207
Portland, ME 04112-0207
207-774-5908 (phone) 207-774-0898 (fax)

I, Vincent P. Veroneau, hereby certify that a neighborhood meeting was held on February 13, 2020 at 321 Commercial Street, Portland, Maine at 5:30PM for the proposed project located at 113 West Commercial Street.

I also certify that on January 28, 2020, invitation mailed to the following:

1. All addresses on the mailing list provided by the Planning Division which includes property owners within 500 feet of the proposed development or within 1,000 feet of a subdivision within an industrial zone or industrial zone change.
2. Residents on the "interested parties" list.

Signed,

Vincent P. Veroneau
February 20, 2020

Attached to this certification are:

1. Copy of the invitation sent
2. Sign-in sheet
3. Meeting minutes

J.B. Brown & Sons
10 Free Street
Portland, ME 04101
207-774-5908 (phone)

January 29, 2020

Dear Neighbor:

Please join us for a neighborhood meeting to discuss our plans to construct a Veteran's Administration Health Clinic and structured parking garage located at 113 West Commercial Street, Portland, Maine.

Meeting Location: **Casco Bay Conference Room – 2nd floor, Courtyard by Marriott Hotel 321 Commercial Street, Portland, ME**

Meeting Date: **Thursday, February 13, 2020**

Meeting Time: **5:30pm**

The City code requires that property owners within 500 feet (1000 feet for proposed industrial subdivisions and industrial zone changes) of the proposed development and residents on an "interested parties list", be invited to participate in a neighborhood meeting. A sign-in sheet will be circulated and minutes of the meeting will be taken. Both the sign-in sheet and minutes will be submitted to the Planning Board.

If you have any questions, please call me at (207) 774-5908.

Sincerely,

Vincent P. Veroneau

Note:

Under Section 14-32(C) and 14-524(a)d of the City Code of Ordinances, an applicant for a Level III development, subdivision of over five lots/units, or zone change is required to hold a neighborhood meeting within 30 days of submitting a preliminary application or 21 days of submitting a final site plan application, if a preliminary plan was not submitted. The neighborhood meeting must be held at least seven days prior to the Planning Board public hearing on the proposal. Should you wish to offer additional comments on this proposed development, you may contact the Planning Division at 874-8721 or send written correspondence to the Planning and Urban Development Department, Planning Division, 4th Floor, 389 Congress Street Portland, ME 04101 or by email: jrather@portlandmaine.gov

Neighborhood Meeting Attendance

On February 13, 2020 the following members of the public met at the Courtyard by Marriott on 321 Commercial Street, Portland, Maine to discuss the development of a new 2-story 68,000sf medical clinic building, 150 surface parking spaces, and a 378 space structured parking garage on 8 acres of land located at 113 West Commercial Street, Portland, Maine.

Name	Address	Contact email or phone #
Sara Miller	96 Salem	Sara@Snapdragonreps.com
LAURA ROBINSON	320 DANFORTH ST	laurarobinson.studio@gmail.com
Tom ROBINSON	320 DANFORTH ST	Thom.robinson@gmail.com
Debi & Chet Kruk	370 Danforth St.	dkruk@Maine.rr.com
Sarah Daigneault	350 Danforth St	spdmom@gmail.com
Vin Veroneau	10 Free St.	veroneau@jbbrown.com
Bob Vallee	10 free ST.	bob.vallee@jbbrown.com
GRIFFIN HORNYAK	1001 19TH ST N WASHINGTON DC	ghornyak@fdstonewater.com
Kevin Carley	112 Salem St	KPCarley@gmail.com
Stephen Bushey	Gorrill Palmer	sbushey@gorrillpalmer.com
CONSTANCE BLOOMFIELD	382 DANFORTH	cbloomfi@maine.rr.com
Jaime Parker	305 Commercial	jaime@trails.org
JUDY Bruneis	342 Danforth St	judybruneis@gmail
Kate Melican	348 N. Ave	~~kmelican@gmail.~~ com

MEETING MINUTES
VA CLINIC – FEBRUARY 13, 2020

On February 13, 2020, Vin Veroneau from J.B. Brown & Sons presented the project at a neighborhood meeting using a PowerPoint presentation, which provided information the project team members along with an overview of the medical office building and structured parking garage. Stephen Bushey, the civil engineer working on the project, was also in attendance and available to answer questions regarding the site design and traffic. After the presentation, there was an opportunity for attendees to ask questions with the following items covered:

Will the front beacon/stair towers at the front of the building be a light issue for the houses in the back and how long will they be on?

We do not anticipate light from the front lobbies to be an issue to the houses on Danforth Street.

Will there be lights on top level of the garage and will they turn off at night or be motion activated?

Yes. There will be lights on the top level of the garage. We will explore the option of motion detection to see if that will meet the life safety requirements.

Who will be managing the garage and will there be on-site parking operator?

J. B. Brown & Sons will be the property manager, but we do not anticipate an on-site garage operator.

What is the allocation of staff and patient parking?

Staff parking is 150 spaces on grade and 250 spaces in the garage for patients.

Will the parking garage be considered for tourist, visitor, or service industry parking and how much will the parking cost?

We do not have a current user for the additional parking spaces, but we anticipate potential use from fisherman and office users that are having difficulty finding and affording parking in the central business district. We do not have pricing set at this point, but it will be significantly less than the $150– $200 per month currently downtown.

Will the on grade parking have foliage?

Yes, the islands will have trees.

Would you consider adding landscaping/foliage to the top level of the garage, Possibly potted trees?

We have not considered foliage on the top level of the garage, but we are happy to research the possibility of adding some greenery on the top level. Possibly potted plants in the corners.

Where will snow removal be stored and will snow be kept on top level of the garage?

We have identified snow storage on-site and will remove snow off site as needed.

Is this a 24-hour facility and will there be security staff?

The VA operation is currently Monday through Friday roughly 7:30 AM to 6 PM. I am not sure of the VA's security staff, but we will have off hours security patrols as we do in our adjacent properties.

Will there be prescription drugs in the building?

I am not sure, but I assume they would have similar prescription drugs on the site as a typical primary provider would have, such as Intermed.

Is a path or a street getting put in between the garage and Star Match Building and is Emery Street an accepted Portland street?

There will be access to the garage and the Star Match building parking lot via the lower portion of Emery Street. We are designing a pedestrian walkway between W. Commercial St. and the upper portion of Emery Street. Emery Street is an accepted Portland street, but we are in discussions to discontinue the street with continued public access.

What kind of trail/walkway will be put between W. Commercial St. and lower Emery Street? Can it be more permanent than just timbers with stone dust?

We anticipate a trail/walkway of stone dust and granite/stone steps. Given the steep grade, we switchbacks will be incorporated but it will still be a relatively steep climb.

Will there be a trail in front of them medical building, when will it be built, and how big will it be?

There will be a 10-foot multi use path in front of the building that is constructed of pavement.

Was there a traffic study done? And will there be a traffic light?

Yes, there was a traffic study done and a traffic light is not warranted. A turning lane has been designed for the center of W. Commercial St.

Did the traffic study consider traffic bleeding over onto Danforth?

Yes. We had a traffic scoping meeting with the City and expanded our study area to include intersections away from the project and other developments planned in the area.

Do you plan on cutting into the tour of the hill at the back of the property? Will that cause a stability issue? How far will the cut be?

We anticipate some cut into the back hill, but are trying to limit that impact. A Geotech report was prepared and to the extent necessary, appropriate retaining walls will be installed at the back edge of the property and along W. Commercial St.

Is the patient load of this facility larger than the existing facility on commercial Street?

Yes, the facility is larger and has expanded uses beyond the services provided at the current facility.

Where is the trash located and when will it be picked up?

A trash receptacle corral is located at the back of the property. We will look to have the trash removed as close to normal business hours as possible.

Is VA leasing the clinic and are there property taxes associated with the site?

Yes, the VA has signed a 20-year lease on the property and property taxes will be paid on the facility.

Did the VA come to you asking for this land as it seems like an odd location for their facility?

No, the VA did not specifically come to us. We responded to a public request for proposal and were chosen based on our submission.

Have you considered installing solar panels?

We are exploring the possibilities of adding solar to the top of the garage, but have not determined whether that is a feasible option at this point.

What are the next steps and what is the construction timeline?

We have a planning board workshop scheduled for Tuesday, February 25. We expect that there will be a public hearing in early April with construction beginning in May in anticipation of a July 2021 occupancy by the VA.

The meeting adjourned at roughly 6:45pm.

CITY OF PORTLAND
Planning & Urban Development Department

LEVEL II and LEVEL III SITE PLAN
GENERAL DOCUMENT AND DRAWINGS CHECKLIST
Please submit each document as a separate PDF file
Please confirm by electronically checking the boxes to the left

** PLEASE FILL OUT AND UPLOAD SEPARATELY THE ZONING TABLE AND WAIVER TABLE AS NOTED BELOW **

GENERAL APPLICATION DOCUMENTS	
Yes ☑ NA ☐	**Project Description** • Cover Letter with detailed project description
Yes ☑ NA ☐	**Completed Checklist – Level II and Level III Site Plan** (this document)
Yes ☑ NA ☐	**Right, Title and Interest** • Deeds, leases, or purchase and sales agreements
Yes ☐ NA ☑	**Evidence of State or Federal Approvals** • Permits or letters of non-jurisdiction, if applicable
Yes ☑ NA ☐	**Zoning Assessment** • Table listing required and proposed uses and dimensional standards Zoning Assessment Table
Yes ☑ NA ☐	**Existing and/or Proposed Easements or Covenants, applicable.** • Evidence of existing easements and any proposed easements
Yes ☑ NA ☐	**Waiver Requests** • Written request for waiver describing request and reason Waiver Table
Yes ☑ NA ☐	**Financial Capability** • Letter or evidence from a financial institution or third party verifying financial capacity to undertake project
Yes ☑ NA ☐	**Technical Capability** • Evidence of technical capability of applicant and consultants – resumes and/or examples of past projects

LEVEL II AND LEVEL III SITE PLAN
STANDARDS AND SUBMISSION CHECKLIST

Provide assessment of compliance with standards and include supplemental documentation, as applicable
Please Submit each document as a separate PDF file

TRANSPORTATION

Yes	NA	
☑	☐	**Transportation Analysis- Traffic Impact (14-526 (a) 1)** • Provisions for pedestrian, bicycle, vehicle, and loading circulation and incremental volume of traffic impacts • Traffic Impact Study (Technical Manual, Section 1) if applicable
☑	☐	**Access and Circulation (14-526 (a) 2 a)** • Access and internal circulation, addressing ADA access • Access and egress impacts on traffic flows • Description and use of drive-up features, if applicable
☑	☐	**Loading and Servicing (14-526 (a) 2 b)** • Loading and servicing needs, route and travel way geometrics for deliveries • Turning templates for delivery vehicles, if applicable
☑	☐	**Sidewalks (14-526 (a) 2 c)** • Sidewalks and condition along street frontages and internal walkways • Engineered details for ADA ramps and public sidewalk details meeting sidewalk materials policy and ADA ramp construction details as applicable (Technical Manual, Section 1)
☐	☑	**Public Transit (14-526 (a) 3), if applicable** • Existing available transit services • Proposed site plan design details, such as easement, pad base, and shelter
☑	☐	**Off-Street Parking: Vehicle & Motorcycle/Scooter) (14-526 (a) 4 a and c)** • Expected parking demand, proposed parking supply, ADA parking, and applicable Zoning Requirements • Address Technical Manual standards (Section 1) for curb cut separation and parking lot layout and locate on site plan
☑	☐	**Bicycle Parking (14-526 (a) 4 b)** • Address bicycle parking requirements and identify locations on-site • Construction details for bike racks (Technical Manual, Section 1)
☑	☐	**Snow Storage (14-526 (a) 4 d)** • Management plan for snow removal and locate snow storage areas on plan
☑	☐	**Traffic Demand Management (TDM) (14-526 (a) 5), if applicable** • Develop TDM with Trip Reduction Targets and Strategies

ENVIRONMENTAL AND LANDSCAPE FEATURES	
Yes ☐ NA ☐	**Preservation of Significant Natural Features (14-526 (b) 1), if applicable** • Trees, plants, habitats listed on State or Federal list of endangered or threatened • High and moderate value waterfowl and wading habitat • Aquifers on Casco Bay Islands • Waterbodies (including wetlands, watercourses, significant vernal pools and floodplains) • Proposed preservation areas and protection measures • Documentation from environmental consultants, determinations from applicable state agencies
Yes ☑ NA ☐	**Landscaping and Landscape Preservation (14-526 (b) 2 a)** • Preservation of trees and preservation within required zoning setbacks (Technical Manual, Section 4) • Protection measures of existing vegetation during construction • Protection measures within Shoreland Zone, if applicable
Yes ☑ NA ☐	**Site Landscaping (14-526 (b) 2 b)** • Screening and buffering of service areas and between non-residential and residential uses • Planting plans with plant schedule and sizes (Technical Manual, Section 4)
Yes ☑ NA ☐	**Parking Lot Landscaping (14-526 (b) 2 b ii), if applicable** • Landscaped islands within parking areas (Technical Manual, Section 4)
Yes ☐ NA ☐	**Street Trees (14-526 (b) 2 b iii)** • Existing Heritage or Feature Trees on site and measures to preserve • Identify street trees on the plan meeting the site plan and Technical Manual standards (Section 4) or identify alternative measures, if applicable
ENVIRONMENTAL AND STORMWATER	
Yes ☑ NA ☐	**Water Quality, Stormwater Management and Erosion Control (14-526 (b)3 a)** • Stormwater report in compliance with Section 5 of Technical Manual and DEP Chapter 500 stormwater for basic, general and flooding standards, as applicable • Erosion control plan and measures • Evidence of compliance with Urban Impaired Stream Standards pursuant to DEP Chapter 500 stormwater, as applicable • Subsurface sanitary sewage disposal and groundwater protection

PUBLIC INFRASTRUCTURE AND SAFETY	
Yes ☑ NA ☐	**Consistency with City Master Plans (14-526 (c) 1)** • Identify consistency with master plans • Proposed easements, rights and improvements to connect or continue off-premises public infrastructure, as applicable
Yes ☑ NA ☐	**Public Safety and Fire Prevention (14-526 (c))** • Address Crime Prevention through Environmental Design (CPTED) (Technical Manual, Section 3) • Emergency vehicle access • Address consistency with public safety standards (Technical Manual, Section 3) • Submit a code summary referring NFPA 1 and all Fire Department standards (Technical Manual, Section 3) – Fire Checklist
Yes ☑ NA ☐	**Availability and Adequacy of Public Utilities (14-526 (c) 3) (Technical Manual, Sections 2 & 9)** • Electrical services, including providing underground services • Identify existing and proposed connections for public utilities and required public utility upgrades • Sewer line connections are required, if there is a main within 200 feet • Proposed solid waste management facilities on-site and management for the site • Written evidence of the ability to serve from utility companies, as applicable
SITE DESIGN	
Yes ☑ NA ☐	**Massing, Ventilations and Wind Impact (14-526 (d) 1)** • Wind and ventilation impacts on adjoining structures and/or adjacent public spaces. Wind study, if applicable • Bulk, location or height impacts on adjoining structures • Identify and locate HVAC equipment and venting away from public spaces and residential properties • Identify screening and manufacturing specifications for noise, if applicable
Yes ☐ NA ☑	**Shadows (14-526 (d) 2), if applicable** • Shadow analysis of impacts on publicly accessible open space (Technical Manual, Section 11)
Yes ☑ NA ☐	**Snow and Ice Loading (14-526 (d) 3)** • Building design to prevent snow and ice from loading or falling onto adjacent properties or public ways
Yes ☑ NA ☐	**View Corridors (14-526 (d) 4), if applicable** • Protection of designated view corridors (Portland Design Manual, Appen. 1)

Yes ☐ NA ☑	**Historic Resources (14-526 (d) 5), if applicable** • Identify developments within Historic Districts or affecting Designated Landmarks • Certificate of Appropriateness or other evidence • Identify Developments within 100 feet of Historic Districts or affecting Designated Landmarks. Advisory HP review may be required • Address preservation and documentation of Archaeological Resources
Yes ☑ NA ☐	**Exterior Lighting (14-526 (d) 6)** • Cut sheets of on-site light fixtures and any architectural or specialty lights (Technical Manual, Section 12) • Engineered details for any lights proposed in street right-of-way (Technical Manual, Section 10)
Yes ☑ NA ☐	**Noise and Vibration (14-526 (d) 7)** • Evidence of noise levels for equipment, such as equipment specifications, to demonstrate consistency with zoning requirements
Yes ☑ NA ☐	**Signage and Wayfinding (14-526 (d) 8), if applicable** • Signage plan showing the location, dimensions, height and setback of all existing and proposed signs. Signs in Historic Districts are reviewed by Historic Preservation staff • Proposed commercial and directional signage on site
Yes ☑ NA ☐	**Zone Related Design Standards (14-526 (d) 5)** • Address Historic Preservation Design Review, if applicable • Address any applicable design review standards by zone • Address submission requirements from Design Manual, page 1, addressing neighborhood context • Description of exterior materials, color, finish, and samples
Construction Management Plan	
Yes ☑ NA ☐	**Construction Management Plan** • Construction Management Document and Plan

LEVEL II AND LEVEL III SITE PLAN
DRAWINGS CHECKLIST

Please upload the following DRAWINGS with the listed details into e-Plan as separate pdfs

RECENT BOUNDARY SURVEY (stamped by Maine Licensed Surveyor)

- [x] Must be in compliance with Technical Manual, Section 13

SITE PLAN(s) (stamped by Maine Licensed Engineer) including:

Existing Conditions

- [x] Approximate location of structures on abutting property
- [x] Topography
- [ ] Locate water courses
- [ ] Delineate wetlands
- [x] Zone lines

Proposed Site Plan

- [x] Ground floor area, and grade elevations for all buildings

Access, Circulation, and Parking

- [x] Streets and intersections adjacent to site, any proposed geometric modifications
- [x] Location, dimensions and materials of all existing and proposed driveways, vehicle, bicycle, & pedestrian access ways with corresponding curb lines
- [x] Engineered specifications/ cross-sections for proposed driveways, sidewalks & paved areas
- [x] Location and dimensions of proposed loading areas
- [ ] Existing and proposed transit infrastructure with dimensions/ engineering specifications
- [x] Location of vehicle and bicycle parking with dimensions and engineering specifications

Site Considerations

- [x] Identify snow storage areas
- [x] Location of fire hydrants
- [x] Location of solid waste management facilities

UTILITY PLAN including:

- [x] Existing utilities on site and within public streets
- [x] Location, sizing and directional flows of all existing and proposed utilities
- [x] Location and dimensions of off-premises public or publicly accessible infrastructure adjacent to site
- [ ] Electric utility infrastructure

GRADING AND DRAINAGE PLAN including:

- [x] Existing grades and drainage
- [x] Proposed grades
- [x] Proposed stormwater management meeting Technical Manual (Section 5), standards
- [ ] Location and proposed alteration of a water course
- [ ] Preservation or alteration of wetlands

EROSION CONTROL

- [x] Must be in compliance with Technical Manual, Section 5

LANDSCAPE PLAN including:

- [x] Existing vegetation to be preserved and preservation measures
- [x] Proposed landscaping and buffers
- [x] Planting schedule

RECORDING PLAT, if applicable
☐ If Subdivision, must be in compliance with requirements of Section 14-496 (b)
ARCHITECTURAL PLANS AND RENDERINGS including:
☑ Exterior building elevations, color renderings, illustrations of all sides
☑ Location and dimensions of all existing and proposed HVAC and mechanical equipment, all proposed screening
☑ Provide context drawings, if applicable (Design Manual, page 1)
☑ Floor plans

TRANSPORTATION

The following statements are provided in accordance with the Section 14-526 of the ordinance.

TRANSPORTATION

(a) Transportation Standards

Transportation Analysis – Traffic Impact (14-526 (a) 1)

- *Provisions for pedestrian, bicycle, vehicle, and loading circulation and incremental volume of traffic impacts*
- *Traffic Impact Study (Technical Manual, Section 1) if applicable*

1. *Impact on Surrounding Street Systems:*

The surrounding street system consists of West Commercial Street and points west including the Veterans Bridge/Fore River Parkway. The signalized intersection at Cassidy Point is located approximately 1,100 feet west of the site. Approximately 1,000 feet east of the site includes the signalized Beach Street intersection and access to the Casco Bay Bridge and Commercial Street to the Portland waterfront and Old Port. The development site has approximately 1,400 feet of frontage along West Commercial Street. West Commercial Street contains a 75' to 80' wide right of way with approximately 40' of pavement for two travel lanes and paved shoulders on each side in front of the site. The Canal Landing Boat maintenance facility is located on the opposite side of the street from the development site and the Star Match Building complex, also owned by JB Brown & Sons is located east of the site.

The proposed use is considered consistent with the B-5b zoning district and the objectives identified in various City reports; therefore, we believe it results in no significant impact to the surrounding street system. The site traffic is expected to have a majority of its trip volume originating from the west and will therefore not significantly impact Commercial Street or points east of the site. There will be three primary driveways into the site from West Commercial Street and each will have sight distance in each direction exceeding 500 feet. All three driveways will be unsignalized. The easterly driveway will provide the primary access for staff/employee parking within the 153-space surface parking lot. The staff parking is located on the east side of the building to provide convenient access to the west end of the building, as staff entry is differentiated from patient/visitor access into the building.

The central driveway is the primary patient/visitor access route and it is located between the Clinic building and the garage, to allow for ease of patient access to the Clinic entrance as well as vehicular movement in/out of the garage. The parking garage will be primarily for clinic patient/visitor use and limited use by tenants in the Star Match building during normal business hours. The owner is discussing opportunities for overflow use by the City during off hour periods and storm events. The central driveway contains a single entrance lane and duel exiting lanes for right or left turning movements.

The easterly driveway is located east of the parking garage and will provide access for entering and exiting movement out of the garage. The driveway will also allow for emergency or heavy vehicle movement around the garage and to the rear access drive, thus allowing this infrequent traffic to avoid the central and westerly drives.

Traffic Impact Study

A Traffic Study is underway by Bill Bray of Traffic Solutions and this assessment will include trip generation and accident information for the site and surrounding area. The project will generate 325 AM and 288 PM peak hour trips and thus qualifies for a Traffic Movement Permit. The development team has completed the initial materials for a Scoping meeting and will be pursuing a concurrent review of a Traffic Movement Permit. A copy of the Traffic Movement Permit Application is included with this section.

Any further traffic assessment is subject to the City's peer review.

Access and Circulation (14-526 (a) 2 a)

- *Access and internal circulation, addressing ADA access*
- *Access and egress impacts on traffic flows*
- *Description and use of drive-up features, if applicable*

2. *Access and Circulation:*
   a. *Site Access and Circulation.*

      (i) Vehicular access to the site will be provided by three primary driveways. The applicant is requesting a waiver of Technical Standard 1.7.2.8 that limits the number of driveways to no more than two (2) for commercial sites, on the basis of the amount of site frontage exceeding 1,400 LF. The proposed driveways will be no less than 300 feet separation.

      (ii) We believe the primary points of access will not conflict with any existing turning movements on West Commercial Street. Each of the driveways may require dedicated left turn lanes for entering movements from the west. These lanes will not significantly overlap with left turning movements westbound into the Canal Landing Boat facility. The Boat yard has a similar configuration of three (3) driveways onto West Commercial Street, however the central and far westerly driveways are infrequently used and carry limited traffic volumes. The most easterly driveway into the boat yard will be located approximately 250 east of the proposed parking garage. The Canal Landing traffic volumes are also very low and are not expected to be impacted by the traffic associated with the Clinic/Garage development.

      (iii) Not applicable as there are no drive through features proposed.

Loading and Servicing (14-526 (a) 2 b)

- *Loading and servicing needs, route and travel way geometrics for deliveries*
- *Turning templates for delivery vehicles, if applicable*

2. *Access and Circulation:*
   b. *Loading and Servicing:*

      (i) Adequate provisions are made at the site for periodic loading from various size trucks to service the Clinic. A single bay loading dock is positioned at the rear of the building and delivery vehicles will enter the site from the easterly driveway and loop around the rear of the site to access the dock. Trucks will leave the site by maneuvering to the westerly driveway. Similarly, mobile imaging trailers will periodically visit the site and be temporarily parked at the rear of the Clinic. These trailers may need to circulate in a clockwise rotation around the garage which may require occasional travel in an opposite direction of the one-way pattern proposed. Based on the low frequency of this movement, it is considered to be not problematic and may require only very short duration (<5 minutes) assistance from Clinic personnel to assist with traffic control. Turning movement diagrams are contained at the end of this section.

Sidewalks (14-526 (a) 2 c)

- *Sidewalks and condition along street frontages and internal walkways*
- *Engineered details for ADA ramps and public sidewalk details meeting sidewalk materials policy and ADA ramp construction details as applicable (Technical Manual, Section 1)*

2. *Access and Circulation:*
   c. *Sidewalks:*

      (i) West Commercial Street does not currently have a sidewalk along the site frontage. The project includes the development of a 10' wide pathway along the site frontage, to be developed in accordance with the West Commercial Street Multi-modal Corridor Study. The pathway will be asphalt paved and will involve granite curb placement, an esplanade and the pathway. Linkage to the proposed VA Clinic development will be provided at several locations.

Public Transit (14-526 (a) 3), if applicable

- *Existing available transit services*
- *Proposed site plan design details, such as easement, pad base, and shelter*

3. *Public Transit Access.*

   a. West Commercial Street does not currently fall within a METRO service route, therefore transit service is not directly available at the site. We understand that METRO is currently undertaking an update to their systems and routes and service may be considered along West Commercial Street.

   b. The current development plans include no provisions for a bus shelter at this time, since there is no current service by the site.

   c. Transit service is not available at the site currently.

Off-Street Parking: Vehicle & Motorcycle/Scooter (14-526 (a) 4 a and c)

- *Expected parking demand, proposed parking supply, ADA parking, and applicable Zoning Requirements*
- *Address Technical Manual standards (Section 1) for curb cut separation and parking lot layout and locate on site plan*

4. Parking.

a. Location and Required Number of Vehicle Parking Spaces.

c. Motorcycles and Scooter Parking.

i. The development includes 152 surface parking spaces and 382 spaces within the parking garage. The tenant agreement with the VA requires that 400 spaces be provided for their programing. An additional 132 spaces will be provided in the parking garage and these will be available for use by tenants of the Star Match building. The City Code requires 155 spaces based on a ratio of 1 space/400 SF for a program of 62,300 SF.

ii. A Transportation Demand Management Plan has not been fully developed yet with the government but we have been advised that the VA does employ a rideshare program, so the applicant is requesting that the submission of a TDM plan be made a condition of approval tied to the issuance of a certificate of occupancy. This will allow the developer and government representatives an opportunity to coordinate the program for the site. We have been advised that VA will promote some TDM strategies including ridesharing and/or bicycle use as much as possible.

iii. The VA lease agreement requires the developer to provide 400 spaces.

iv. Parking aisles and dimensions on the existing parking lots meet the applicable standards. This will include 9' x 18' stalls and 24' min. two-way drive aisles and 16' wide one-way drives

v. All new surface parking shall be paved. Porous pavement is proposed for much of the surface parking field.

The site plan has been developed to allow safe passage and parking for motorcycles and scooters within the surface parking lots and parking garage.

Bicycle Parking (14-526 (a) 4 b)

- *Address bicycle parking requirements and identify locations on-site*
- *Construction details for bike racks (Technical Manual, Section 1)*

4. Parking.

b. Location and Required Number of Bicycle Parking Spaces.

The site plan contains multiple bike racks positioned on the site for use by staff and visitors. A capacity for up to 20 bikes will be provided on the site.

The applicant is requesting a waiver of the required number of bicycle parking spaces as that would exceed well over 35 bike spaces which is considered excessive for the Clinic use.

Snow Storage (14-526 (a) 4 d)

- *Management plan for snow removal and locate snow storage areas on plans*

4. Parking.
d. Snow Storage.

i. The site plans include multiple locations for the placement of snow.

ii. The applicant will provide snow removal on the pedestrian walks across the site and will remove snow as necessary to avoid displacement of any onsite parking.

Traffic Demand Management (TDM) (14-526 (a) 5), if applicable

- *Develop TDM with Trip Reduction Targets and Strategies*

5. Transportation Demand Management (TDM).

a. The applicant is currently reviewing the requirements of a TDM plan with the VA tenant representatives to determine what strategies may be employed on the development.

TRAFFIC MOVEMENT PERMIT APPLICATION

FOR PROPOSED

Department of Veterans Affairs

Community Based Outpatient Clinic

PREPARED FOR: J.B. Brown & Sons

PREPARED BY: William J. Bray, PE

December 2019

Provisionally Adopted 1/10/00

Department of Transportation
Traffic Engineering Division
16 State House Station
Augusta, Maine 04333
Telephone: 207-287-3775

FOR MDOT USE 1/2000
ID #

Total Fees:
Date Received:

****

PERMIT APPLICATION – TRAFFIC
TRAFFIC MOVEMENT PERMIT, 23 M.R.S.A. § 704 – A

Please type or print:

This application is for:

Traffic 100-200 PCE's _____
Traffic 200 + PC-E's **X**

Name of Applicant: **FDS JBB Portland, LLC**

Address: **10 Free Street, Portland, Maine 04101** Telephone: **(207) 774-5908**

Name of local contact or agent: **William J. Bray, P.E., Traffic Solutions**

Address: **17 Mountview Drive, Gorham, Maine 04038**

Telephone: **(207) 400-6890**

Name and type of development: **Community Based Outpatient Clinic**

Location of development including road, street, or nearest route number: **113 West Commercial Street, Portland, Maine**

City: **Portland,** County: **Cumberland,** Tax Map **060** Block **A001** Lot **001**

Do you want a consolidated review with DEP pursuant to 23 M.R.S.A. § 704-A (7)? Yes ____ No **X**

Was this development started prior to obtaining a traffic permit? **No**

Is the project located in an area designated as a growth area (as defined in M.R.S.A. title 30 – A, chapter 187)?
Yes, **X** No _____

Is this project located within a compact area of an urban compact municipality? Yes: **X** No _____

Is this development or any portion of the site currently subject to state or municipal enforcement action? **No**

Existing DEP or MDOT permit number (if applicable): _____

Name(s) of DOT staff person(s) contacted concerning this application:

Name(s) of DOT staff person(s) present at the scoping meeting for 200+ applications: _____

NOTICE OF INTENT TO FILE

Please take notice that:

FDS JBB Portland, LLC

Is intending to file a Maine Department of Transportation Traffic Movement Permit application with the City of Portland under their delegated review authority pursuant to the provisions of 23 M.R.S.A. § 704–A on or about

December 6, 2019

The application is for:

A 62,170 square foot building with on-site parking capacity of 532 plus spaces. The Department of Veterans Affairs will lease the proposed site creating a Community Based Outpatient Clinic. The proposed project will generate a total of 229 trips during the weekday morning and 204 trips during the evening peak hours of the street.

At the following location: **113 West Commercial Street, Portland, Maine**

A request for a public hearing must be received by the City, in writing, no later than 20 days after the application is found by the City to be complete and is accepted for processing. Public comment on the application will be accepted throughout the processing of the application.

The application will be filed for public inspection at the City of Portland's Planning and Urban Development Office, during normal working hours. A copy of the application may also be seen at the municipal offices in:

Written public comments may be sent to the Department of Transportation, Traffic Engineering Division, 16 State House Station, Augusta, Maine 04333.

1/2000

CERTIFICATION

The traffic engineer responsible for preparing this application and/or attaching pertinent site and traffic information hereto, by signing below, certifies that the application for traffic approval is complete and accurate to the best of his/her knowledge.

Signature: _____ Re/Cert/Lic No.: 4907

Name (print): William Bray

Date: 12-1-2019

If the signature below is not the applicant's signature, attach letter of agent authorization signed by applicant.

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the information is true, accurate, and complete. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

_____ 12/3/2019

Signature of applicant Date

Direct Abutters List
Proposed VA Clinic
West Commercial Street - Portland, ME
JN 3572

SUBJECT PARCEL:

060 / A001-001 (113 W. Commercial St)
JB Brown + Sons
PO Box 207
Portland, ME 04112

ABUTTERS:

057 / F001-001 (284 Danforth St)
Portland Housing Authority
14 Baxter Boulevard
Portland, ME 04101

060 / C001-001 (Emery St)
JB Brown + Sons
PO Box 207
Portland, ME 04102

060 / C002-001 (120 Salem St)
Joshua J. Soley
120 Salem Street
Portland, ME 04102

060 / D001 (W Commercial St)
JB Brown + Sons
PO Box 207
Portland, ME 04102

060 / D002 (Emery St)
JB Brown + Sons
PO Box 207
Portland, ME 04102

060 / F001-001 (232 W Commercial St)
New Yard, LLC
400 Commercial Street
Portland, ME 04101

061 / H001-001 (362 Danforth St)
Susan J. Noonan
362 Danforth Street
Portland, ME 04102

061 / H002-001 (358 Danforth St)
Devens M. Hamlen / Samar Post Jamali JTS
358 Danforth Street
Portland, ME 04102

061 / H003-001 (336 Danforth St)
Sonia B. Robertson
336 Danforth Street
Portland, ME 04102

061 / H004-001 (320 Danforth St)
Thomas R. Robinson / Laura C. Robinson
320 Danforth Street
Portland, ME 04102

061 / H005-001 (314 Danforth St)
Mark Bessire / Aimee Bessire JTS
314 Danforth Street
Portland, ME 04102

061 / H007-001 (308 Danforth St)
Christa Vo / Troung Vo
308 Danforth Street
Portland, ME 04102

Direct Abutters List
Proposed VA Clinic
West Commercial Street - Portland, ME
JN 3572

061 / H008-001 (300 Danforth St)
Frances Dyro
300 Danforth Street
Portland, ME 04102

061 / H009-001 (342 Danforth St)
Michael Bruenjes / Judith Bruenjes
342 Danforth Street
Portland, ME 04102

061 / H010-001 (346 Danforth St)
George R. Moberg / Elizabeth J. Moberg
346 Danforth Street
Portland, ME 04102

061 / H011-001 (350 Danforth St)
Sarah P. Daignault Trustee
350 Danforth Street
Portland, ME 04102

061 / H012-001 (354 Danforth St)
Michael R. Curtis / Margaret T. Curtis JTS
354 Danforth Street
Portland, ME 04102

061 / H018-001 (34 Emery St)
Stephen Dyro
34 Emery Street
Portland, ME 04102

061 / I001-001 (400 Danforth St)
Marjorie R. Shaw
400 Danforth Street
Portland, ME 04102

061 / I002-001 (394 Danforth St)
Sean G. Murphy / Colleen D. Katana JTS
394 Danforth Street
Portland, ME 04102

061 / I003-001 (380 Danforth St)
Andrew Butcher / Julie Beth Pezzino JTS
380 Danforth Street
Portland, ME 04102

061 / I004-001 (370 Danforth St)
Deborah J. Kruk
370 Danforth Street
Portland, ME 04102

061 / I006-002 (382 Danforth St)
Constance Bloomfield / William McFarlane JTS
382 Danforth Street - #2
Portland, ME 04102

071 / C001-001 (404 Danforth St)
Marjorie R. Shaw
400 Danforth Street
Portland, ME 04102

071 / C002-002 (235 W Commercial St)
Marc Paradis
16 Lawn Avenue
Old Orchard Beach, ME 04064

071 / F002 (W. Commercial St)
New Yard, LLC
400 Commercial Street
Portland, ME 04101

SECTION 1

A. SITE PLAN

The Applicant is proposing to construct a 62,170 square foot two-story building on the 8.40-acre site located at 113 West Commercial Street. The Federal Department of Veterans Affairs (VA) will lease the proposed building creating a Community Based Outpatient Clinic. The proposed development includes a total of 532 on-site parking spaces with 150 surface parking spaces and 382 spaces within a three-level garage structure. The VA's lease agreement requires the applicant to provide a total of 400 on-site parking spaces to meet their programming needs. The remaining 132 parking spaces will be assigned to tenants within the adjacent Star Match building to accommodate both short and long-term parking requirements.

There will be three primary driveways into the site from West Commercial Street. All three driveways are proposed to be unsignalized. The westerly driveway will provide the primary access for staff/employees to the 150-space surface parking lot. Staff parking is located on the westside of the building to provide convenient access to the proposed building, as staff entry is differentiated from patient/visitor access into the building. The central driveway is the primary patient/visitor access route and it is located between the clinic building and the proposed site garage to allow for ease of patient access to the clinic building, as well as, vehicular movements in/out of the garage. The most easterly driveway is located east of the parking structure and will provide access for entering and exiting movements out of the garage. The driveway also provides for emergency and heavy vehicle movements around the garage and to the rear of the parking structure avoiding conflicts with other site uses through the westerly and central access driveways.

It is expected that each of the three driveways will require dedicated left-turn lanes for entry movements to the site from West Commercial Street. These lanes and the projected volumes of traffic through them are not expected significantly overlap with left-turn movements into the Canal Landing Boat facility. The Canal Landing site design also provides three points of access onto West Commercial Street with the central and far westerly driveways infrequently used and carrying limited traffic volumes. The most easterly driveway into the boat yard is located approximately 250-feet east of the proposed parking garage. The Canal Landing traffic volumes are very low and are not expected to conflict with traffic generated by the proposed Clinic site.

B. EXISTING AND PROPOSED SITE USES

The existing 8.40-acre parcel is unencumbered by existing structures for preservation, reuse or demolition. An abandoned rail spur exists on the site without any record easement found. The developable portion of the site has approximately 5.17 acres of land area with a total 1,400-feet of street frontage on West Commercial Street.

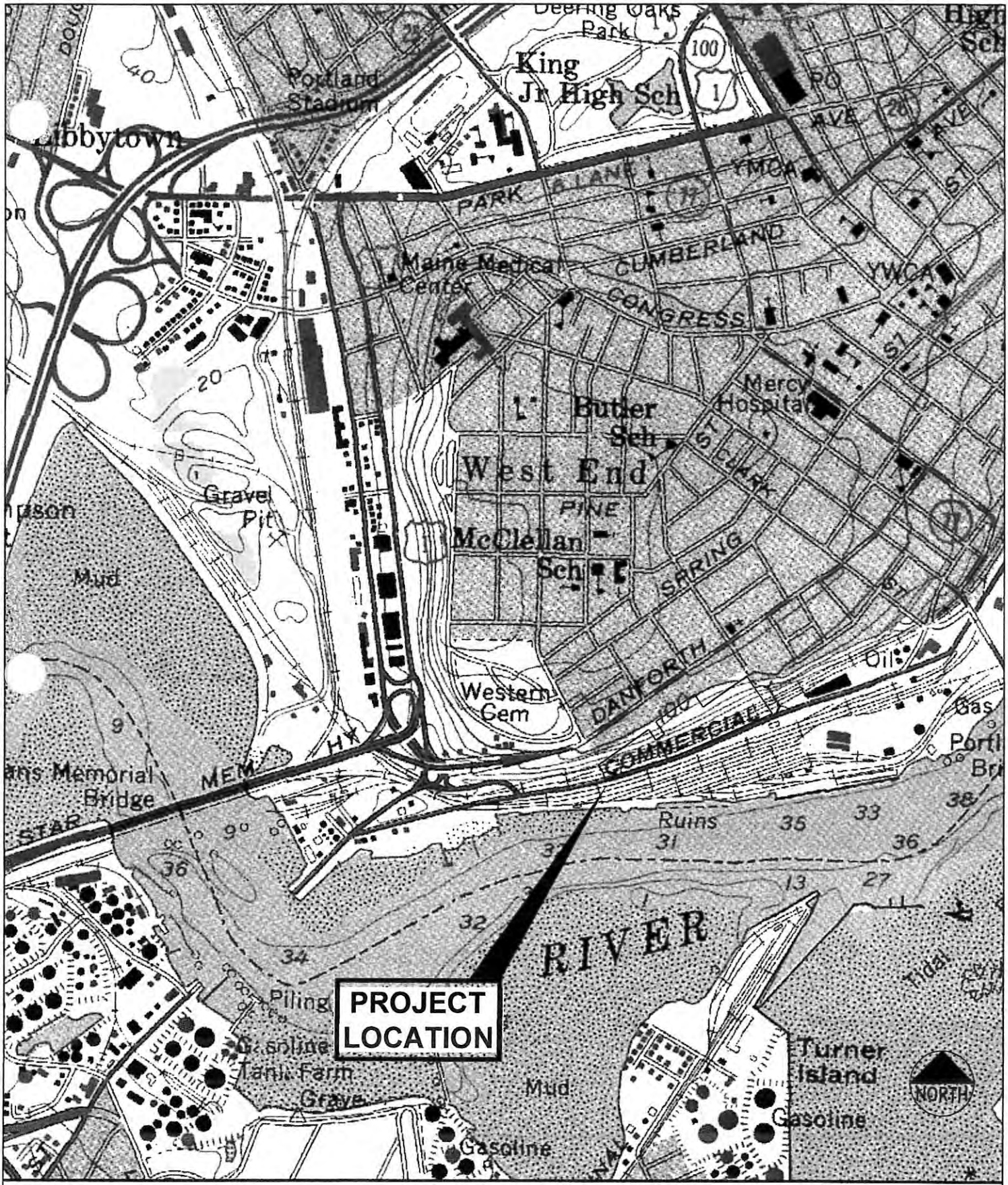
The Applicant is proposing to construct a 62,170 square foot two-story building on the 8.40-acre site located at 113 West Commercial Street. The Federal Department of Veterans Affairs (VA) will lease the proposed building creating a Community Based Outpatient Clinic. The proposed development includes a total of 532 on-site parking spaces with 150 surface parking spaces and 382 spaces within a three-level garage structure. The VA's lease agreement requires the applicant to provide a total of 400 on-site parking spaces to meet their programming needs. The remaining 132 parking spaces will be assigned to tenants within the adjacent Star Match building to accommodate both short and long-term parking requirements.

There will be three primary driveways into the site from West Commercial Street. All three driveways are proposed to be unsignalized. The westerly driveway will provide the primary access for staff/employees to the 150-space surface parking lot. Staff parking is located on the westside of the building to provide convenient access to the proposed building, as staff entry is differentiated from patient/visitor access into the building. The central driveway is the primary patient/visitor access route and it is located between the clinic building and the proposed site garage to allow for ease of patient access to the clinic building, as well as, vehicular movements in/out of the garage. The most easterly driveway is located east of the parking structure and will provide access for entering and exiting movements out of the garage. The driveway also provides for emergency and heavy vehicle movements around the garage and to the rear of the parking structure avoiding conflicts with other site es through the westerly and central access driveways.

It is expected that each of the three driveways will require dedicated left-turn lanes for entry movements to the site from West Commercial Street. These lanes and the projected volumes of traffic through them are not expected to significantly overlap with left-turn movements into the Canal Landing Boat facility. The Canal Landing site design also provides three points of access onto West Commercial Street with the central and far westerly driveways infrequently used and carrying limited traffic volumes. The most easterly driveway into the boat yard is located approximately 250-feet east of the proposed parking garage. The Canal Landing traffic volumes are very low and are not expected to conflict with traffic generated by the proposed Clinic site.

C. SITE AND VICINITY BOUNDARIES

The attached U.S.G.S. Map shows the proposed project site located in the City of Portland.



U.S.G.S. Location Map

VA Clinic, West Commercial Street, Portland, Maine

U.S.G.S. Portland West, State-7.5 Minute Series (Topographic)

Design: JTA	Date: NOV 2019
Draft: CDD	Job No.: 3572
Checked: SRB	Scale: N.T.S.
File Name: 3572–DEP FIG.dwg	

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Figure 1

D. PROPOSED USES IN THE GENERAL VICINITY OF THE PROPOSED DEVELOPMENT

Traffic generated by projects that have been approved by the Local Planning Board and/or the Maine Department of Transportation, yet are not opened, must be included in the estimate of pre-development traffic. Development projects listed in the recently completed September 2019 Traffic Impact Study for Portland Square Redevelopment will be included in the estimate of background traffic for the proposed Community Based Outpatient Clinic site. Trip generation estimates will be prepared for each listed project and included as background traffic in all future traffic analysis.

383 Commercial Street
Canal Landing
184 Commercial Street
Eastern Waterfront TMP
58 Fore Street
Portland Square Redevelopment

E. TRIP GENERATION

Site Trip Generation - Community Based Outpatient Clinic: Trip generation for the proposed Veterans Affairs Clinic project is based upon tables presented in the 10th edition(1) of the Institute of Transportation's Engineers "**TRIP GENERATION**" manual. The following trip rates were applied in that effort:

Land-Use Code 630 – Clinic [62,170 square foot building]

Weekday Street Peak Hour – AM Peak	= 3.69 trips/1,000sf
Weekday Street Peak Hour – PM Peak	= 3.28 trips/1,000sf
Weekday Peak Hour of Site – AM Peak	= 5.22 trips/1,000sf
Weekday Peak Hour of Site – PM Peak	= 4.64 trips/1,000sf

(1) **NOTE: MaineDOT requires the use of trip tables presented in the 7th edition of the ITE publication for estimating all trip generation for development projects requiring a Traffic Movement Permit. The earlier publication provides very minimal peak hour trip generation data for a clinic site; as a result, trip data in the 10th edition was applied. To confirm the appropriateness of the 10th edition trip rates, peak hour surveys were conducted at a local Veterans Administration site located at 655 U.S. Route 1 in the City of Saco. A summary of the local data is highlighted on the following page.**

Table 1, below, provides a summary of the trip generation for the proposed Community Based Outpatient Clinic project:

Table 1
Peak Hour Trip Generation Summary

Peak Hour Time Period	Peak Hour Trip Generation
AM Peak Hour (Street)	229 trips
PM Peak Hour (Street)	204 trips
AM Peak Hour (Generator)	325 trips
PM Peak Hour (Generator)	288 trips

As highlighted in the preceding Table 1, the proposed Veterans Administration's Community Based Outpatient Clinic (CBOC) development is expected to generate a total of **229** trips during the morning street peak hour and a slightly less volume of trips (**204** trips) in the evening peak hour of the street. Site trip projections for both the morning and afternoon peak hours of the clinic site are somewhat higher at 325 trips mid-morning, of a typical weekday and 288 trips mid-afternoon of the proposed site.

Clinic
(630)

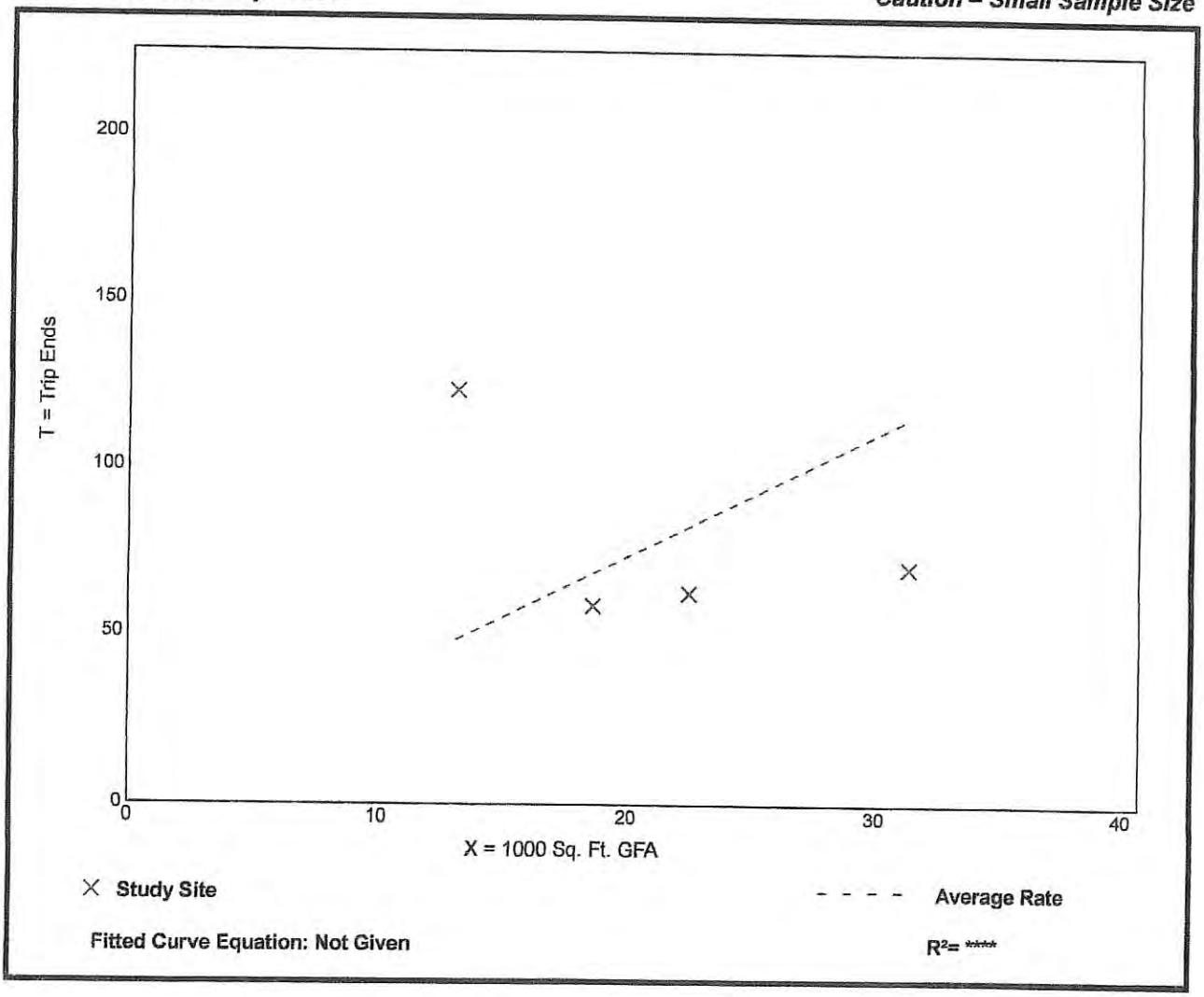
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 7 and 9 a.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 4
1000 Sq. Ft. GFA: 21
Directional Distribution: 78% entering, 22% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.69	2.27 - 9.36	2.82

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Not Given

R^2= ****

Clinic
(630)

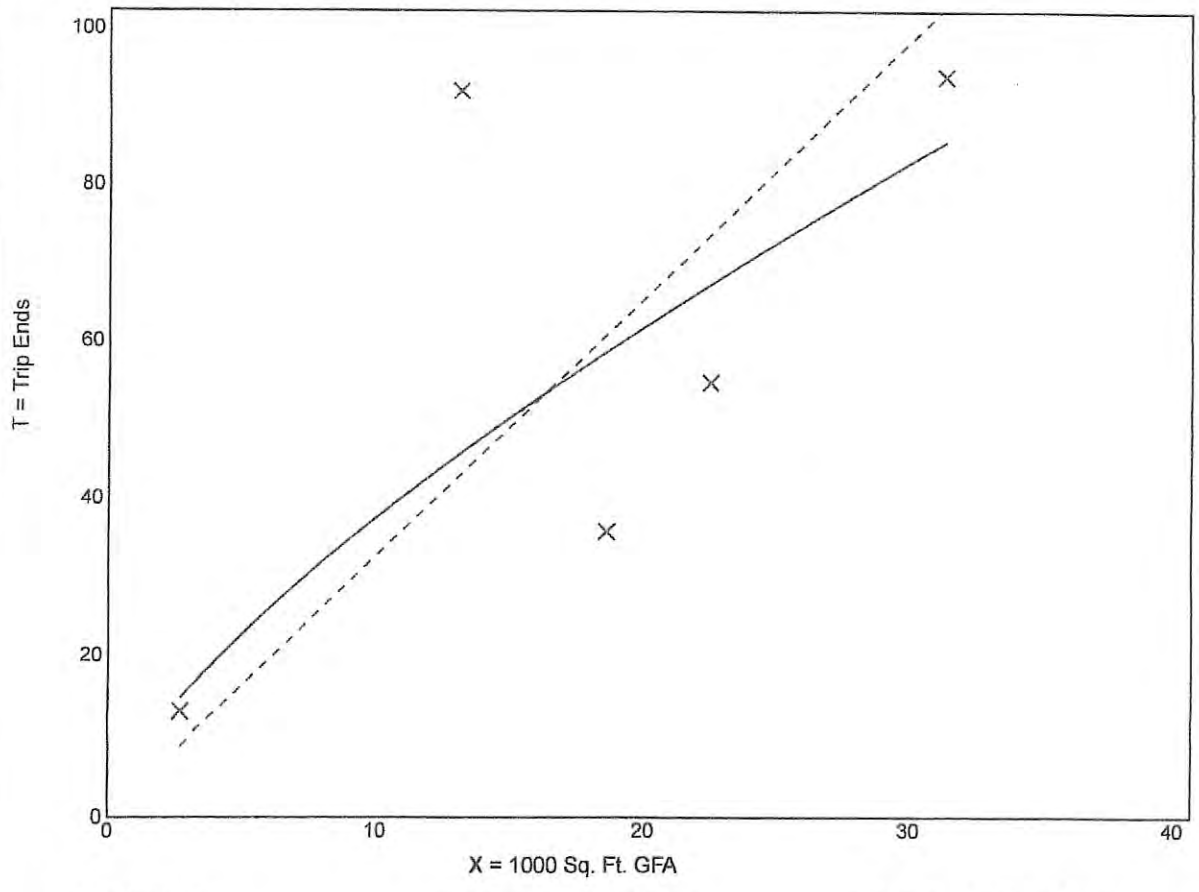
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
Peak Hour of Adjacent Street Traffic,
One Hour Between 4 and 6 p.m.
Setting/Location: **General Urban/Suburban**
Number of Studies: 5
1000 Sq. Ft. GFA: 18
Directional Distribution: 29% entering, 71% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
3.28	1.93 - 7.00	1.84

Data Plot and Equation

Caution – Small Sample Size



Fitted Curve Equation: Ln(T) = 0.72 Ln(X) + 1.97

R^2= 0.70

Clinic
(630)

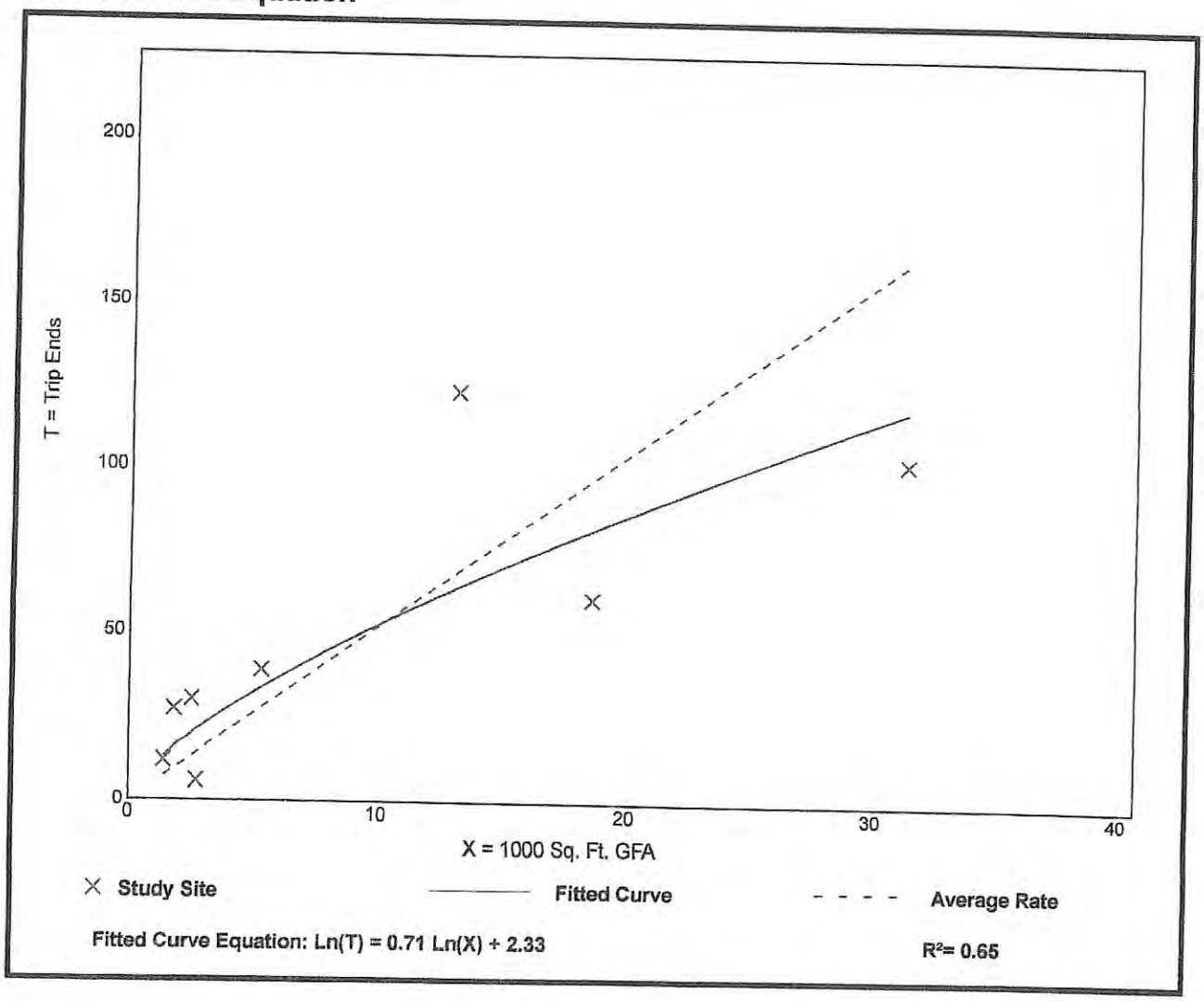
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
AM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 8
1000 Sq. Ft. GFA: 10
Directional Distribution: 58% entering, 42% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
5.22	2.22 - 15.00	3.37

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.71 Ln(X) + 2.33

R^2= 0.65

Clinic
(630)

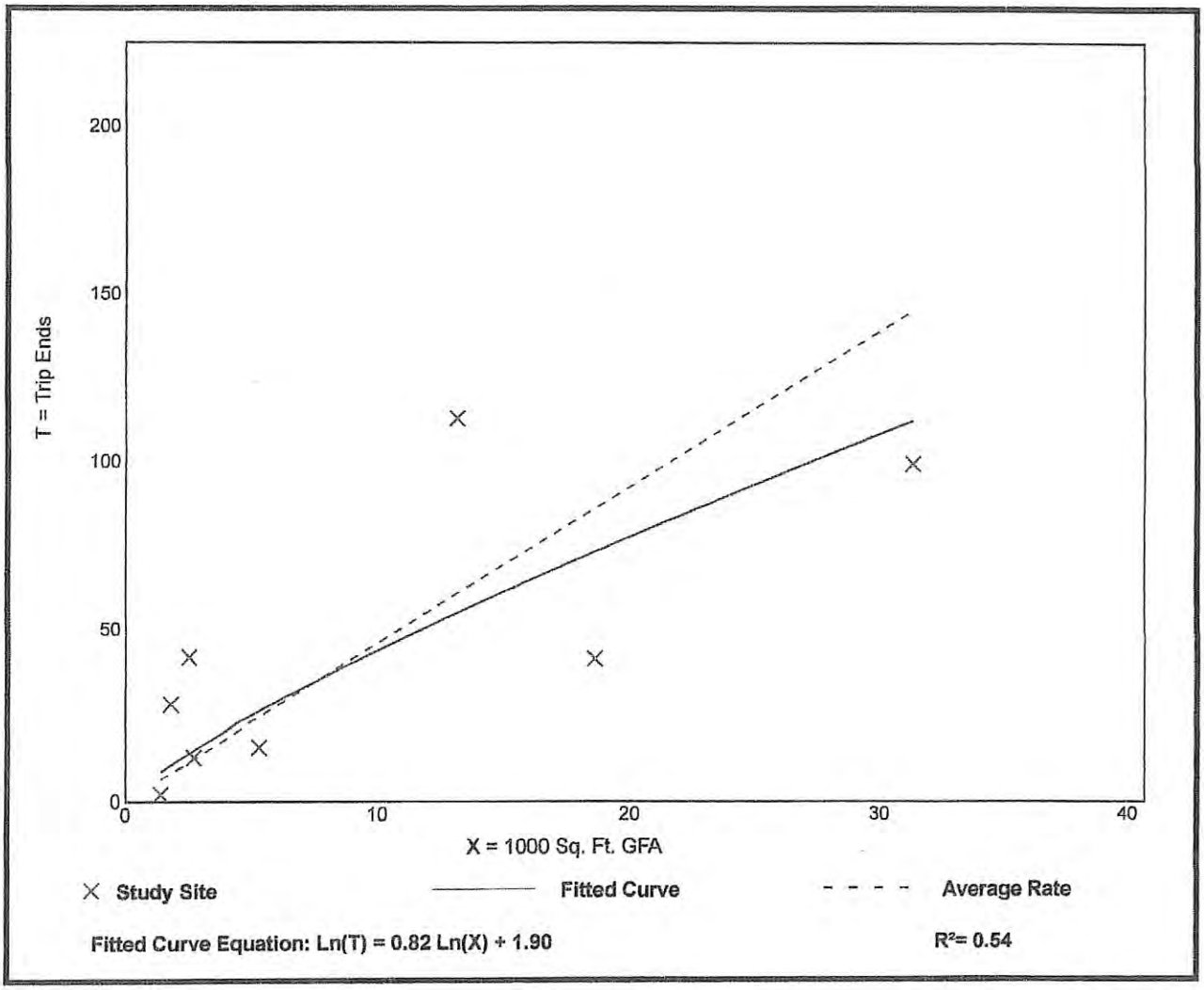
Vehicle Trip Ends vs: **1000 Sq. Ft. GFA**
On a: **Weekday,**
PM Peak Hour of Generator

Setting/Location: **General Urban/Suburban**
Number of Studies: 8
1000 Sq. Ft. GFA: 10
Directional Distribution: 46% entering, 54% exiting

Vehicle Trip Generation per 1000 Sq. Ft. GFA

Average Rate	Range of Rates	Standard Deviation
4.64	1.43 - 16.80	3.84

Data Plot and Equation



Fitted Curve Equation: Ln(T) = 0.82 Ln(X) + 1.90

R^2= 0.54

VA Clinic Study - Saco

Saco VA Office			Date	9/10/2019	Weather	Sunny	
Quick Care				VA Office			
Morning Count Occupied Spaces:			11				1

	IN		OUT			IN		OUT	
7:00-7:15	8		2		7:00-7:15	2		1	3
7:15-7:30	3		1		7:15-7:30	3			3
7:30-7:45	5				7:30-7:45	8		1	9
7:45-8:00	10		1		7:45-8:00	5		4	9
8:00-8:15	12		4		8:00-8:15	4		3	7
8:15-8:30	6		2		8:15-8:30	8		7	15
8:30-8:45	3		3		8:30-8:45	5		4	9
8:45-9:00	8		4		8:45-9:00	2		6	8
Occupied Spaces:				57	Occupied Spaces:			2	
Afternoon Count Occupied Spaces:				54	Afternoon Count Occupied Spaces			11	
	IN		OUT			IN		OUT	
2:00-2:15	5		4		2:00-2:15	3		6	9
2:15-2:30	5		2		2:15-2:30			2	2
2:30-2:45	3		3		2:30-2:45	1		1	2
2:45-3:00	2		5		2:45-3:00			1	1
3:00-3:15	8		9		3:00-3:15	2		2	4
3:15-3:30	3		6		3:15-3:30			3	3
3:30-3:45	2		5		3:30-3:45	1		5	6
3:45-4:00	1		4		3:45-4:00			4	4
4:00-4:15	2		3		4:00-4:15	1		1	2
4:15-4:30	2		7		4:15-4:30	1		2	3
4:30-4:45	2		6		4:30-4:45			1	1

40

17

Occupied Space	29	1

*VA Office is on the second floor of the building.
Both facilites open at 8 AM.
VA Office closes at 4:30PM

Saco VA Clinic

10,798 SF

$40 \div \frac{10,798}{1000} = 3.70$ trips/1000

$17 \div \frac{10,798}{1000} = 1.57$ trips/1000

F. TRIP COMPOSITION

Vehicle Trip Composition: This report has assumed all vehicle trips generated by the proposed project are "*primary*" or "*new*" vehicle trips to the area street network.

G. TRIP DISTRIBUTION

Site Trip Distribution: The 10th Edition of the Institute of Transportation Engineers **TRIP GENERATION** publication provides the following trip distributions rates for a proposed Clinic building:

Land-Use Code 630 – Clinic

AM Peak Hour Street)	= 78% enter/22% exit
PM Peak Hour (Street)	= 29% enter/71% exit
AM Peak Hour (Generator)	= 58% enter/42% exit
PM Peak Hour (Generator)	= 46% enter/54% exit

Table 1, as follows, summarizes the peak hour directional distributional volumes for the proposed CBOC site:

Table 1
Site Trip Distribution Summary

Peak Hour Time period	CBOC Building Trip Distribution Volumes		Total Trips
	Enter	Exit	
AM Peak Hour (Street)	179 trips	50 trips	229 trips
PM Peak Hour (Street)	59 trips	145 trips	204 trips
AM Peak Hour (Generator)	189 trips	136 trips	325 trips
PM Peak Hour (Generator)	132 trips	156 trips	288 trips

Accordingly, in the morning peak hour of the street the heaviest volume of trips (179 trips) enters the site and in the evening peak hour a reverse pattern occurs with 145 trips exiting the site. The remaining trips (50 trips) in the morning peak hour will exit the site and (59 trips) in the evening peak hour enters the site.

Projected trip patterns occurring during the mid-morning and mid-afternoon peak hours of the site are estimated at 189 trips entering the site in the mid-morning peak hour and 156 trips exiting the site in the mid-afternoon peak hour. The remaining balance of 136 trips in the morning peak hour exits the site and the remaining trips (132 trips) in the afternoon peak hour enters the site.

H. TRIP ASSIGNMNET

Vehicle Trip Assignment: The Department of Veterans Affairs provided general residency information for employees presently working at the 144 Fore Street facility in the City of Portland that shows the majority of employees reside in Portland, South Portland, Yarmouth and Falmouth. They also stated the expected service area of the proposed clinic will encompass the majority of Cumberland and York counties. A trip assignment model, based upon 2018 population trends for the major communities in Cumberland County, was developed and applied in the assignment of the site trips to the West Commercial Street corridor. This process expects approximately 85% of the site trips, which include both patients and staff trips, will arrive/depart the proposed site with a westerly orientation along West Commercial Street. The remaining site trips (15%) will travel to/from the east on West Commercial Street to reach points in the eastern section of the Portland Peninsular and/or cross the Casco Bay Bridge to either Cape Elizabeth or the eastern section of the City of South Portland.

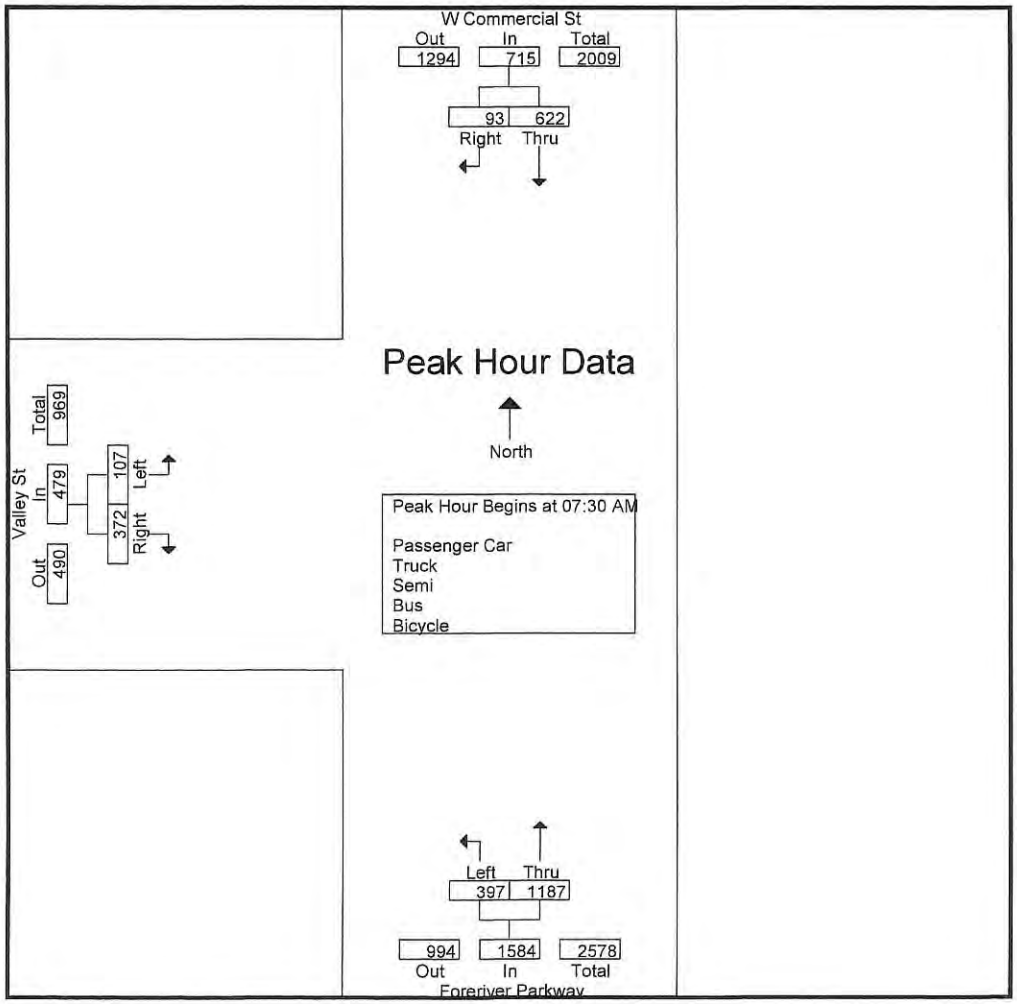
Site trips traveling to/from the west of the proposed 113 West Commercial Street site were further assigned to the roadway system based upon existing traffic data gathered at both the West Commercial Street/Valley Street and West Commercial Street/Fore River Parkway intersections. Copies of the traffic data are attached.

Figures 1 and 2 illustratively present traffic assignments, respectively, for the morning and evening peak hours of the street.

Traffic Solutions
17 Mountview Drive
Gorham, ME 04038

Portland Foreriver, Valley & WCommercial
August 15, 2019 AM
Sunny
Count by Jen Gilbert

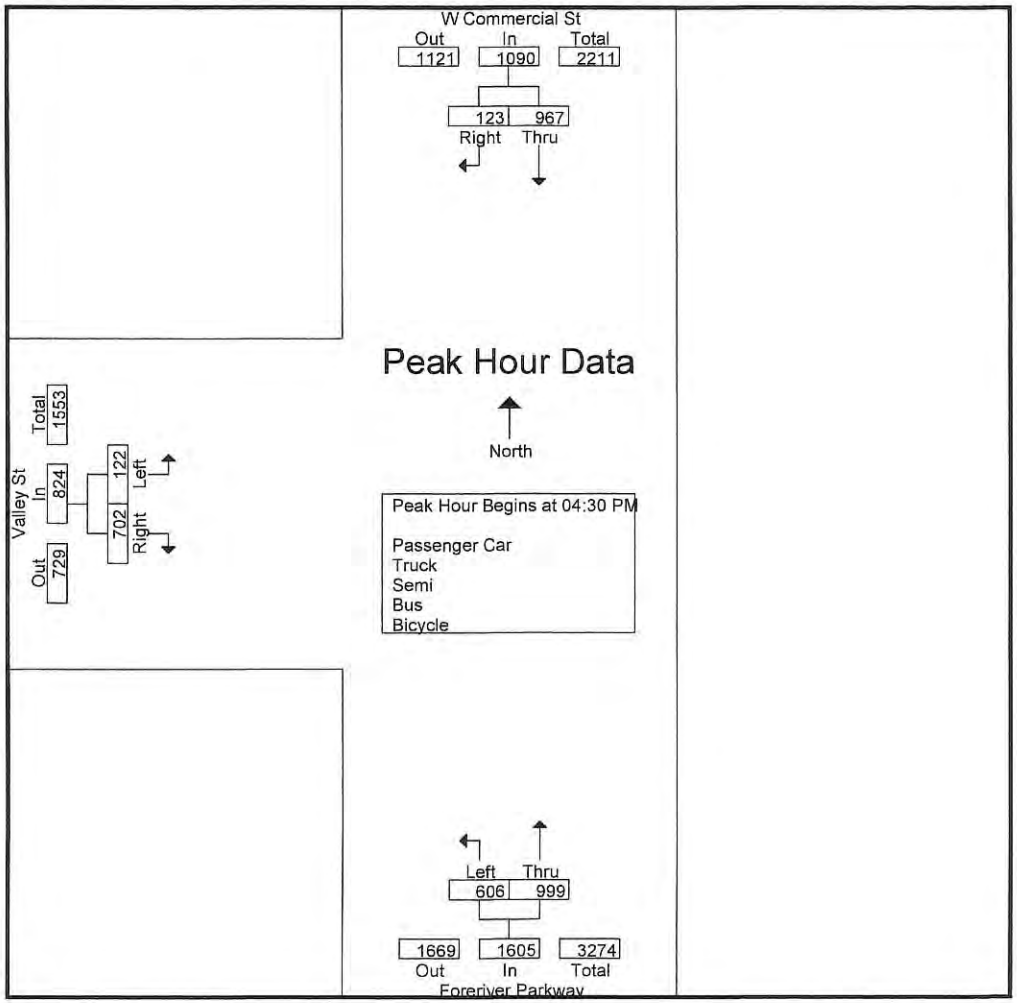
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Site Code : 00815191
Start Date : 8/15/2019
Page No : 6



Traffic S lutions
17 Mountview Drive
Gorham, ME 04038

Portland Foreriver, Valley & WCommerical
August 15, 2019 PM
Sunny
Count by Jen Gilbert

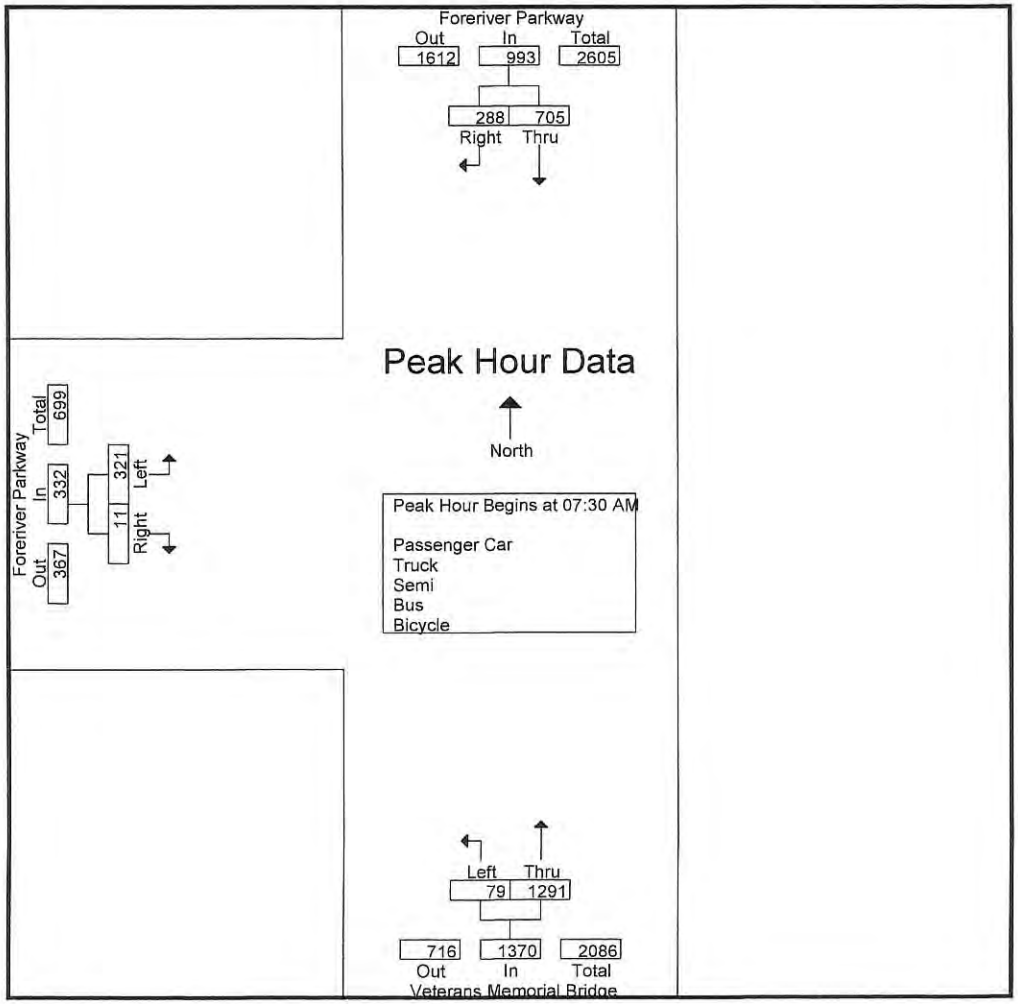
File Name : Portland Fore River Parkway, Valley St & W Commerical St 8-15-19 PM
Site Code : 00815192
Start Date : 8/15/2019
Page No : 6



Traffic Solutions
17 Mountview Drive
Gorham, ME 04038

Portland Foreriver Parkway & Memorial Br
August 14, 2019 AM
Sunny
Count by Jen Gilbert

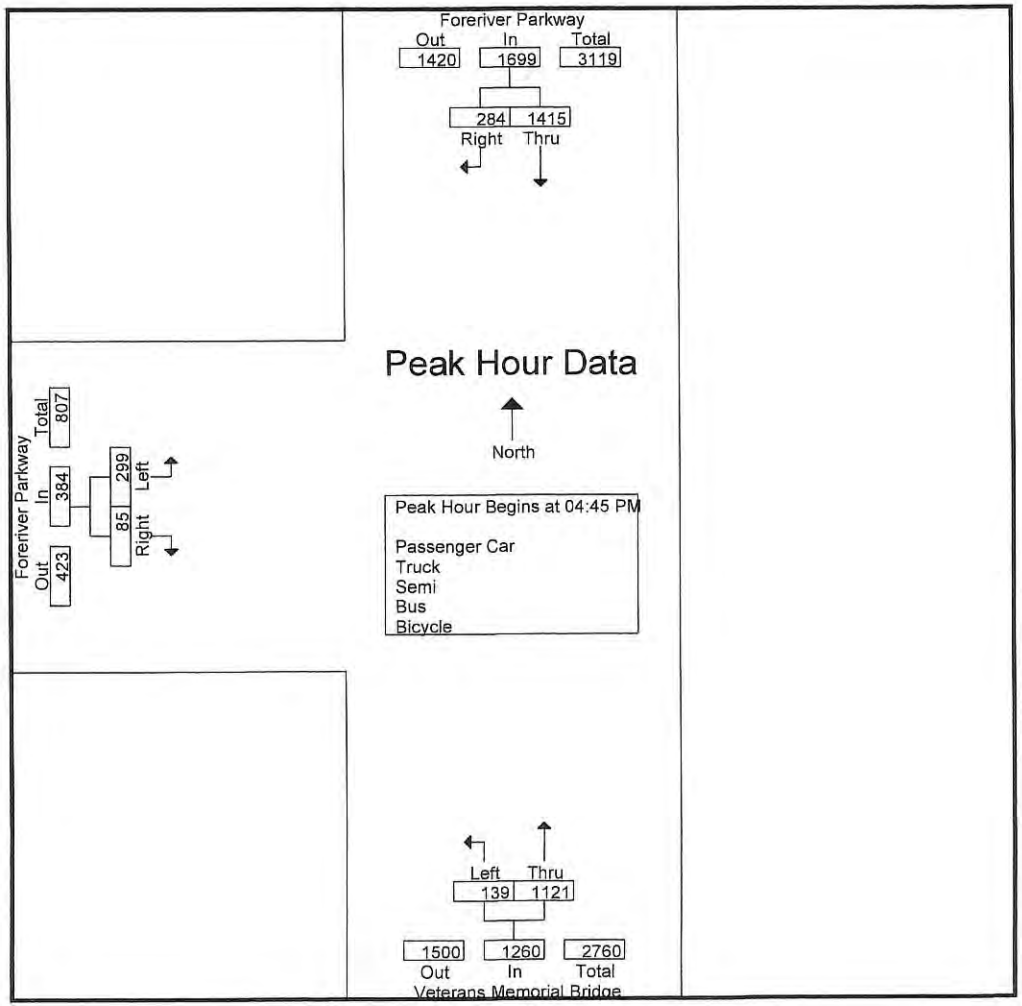
File Name : Portland Foreriver Parkway & Veterans Memorial Brid
Site Code : 00814191
Start Date : 8/14/2019
Page No : 6



Traffic Solutions
17 Mountview Drive
Gorham, ME 04038

Portland Foreriver Parkway & Memorial Br
August 14, 2019 PM
Sunny
Count by Jen Gilbert

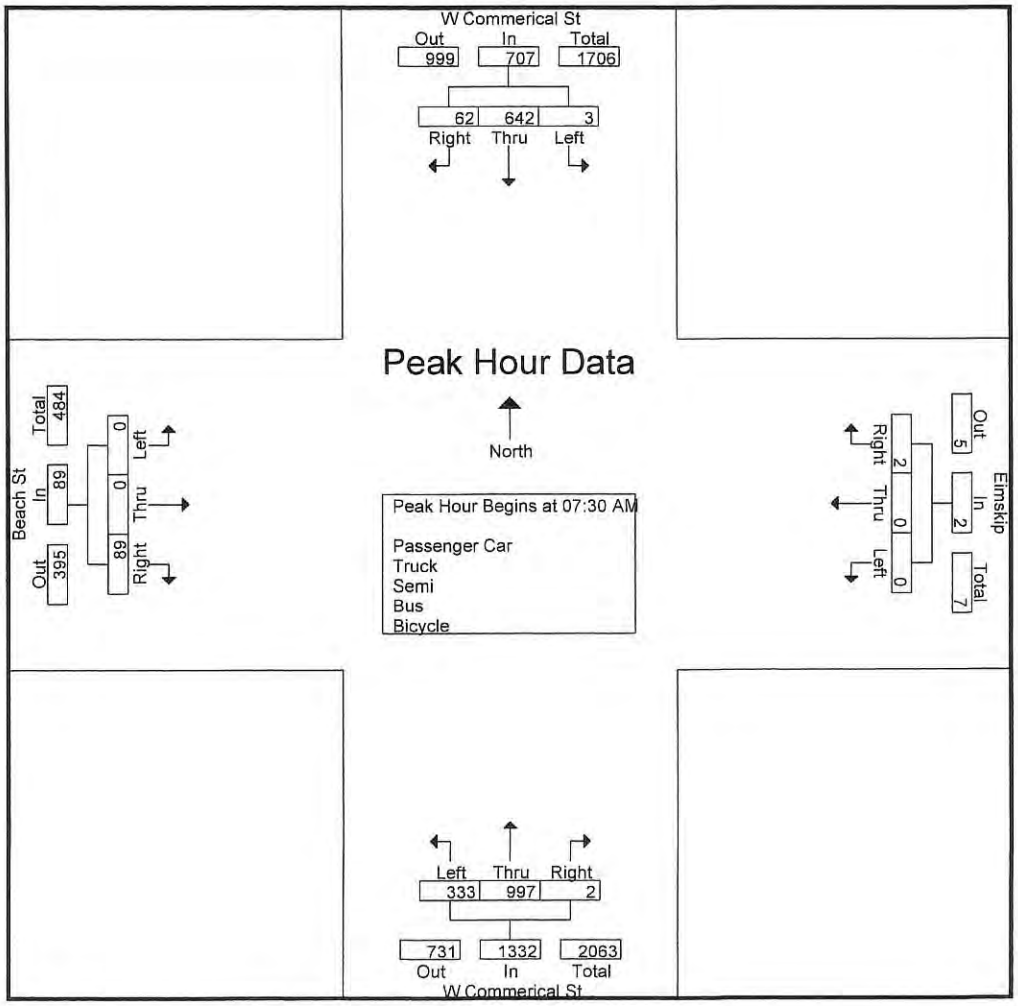
File Name : Portland Foreriver Parkway & Veterans Memorial Bridge 8-14-19 PM
Site Code : 00814192
Start Date : 8/14/2019
Page No : 6



Traffic S utions
17 Mountview Drive
Gorham, ME 04038

Portland W Commerical & Beach St
August 13, 2019 AM
Light Rain
Count by Jen Gilbert

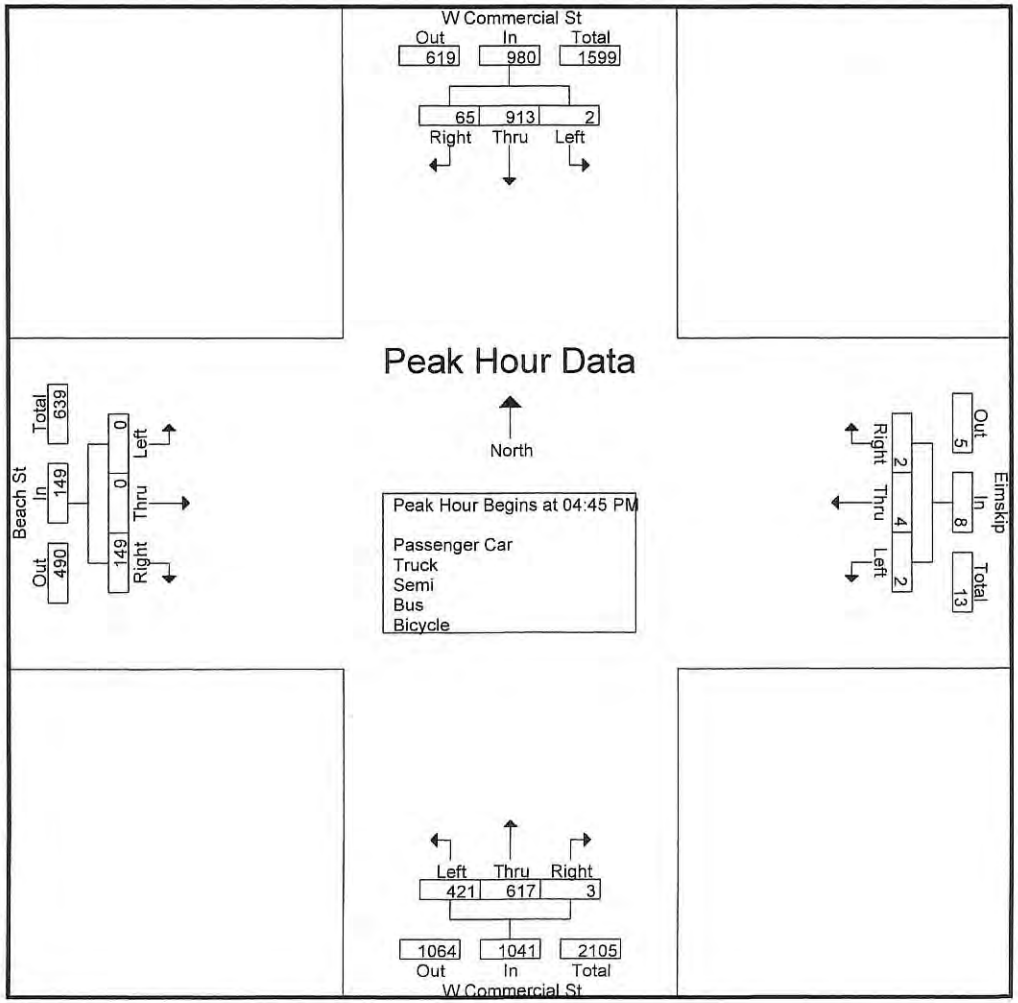
File Name : Portland W Commercial St & Beach St 8-14-19 AM
Site Code : 00813191
Start Date : 8/13/2019
Page No : 6

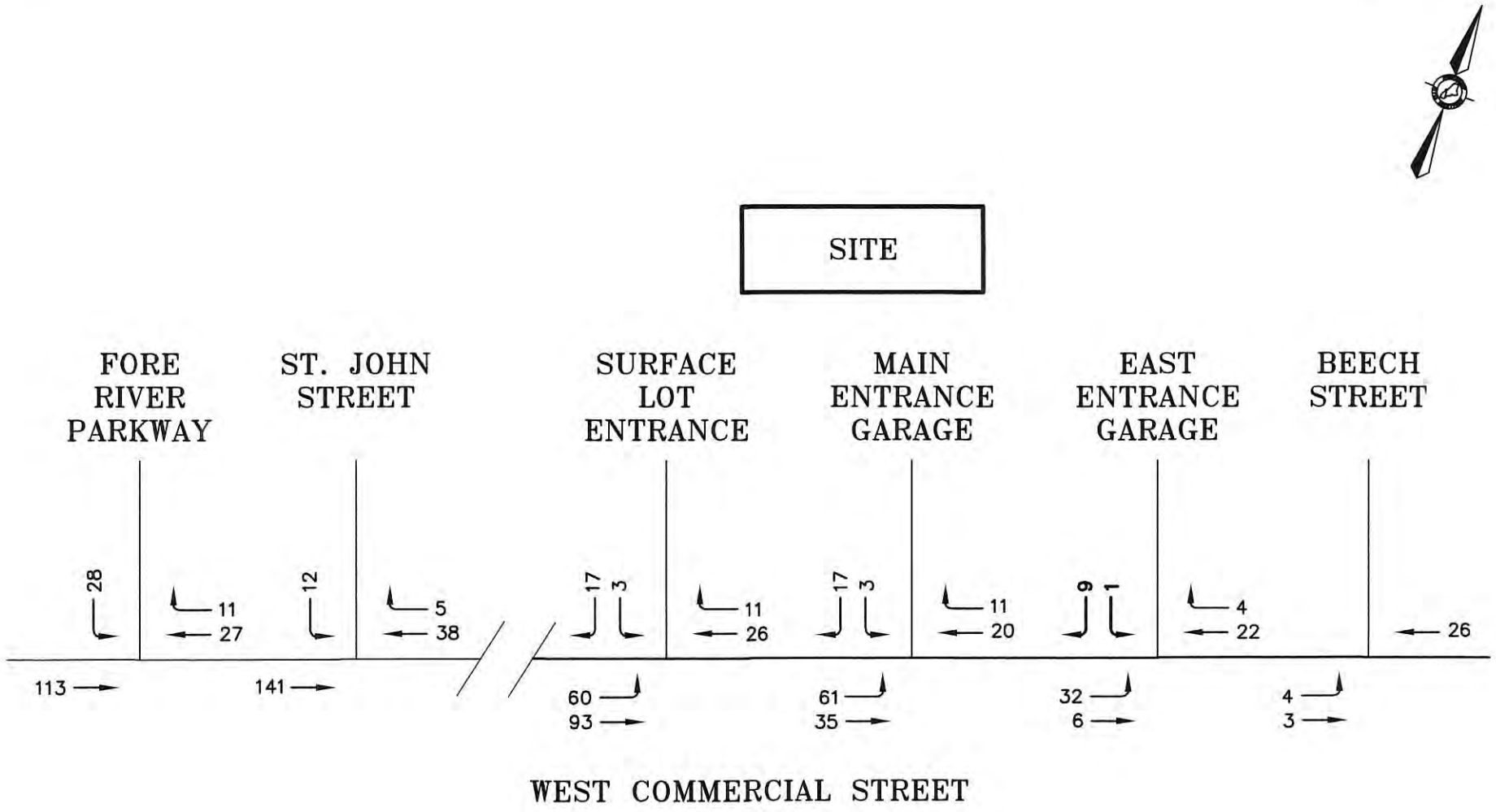


Traffic Solutions
17 Mountview Drive
Gorham, ME 04038

Portland W Commerical & Beach St
August 13, 2019 PM
Thunder Showers
Count by Jen Gilbert

File Name : Portland W Commercial St & Beach St 8-14-19 PM
Site Code : 00813192
Start Date : 8/13/2019
Page No : 6

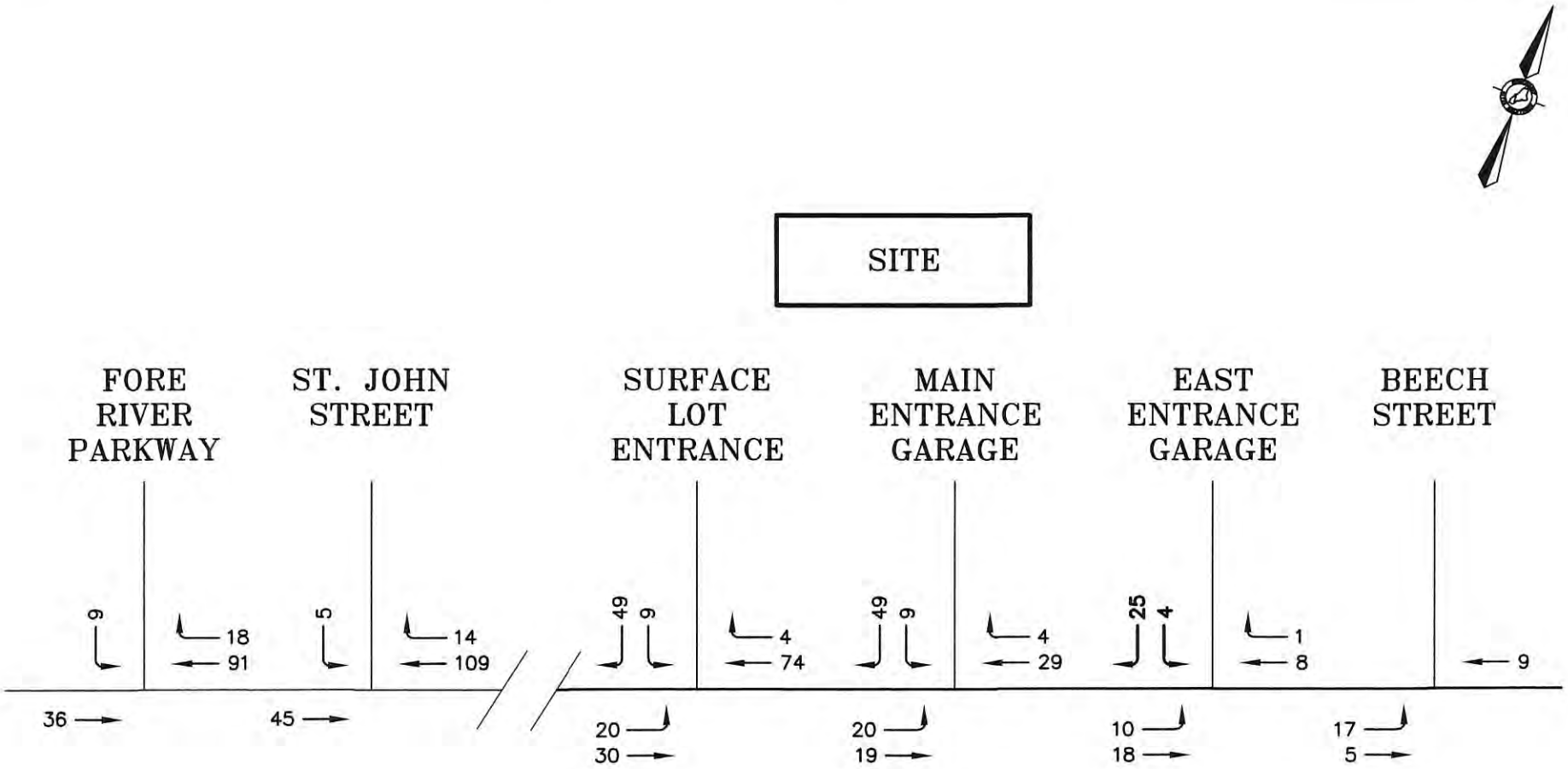




CLINIC SITE TRIP ASSIGNMENT
AM PEAK HOUR
FIGURE 1

E:\LAND PROJECTS\34000\34399 TRAFFIC SOLUTIONS\VETERAN'S AFFAIRS CLINC\PLANSET\VA CLINIC.DWG

Project Name and Location: VETERANS AFFAIRS – OUTPATIENT CLINIC PORTLAND, MAINE	TRAFFIC SOLUTIONS 17 MOUNTVIEW DRIVE, GORHAM, MAINE 04038
DATE: NOVEMBER, 2019	FIGURE: 1



CLINIC SITE TRIP ASSIGNMENT
PM PEAK HOUR
FIGURE 2

E:\LAND PROJECTS\34000\34399 TRAFFIC SOLUTIONS\VETERAN'S AFFAIRS CLINC\PLANSET\VA CLINIC.DWG

Project Name and Location: VETERANS AFFAIRS – OUTPATIENT CLINIC PORTLAND, MAINE	TRAFFIC SOLUTIONS 17 MOUNTVIEW DRIVE, GORHAM, MAINE 04038
DATE: NOVEMBER, 2019	FIGURE: 2

SECTION 2

TRAFFIC ACCIDENTS

MaineDOT's Accident Records Section provided the latest three-year (2016 through 2018) crash data for the section of West Commercial Street between Beach Street and the Fore River Parkway, a distance of 1.40 miles. MaineDOT's report is presented as follows:

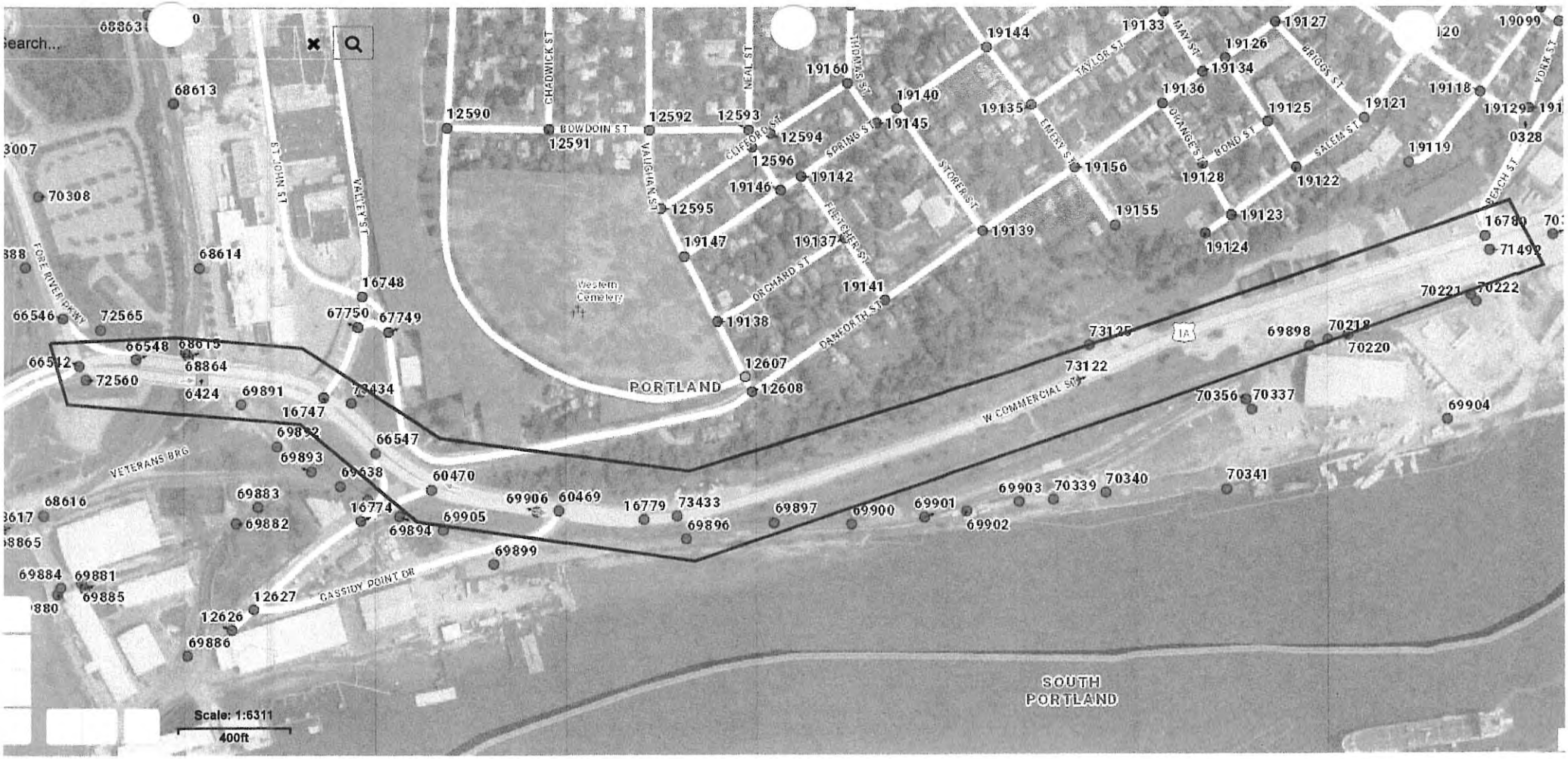
2016 -2018 Traffic Accident Summary

Location	Total Crashes	Critical Rate Factor
1. West Commercial Street @ Valley Street	26	0.75
2. West Commercial Street @ Beach Street	30	1.17
3. West Commercial Street @ Cassidy Point Drive	5	0.37
4. West Commercial Street btw. Fore River Parkway and Valley Street	3	0.29
5. West Commercial Street btw. Valley Street and Cassidy Point Drive	1	0.27
6. West Commercial Street near Benny's Diner	2	0.65
7. West Commercial Street btw. gravel turnout and Beach Street	12	0.51

The MaineDOT considers any roadway intersection or segment a high crash location if both of the following criteria are met:

- ***8 or more accidents***
- ***A Critical Rate Factor greater than 1.00***

As the data presented in the table shows, the intersection of West Commercial Street and Beach Street meets both MaineDOT's criteria for identification of a high crash location, with a total of 30 crashes and a corresponding critical rate factor of 1.17. MaineDOT provided a detailed vehicle collision diagram for the intersection that maps the crash patterns of each of the 30 vehicle collisions. That document visually presents two very distinct crash patterns occurring within the intersection; 18 crashes are "rear-end" crashes involving through vehicles on both approaches of West Commercial Street colliding with a second vehicle traveling in the same direction. A second crash pattern were "angle" collisions with a total of four incidences involving a motorist turning left from the eastbound approach of West Commercial Street to Beach Street stuck by a thru vehicle traveling westbound through the intersection.


Search...
CHADWICK ST
NEAL ST
THOMAS ST
TAYLOR ST
MAY ST
BRIGGS ST
YORK ST
BOWDOIN ST
CLIFFORD ST
SPRING ST
EMERY ST
ORANGE ST
BOND ST
SALEM ST
BEACH ST
ST JOHN ST
VALLEY ST
VAUGHAN ST
STORER ST
FLETCHER ST
ORCHARD ST
DANFORTH ST
FORE RIVER PKWY
VETERANS BRG
CASSIDY POINT DR
W COMMERCIAL ST
IA
Western Cemetery
PORTLAND
SOUTH PORTLAND
Scale: 1:6311
400ft

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary port

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I ☐ Section Detail ☑ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☐ 1320 Summary

REPORT DESCRIPTION

Portland: Rte 1/W Commercial St from intersection with Fore River Pkwy/Veterans Bridge (node 66542) to intersection with Beach St (node 16780)

REPORT PARAMETERS

Year 2016, Start Month 1 through Year 2018 End Month: 12

Route: **0001A**	Start Node: **66542**	Start Offset: **0**	☐ Exclude First Node
	End Node: **16780**	End Offset: **0**	☐ Exclude Last Node
Route: **001AS**	Start Node: **16779**	Start Offset: **0**	☑ Exclude First Node
	End Node: **60469**	End Offset: **0**	☑ Exclude Last Node
Route: **001AS**	Start Node: **60469**	Start Offset: **0**	☑ Exclude First Node
	End Node: **16747**	End Offset: **0**	☑ Exclude Last Node
Route: **001AS**	Start Node: **16747**	Start Offset: **0**	☑ Exclude First Node
	End Node: **66542**	End Offset: **0**	☑ Exclude Last Node

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
16747	0001A - 9.86	Int of FORE RIVER PKY VALLEY ST W COMMERCIAL ST	9	26	0	1	2	4	19	26.9	10.594	0.82	1.10	0.00
												Statewide Crash Rate:	0.73	
16780	0001A - 10.69	Int of BEACH ST ENT TO PORTLAND YACHT RAMP BEACI	9	30	1	0	2	9	18	40.0	7.273	1.37	1.18	1.17
												Statewide Crash Rate:	0.73	
16779	0001A - 10.10	Non Int W COMMERCIAL ST	2	0	0	0	0	0	0	0.0	7.676	0.00	0.34	0.00
												Statewide Crash Rate:	0.15	
66547	0001A - 9.91	Int of CASSIDY POINT DR W COMMERCIAL ST	2	0	0	0	0	0	0	0.0	4.020	0.00	0.40	0.00
												Statewide Crash Rate:	0.15	
73122	0001A - 10.40	Non Int W COMMERCIAL ST	2	0	0	0	0	0	0	0.0	3.818	0.00	0.40	0.00
												Statewide Crash Rate:	0.15	
66542	0001A - 9.70	Int of FORE RIVER PKY VETERANS BRIDGE	9	12	0	0	0	1	11	8.3	9.466	0.42	1.13	0.00
												Statewide Crash Rate:	0.73	
60469	0001A - 10.04	Int of CASSIDY POINT DR W COMMERCIAL ST	9	5	0	0	0	1	4	20.0	7.894	0.21	1.16	0.00
												Statewide Crash Rate:	0.73	
60470	0001A - 9.95	Int of CASSIDY POINT DR W COMMERCIAL ST	2	0	0	0	0	0	0	0.0	3.976	0.00	0.40	0.00
												Statewide Crash Rate:	0.15	
73433	0001A - 10.12	Non Int W COMMERCIAL ST	2	0	0	0	0	0	0	0.0	3.818	0.00	0.40	0.00
												Statewide Crash Rate:	0.15	
66548	001AS - 2.59	Int of FORE RIVER PKY RD INV 3209586	2	0	0	0	0	0	0	0.0	5.487	0.00	0.37	0.00
												Statewide Crash Rate:	0.15	
Study Years:	3.00	**NODE TOTALS:**		73	1	1	4	15	52	28.8	64.022	0.38	0.59	0.64

Crash Summary I

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critica. Rate	CRF
66542	16747	3140171	0 - 0.16	0001A - 9.70	0.16	2	3	0	0	0	1	2	33.3	0.00788	126.95	441.67	0.00
Int of FORE RIVER PKY VETERANS BRIDGE				US 1A											Statewide Crash Rate: 216.35		
16747	66547	3117392	0 - 0.05	0001A - 9.86	0.05	2	1	0	0	0	0	1	0.0	0.00201	165.82	621.35	0.00
Int of FORE RIVER PKY VALLEY ST W COMMERCIAL ST				US 1A											Statewide Crash Rate: 216.35		
66547	60470	3510989	0 - 0.04	0001A - 9.91	0.04	2	0	0	0	0	0	0	0.0	0.00158	0.00	660.91	0.00
Int of CASSIDY POINT DR W COMMERCIAL ST				US 1A											Statewide Crash Rate: 216.35		
60470	60469	3510990	0 - 0.09	0001A - 9.95	0.09	2	1	0	0	0	0	1	0.0	0.00363	91.93	533.67	0.00
Int of CASSIDY POINT DR W COMMERCIAL ST				US 1A											Statewide Crash Rate: 216.35		
60469	16779	3121916	0 - 0.06	0001A - 10.04	0.06	2	1	0	0	0	0	1	0.0	0.00231	144.01	599.04	0.00
Int of CASSIDY POINT DR W COMMERCIAL ST				US 1A											Statewide Crash Rate: 216.35		
16779	73433	4628058	0 - 0.02	0001A - 10.10	0.02	2	2	0	0	0	0	2	0.0	0.00153	436.48	666.98	0.00
Non Int W COMMERCIAL ST				US 1A											Statewide Crash Rate: 216.35		
73433	73122	4628059	0 - 0.28	0001A - 10.12	0.28	2	2	0	0	1	0	1	50.0	0.02138	31.18	358.15	0.00
Non Int W COMMERCIAL ST				US 1A											Statewide Crash Rate: 216.35		
73122	16780	4364862	0 - 0.29	0001A - 10.40	0.29	2	12	0	0	1	1	10	16.7	0.02215	180.61	355.82	0.00
Non Int W COMMERCIAL ST				US 1A											Statewide Crash Rate: 216.35		
16779	60469	3121919	0 - 0.06	001AS - 2.22	0.06	2	0	0	0	0	0	0	0.0	0.00227	0.00	602.24	0.00
Non Int W COMMERCIAL ST				US 1AS											Statewide Crash Rate: 216.35		
60469	16747	4628063	0 - 0.18	001AS - 2.28	0.18	2	0	0	0	0	0	0	0.0	0.00739	0.00	448.24	0.00
Int of CASSIDY POINT DR W COMMERCIAL ST				US 1AS											Statewide Crash Rate: 216.35		
16747	66548	3117394	0 - 0.13	001AS - 2.46	0.13	2	3	0	0	0	1	2	33.3	0.00713	140.18	451.99	0.00
Int of FORE RIVER PKY VALLEY ST W COMMERCIAL ST				US 1AS											Statewide Crash Rate: 216.35		
66548	66542	3121654	0 - 0.04	001AS - 2.59	0.04	2	0	0	0	0	0	0	0.0	0.00188	0.00	631.93	0.00
Int of FORE RIVER PKY RD INV 3209586				US 1AS											Statewide Crash Rate: 216.35		
Study Years: 3.00				**Section Totals:**	1.40		25	0	0	2	3	20	20.0	0.08114	102.70	291.09	0.35
				Grand Totals:	1.40		98	1	1	6	18	72	26.5	0.08114	402.57	415.60	0.97

H. C. L.
CRASH COLLISION DIAGRAM
DATA PACKAGE

COUNTY: **CUMBERLAND** TOWN: **PORTLAND**

LOW NODE: **16780** HIGH NODE: **0000** REGION: **1** U/R: **URBAN**

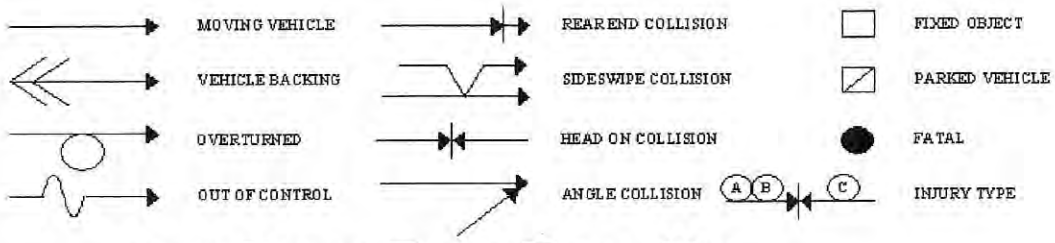
DESCRIPTION: **Jct of West Commercial St & Beach St/Yacht Club**

RTE # / RD #: **0001A** DATE DRAWN: **8/22/2019** DRAWN BY: **Michelle**

STUDY FROM: **1/1/2016** STUDY TO: **12/31/2018**

C`SH RATE: **1.37** CRF: **1.17** % INJURY: **40** TOTAL CRASHES: **30**

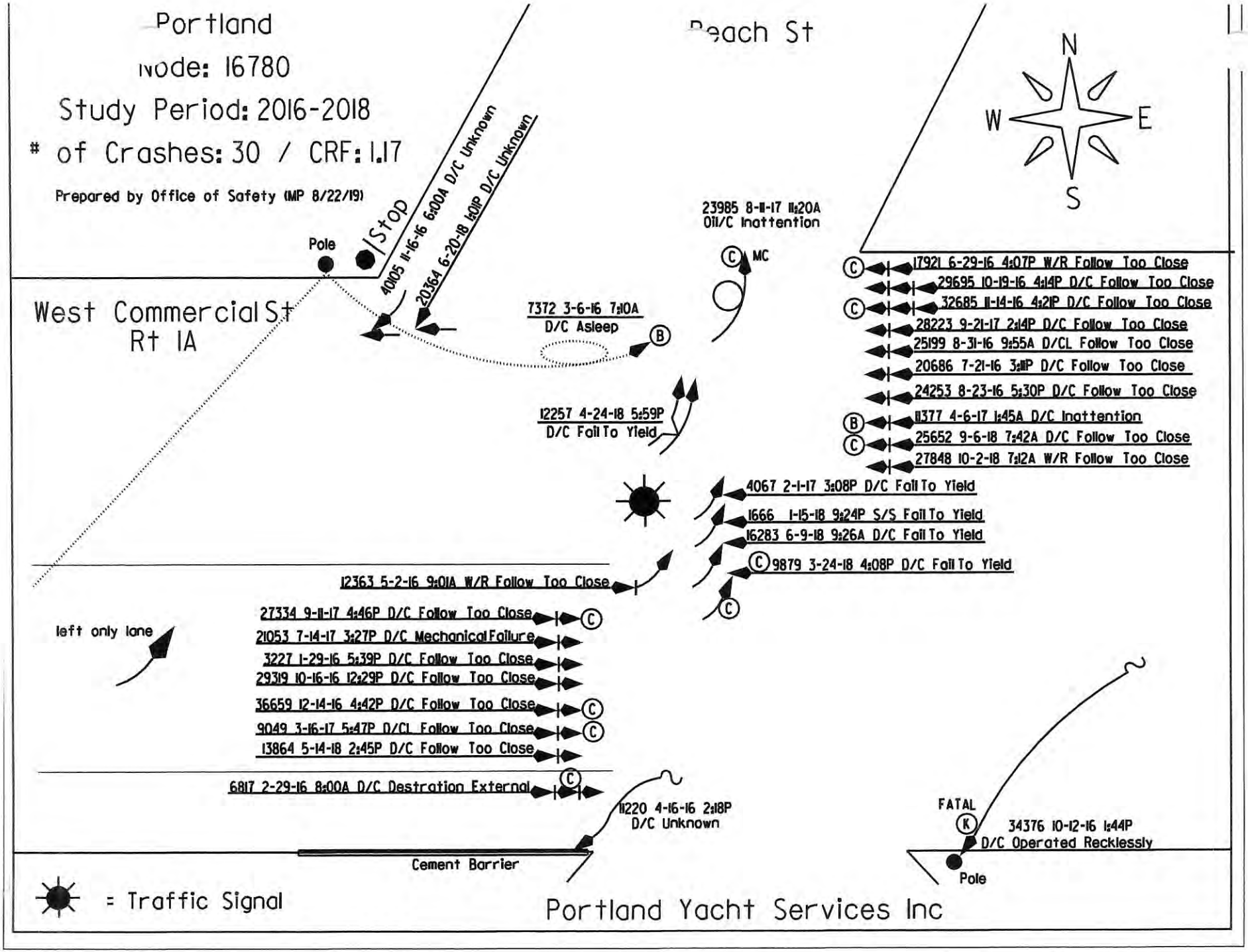
LEGEND



PAVEMENT: D - DRY, I - ICY, W - WET, S - SNOW

WEATHER: C - CLEAR, F - FOG, R - RAIN, SL - SLEET, S - SNOW, CL - CLOUDY

TIME: A - AM, P - PM


Portland
Node: 16780
Study Period: 2016-2018
# of Crashes: 30 / CRF: 1.17
Prepared by Office of Safety (MP 8/22/19)
Beach St
N
W
E
S
West Commercial St
Rt 1A
Pole
Stop
40405 11-16-16 6:00A D/C Unknown
20364 6-20-18 1:01P D/C Unknown
23985 8-11-17 11:20A
Oil/C Inattention
C MC
7372 3-6-16 7:10A
D/C Asleep
B
17921 6-29-16 4:07P W/R Follow Too Close
29695 10-19-16 4:14P D/C Follow Too Close
32685 11-14-16 4:21P D/C Follow Too Close
28223 9-21-17 2:14P D/C Follow Too Close
25199 8-31-16 9:55A D/CL Follow Too Close
20686 7-21-16 3:11P D/C Follow Too Close
24253 8-23-16 5:30P D/C Follow Too Close
11377 4-6-17 1:45A D/C Inattention
25652 9-6-18 7:42A D/C Follow Too Close
27848 10-2-18 7:12A W/R Follow Too Close
12257 4-24-18 5:59P
D/C Fail To Yield
4067 2-1-17 3:08P D/C Fail To Yield
1666 1-15-18 9:24P S/S Fail To Yield
16283 6-9-18 9:26A D/C Fail To Yield
C 9879 3-24-18 4:08P D/C Fail To Yield
12363 5-2-16 9:01A W/R Follow Too Close
27334 9-11-17 4:46P D/C Follow Too Close
21053 7-14-17 3:27P D/C Mechanical Failure
3227 1-29-16 5:39P D/C Follow Too Close
29319 10-16-16 12:29P D/C Follow Too Close
36659 12-14-16 4:42P D/C Follow Too Close
9049 3-16-17 5:47P D/CL Follow Too Close
13864 5-14-18 2:45P D/C Follow Too Close
6817 2-29-16 8:00A D/C Destration External
left only lane
11220 4-16-16 2:18P
D/C Unknown
Cement Barrier
FATAL
K
34376 10-12-16 1:44P
D/C Operated Recklessly
Pole
= Traffic Signal
Portland Yacht Services Inc

SECTION 3

A. ENTRANCE/EXIT LOCATION

There will be three primary driveways into the site from West Commercial Street. All three driveways are proposed to be unsignalized. The westerly driveway will provide the primary access for staff/employees to the 150-space surface parking lot. Staff parking is located on the westside of the building to provide convenient access to the proposed building, as staff entry is differentiated from patient/visitor access into the building. The central driveway is the primary patient/visitor access route and it is located between the clinic building and the proposed site garage to allow for ease of patient access to the clinic building, as well as, vehicular movements in/out of the garage. The most easterly driveway is located east of the parking structure and will provide access for entering and exiting movements out of the garage. The driveway also provides for emergency and heavy vehicle movements around the garage and to the rear of the parking structure avoiding conflicts with other site uses through the westerly and central access driveways.

It is expected that each of the three driveways will require dedicated left-turn lanes for entry movements to the site from West Commercial Street. These lanes and the projected volumes of traffic through them are not expected to significantly overlap with left-turn movements into the Canal Landing Boat facility. The Canal Landing site design also provides three points of access onto West Commercial Street with the central and far westerly driveways infrequently used and carrying limited traffic volumes. The most easterly driveway into the boat yard is located approximately 250-feet east of the proposed parking garage. The Canal Landing traffic volumes are very low and are not expected to conflict with traffic generated by the proposed Clinic site. The existing West Commercial Street road section consists of basically two 15' wide travel lanes and approximately 6" paved shoulders on each side for a total of 42', although, in some areas it is wider at 46'. The right of way width is about 70' on the westerly end and up to 80' on the easterly end of the site frontage.

The Applicant seeks the City's direction on design considerations for providing left-turn treatments to each of the three proposed driveway entrances.

SECTION 3

B. ENTRANCE AND EXIT PLAN VIEW

The City of Portland's Technical Standards require the following sight distance standards for a non-mobility roadway:

Sight Distance Standards

Speed Limit	Sight Distance
25 mph	200 feet
30	250
35	305
40	360
45	425
50	495
55	570

West Commercial Street is currently posted at 40mph in the vicinity of the proposed Community Based Outpatient Clinic site, which requires an unobstructed sightline of 360-feet. A clear line-of-sight in excess of 500-feet was measured "*looking*" in both directions from each of the three proposed driveway entrances to the site.

C. ENTRANCE/EXIT DESIGN

The proposed project, including all required off-site improvements (if applicable), will be designed and constructed as directed by the City of Portland.

SECTION 4

TITLE, RIGHT OR INTEREST

Attached is a WARRANTY DEED, signed on November 21, 2011 that grants to J.B. Brown & Sons, the described land for the proposed site. The attached Ground lease agreement between J.B. Brown & Sons and FDS JBB Portland, LLC serves as evidence of the RTI for the applicant to the property.

MAINE REAL STATE TAX PAID

RELEASE DEED

MAINE CENTRAL RAILROAD COMPANY, a corporation duly organized and existing under the laws of the State of Maine, with offices at 1700 Iron Horse Park, North Billerica, Middlesex County, Massachusetts (the "Grantor") in consideration of Seven Hundred Ninety Three Thousand and 00/100 ($793,000.00) Dollars paid to it by **J.B. BROWN & SONS,** with a mailing address of 36 Danforth Street, Portland, ME 04101 (the "Grantee") hereby grants to the Grantee all the Grantor's right, title and interest, without any warranties or covenants of title whatsoever, in a certain parcel of land, and the buildings, bridges, structures, crossings, fixtures and improvements thereon, if any, situated in Portland, County of Cumberland, State of Maine (the "Premises") described as follows:

SEE EXHIBIT "A" ATTACHED HERETO AND
MADE A PART HEREOF BY THIS REFERENCE.

This conveyance is subject to the following reservations, conditions, covenants and agreements:

1. This conveyance is made without granting any right of way, either by necessity or otherwise, over any remaining land or location of the Grantor.

2. ~~The Grantor hereby reserves an exclusive, permanent right of way and easement in, on, over, under, across and through the Premises for the purpose of accessing, constructing, installing, operating, maintaining, modifying, repairing, replacing, relocating and removing a telecommunications system or other system for transmission of intelligence or information by any means, whether now existing or hereafter devised, including such poles, pipes, wires, fibers, fiberoptic cables, repeater stations, attachments, appurtenances, structures or other equipment and property of any description necessary or useful for the same (the "Telecommunications Easement"). The Grantor further reserves the right to freely lease, license, mortgage, assign, pledge and otherwise alienate the Telecommunications Easement. The Grantee hereby covenants with the Grantor to recognize the Telecommunications Easement and, without the payment of any further consideration, to execute, acknowledge and deliver such instruments suitable for recording with the registry of deeds as the Grantor may reasonably~~

~~require to acknowledge title to the Telecommunications Easement in the Grantor. The Grantor covenants to reasonably repair and restore the surface of the easement area after any work.~~

3. ~~The Grantor excepts from this conveyance any and all railroad tracks, railroad track materials (including, but not limited to, ties, connections, switches and ballast) and/or related equipment of any description located in whole or in part within the Premises (the "Trackage") and this conveyance is subject to the right of the Grantor to enter the Premises from time to time and at any and all times within the ninety (90) day period commencing with and subsequent to the date of delivery of this deed, with such men, equipment and materials as, in the reasonable opinion of the Principal Engineering Officer of the Grantor, are necessary for the removal of the Trackage. Days during the months of December, January, February and March shall not be included in the aforesaid ninety (90) day period. If the Trackage is not removed from the Premises by the expiration of said ninety (90) day period, the Trackage shall be deemed abandoned by the Grantor and shall then become the property of the Grantee.~~

4. ~~The Grantor excepts from this conveyance any and all advertising signs and/or billboards located upon the Premises which are not owned by the Grantor. Furthermore, this conveyance is subject to the right of the owners of said signs and/or billboards to go upon the Premises and remove them within ninety (90) days from the date of delivery of this deed.~~

5. By the acceptance of this deed and as part consideration therefor, the Grantee hereby assumes any and all agreements, covenants, obligations and liabilities of the Grantor in respect to any underground facilities, drainage culverts, walls, crossings and/or other structures of any nature and description located in whole or in part within the Premises.

6. By the acceptance of this deed and as part consideration therefor, the Grantee agrees to irrevocably waives, gives up and renounces any and all claims or causes of action against the Grantor in respect of claims, suits and/or enforcement actions (including any administrative or judicial proceedings and any remedial, removal or response actions) ever asserted, threatened, instituted or requested by any person and/or governmental agency on account of: (a) any release of oil or hazardous materials or substances of any description on, upon or into the Premises in contravention of any ordinance, law or statute (including, but not limited to, the Comprehensive Environmental Response, Compensation and Liability Act of 1980 (42 U.S.C. Section 9601, et seq., as amended); and (b) any and all damage to real or personal property, natural resources and/or harm or injury to persons alleged to have resulted from such release of oil or hazardous materials or substances.

7. ~~By the acceptance of this deed and as part consideration therefor, the Grantee hereby agrees to build and forever maintain fences (together with any necessary gates), suitable to the Principal Engineering Officer of the Grantor, along the boundaries of the Premises which are common to remaining land or location of the Grantor (the "Fences"), if Fences are ever required in the sole and reasonable opinion of said Principal Engineering Officer.~~

8. ~~This conveyance is subject to the following restriction for the benefit of other land or location of the Grantor, to wit: that from the date of delivery of this deed, the Grantor shall not be liable to the Grantee or any lessee or user of the Premises (or any part thereof) for any damage to any buildings or property upon them caused by fire, whether communicated directly or indirectly by or from locomotive engines of any description upon the railroad operated by the Grantor, or otherwise.~~

9. ~~By the acceptance of this deed and as part consideration therefor, the Grantee hereby agrees to make no use of the Premises which, in the sole and reasonable opinion of the Principal Engineering Officer of the Grantor, adversely affects, increases or decreases drainage to, from, upon or in any remaining land or location of the Grantor. The Grantee agrees to indemnify and save the Grantor harmless from and against any and all loss, cost, damage or expense including, but not limited to, the cost of defending all claims and/or suits for property damage, personal injury or death arising out of or in any way attributable to any breach of the foregoing covenant.~~

10. ~~The Grantor excepts from this conveyance any and all overhead, surface or underground signal and communication line facilities of the Grantor located within the limits of the Premises and this conveyance is subject to the Grantor's use of any such facilities in their present locations and entry upon the Premises from time to time to maintain, repair, replace, renew, relay or remove such facilities.~~

11. The strikeout sections in this Deed are intentionally deleted.

12. Whenever used in this deed, the term "Grantor" shall not only refer to the **MAINE CENTRAL RAILROAD COMPANY**, but also its successors, assigns and affiliates and the term "Grantee" shall not only refer to the above-named Grantee, but also the Grantee's successors, assigns and grantees, as the case may be.

13. The several exceptions, reservations, conditions, covenants and agreements contained in this deed shall be deemed to run with the land and be binding upon the Grantee forever. In addition to the acceptance and recording of this deed, the Grantee hereby signifies assent to the said several exceptions, reservations, conditions, covenants and agreements, by joining in its execution.

IN WITNESS WHEREOF, the said **MAINE CENTRAL RAILROAD COMPANY** has caused this release deed to be executed in its name and its corporate seal to be hereto affixed by David A. Fink, its President, thereunto duly authorized this 21st day of November, 2011.

GRANTOR:
MAINE CENTRAL RAILROAD COMPANY

Witness

By: David A. Fink SEAL
David A. Fink, President

GRANTEE:
J.B. BROWN & SONS

Witness

By: Vincent P. Veroneau

Print Name: Vincent P. Veroneau

COMMONWEALTH OF MASSACHUSETTS

Middlesex, ss. 11/21, **2011**

On this 21ST day of November, 2011, before me, the undersigned notary public, personally appeared the above-named David A. Fink, the President of the **MAINE CENTRAL RAILROAD COMPANY** as aforesaid, proved to me through satisfactory evidence of identification, which was personal knowledge, to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose.

Notary Public: Roland L. Theriault
My Commission Expires:

ROLAND L. THERIAULT
Notary Public
Commonwealth of Massachusetts
My Commission Expires
August 5, 2016

STATE OF MAINE

Cumberland, **ss.** 11/23, **2011**

On this 23rd day of November, 2011, before me, the undersigned notary public, personally appeared the above-named Vincent P. Veroneau, of **J.B. Brown & Sons**, as aforesaid, proved to me through satisfactory evidence of identification, which was personally known to me to be the person whose name is signed on the preceding or attached document, and acknowledged to me that he signed it voluntarily for its stated purpose.

Notary Public:
My Commission Expires:
Attorney at Law
David L. Galgay Jr
BAR # 003643

Exhibit A

A certain lot or parcel of land, with the buildings thereon, situated on the northerly side of West Commercial Street, in the City of Portland, County of Cumberland, and State of Maine, bounded and described as follows:

Beginning at a point on the northerly sideline of West Commercial Street, on the westerly sideline of the former Emery Street now land of J. B. Brown and Sons;

Thence, S 66°06'27" W along the northerly sideline of said West Commercial Street 784.47 feet;

Thence, S 71°39'57" W along the northerly sideline of said West Commercial Street 731.36 feet;

Thence, S 80°52'21" W along the northerly sideline of said West Commercial street 437.92 feet to the West Commercial Street off-ramp;

Thence, along said off-ramp, the following courses and distances:

Northwesterly, along a curve to the right having a radius of 1023.32 feet, a delta of 7°02'02", and whose chord bears N 88°49'29" W, a distance of 125.55 feet, an arc length of 125.63 feet;

N 66°06'38" W a distance of 93.96 feet;

Northwesterly, along a curve to the left, having a radius of 194.00 feet, a delta of 38°27'00", and whose chord bears N 85°20'08" W, a distance of 127.76 feet, an arc length of 130.19 feet;

S 75°26'22" W a distance of 33.57 feet;

Thence; N 81°44'16" W along land now or formerly of the State of Maine 171.41 feet;

Thence, N 08°15'44" E along land of said State of Maine 22.46 feet to the southerly sideline of Danforth Street;

Thence along said Danforth Street the following courses and distances:

N 83°43'02" E a distance of 96.39 feet;

Northeasterly, along a curve to the left, having a radius of 1042.16 feet, a delta of 12°51'52", and whose chord bears N 77°17'06" E, a distance of 233.50 feet, an arc length of 233.99 feet;

N 70°51'10" E a distance of 187.93 feet;

Northeasterly, along a curve to the right, having a radius of 800.00 feet, a delta of 2°21'41", and whose chord bears N 72°02'04" E, a distance of 32.97 feet, an arc length of 32.97 feet to land now or formerly of South Rise Condominiums;

Thence along said South Rise Condominium land the following courses and distances:
S 11°41'22" E a distance of 168.00 feet;
N 81°56'51" E a distance of 271.00 feet;
N 77°01'13" E a distance of 96.62 feet;
N 75°17'24" E a distance of 51.37 feet to land now or formerly of Shaw;

Thence, N 72°46'26" E along land of said Shaw 94.47 feet;

Thence, N 35°07'51" W along land of said Shaw 69.73 feet to the southerly terminus of "K" Street;

Thence, along said "K" Street, along the southerly side of a 40 foot passageway and the terminus of "E" Street the following courses and distances:

N 55°46'28" E a distance of 17.74 feet;
N 55°46'28" E a distance of 58.47 feet;
N 54°19'46" E a distance of 397.81 feet to land now or formerly of the City of Portland;

Thence, S 35°05'23" E along land of said City of Portland 56.55 feet;

Thence, N 69°03'30" E along land of said City of Portland and land now or formerly of Noonan 85.21 feet;

Thence, N 34°36'51" W along land of said Noonan 92.60 feet to land now or formerly of McFarland;

Thence, N 54°37'05" E along land now or formerly of McFarland, Curtis, Dilworth, Moberg, McDonough and Robertson 367.27 feet to land now or formerly of Pollard & Lantos;

Thence, S 35°47'03" E along land of said Pollard & Lantos 119.22 feet;

Thence, N 54°52'09" E along land of said Pollard & Lantos, and land now or formerly of Bessire and Dyro 441.22 feet to the centerline of Emery Street;

Thence, S 35°05'32" E along the centerline of Emery Street, 153.86 feet;

Thence, N 55°14'50" E a distance of 30.00 feet to the easterly sideline of Emery Street;

Thence, S 35°05'32" E along said easterly sideline, 24.61 feet to the intersection of the easterly side of Emery Street at its intersection with the southerly sideline of Salem Street;

Thence, S 55°14'50" W along land now or formerly of J. B. Brown 60.00 feet;

Thence, S 35°05'22" E along land now or formerly of J. B. Brown 172.39 feet to West Commercial Street and the point of beginning, containing 10.65 acres, more or less. Also

conveying all right, title and interest of Maine Central Railroad Company in and to Emery Street lying within and adjacent to the land herein conveyed.

Reference, is made to a survey by Owen Haskell, Inc. dated October 13, 2011 Job # 2010-095P for a further description of the above described premises.

Reference is also made to the premises conveyed in that certain deed from the Portland Terminal Company to the Maine Central Railroad Company dated December 30, 1985 and recorded in the Cumberland County Registry of Deeds in Book 7026, Page 192.

3607968_1

Received
Recorded Register of Deeds
Nov 23,2011 12:54:33P
Cumberland County
Pamela E. Lovley

GROUND LEASE AGREEMENT

THIS GROUND LEASE AGREEMENT ("Lease") is made this 27th day of November, 2018, by and between J.B. BROWN & SONS, a Maine corporation of Portland, Cumberland County, Maine (hereinafter referred to as "Landlord"), and FDS JBB PORTLAND, LLC, a Delaware limited liability company having its principal place of business in Arlington, Virginia (hereinafter referred to as "Tenant").

WITNESSETH:

In consideration of the mutual covenants and agreements contained herein and intending to be legally bound hereby, Landlord and Tenant hereby agree with each other as follows:

SECTION 1. Premises: Landlord hereby ground leases, demises and lets to Tenant, and Tenant hereby takes and hires from Landlord, for the term and upon and subject to the terms, conditions, covenants and provisions set forth in this Lease, the following described premises (sometimes hereinafter referred to as the "Premises"):

> All of that certain tract, piece or parcel of land on the westerly side of Commercial Street in the City of Portland, County of Cumberland and State of Maine, being more particularly described in Exhibit A attached hereto,

together with any and all improvements, appurtenances, rights, privileges and easements benefiting, belonging or pertaining to the parcel described in Exhibit A. Landlord is the sole owner of fee simple title to the Premises. Tenant has entered into or intends to enter into a lease ("GSA Lease") with the United States General Services Administration ("GSA") pursuant to which the GSA intends to occupy the building to be constructed by Tenant in accordance with the requirements set forth in the Lease.

SECTION 2. Term: The initial term of this Lease shall commence on the date hereof (hereinafter referred to as the "Effective Date") and shall continue for a period ending at 11:59 p.m. on twentieth (20th) anniversary of the "Rent Commencement Date" (as herein defined), subject to extension pursuant to Section 3 below. The "Rent Commencement Date" shall be the first day of the month after the date on which Tenant's construction of its proposed building to be situated on the Premises is substantially complete and the GSA accepts the space pursuant to the GSA Lease, unless sooner terminated as herein provided.

SECTION 3. Extension Terms: At the expiration of the initial term of this Lease, the initial term shall be automatically extended for three (3) additional successive periods of ten (10) years each, each upon all of the same other terms, covenants and conditions contained in this Lease, but subject to increases in rent as set forth in Section 4 hereof; provided, however, that Tenant may cancel this Lease, effective as of the date of expiration of the initial term or as of the date of expiration of any of the ten (10) year extension periods, by giving written notice in accordance with Section 26 hereof of such cancellation to Landlord at least twelve (12) months prior to the expiration of the initial term, or the expiration of any of the said ten (10) year extension periods,

as the case shall be. The expression "term of this Lease" and expressions of similar tenor shall mean and refer to the initial term as the same shall have been extended in accordance herewith. The expression "lease year" shall mean each successive twelve-month period during the term of this Lease, with the first such "lease year" to begin with the Rent Commencement Date.

SECTION 4. Rent: During the initial term of this Lease, Tenant covenants and agrees to pay to Landlord, at the address set forth in Section 26 with regard to notices or at such other place as Landlord shall by notice to Tenant from time to time direct, without offset or deduction and without previous demand therefor, base rent in the amount of

payable in equal quarterly installments, each of which shall be one-quarter (1/4th) of said annual rent, in advance on each January 1st, April 1st, July 1st and October 1st.

The base rent amount for each option period shall be mutually agreed to between Landlord and Tenant no later than twelve (12) months prior to the expiration of the initial term, or the expiration of the then option period, but in no event shall the annual base rent be less than the base rent paid in the final year of the immediately preceding year.

SECTION 5. Rent to be Net to Landlord: It is the intention of the parties that the base rent paid to Landlord shall be net to Landlord so that this Lease yields to Landlord the base rent specified herein, and that all costs, expenses and obligations of every kind and nature whatsoever relating to the Premises during the term of this Lease shall be paid by Tenant.

SECTION 6. Use and Restrictions: The Premises may be used for any lawful purpose, including without limitation, leasing of the Premises or a portion thereof to the GSA pursuant to the GSA Lease.

SECTION 7. Taxes and Utility Expenses: (a)(1) Tenant shall, during the term of this Lease, as additional rent, pay and discharge punctually, as and when the same shall become due and payable, all taxes, special and general assessments, water rents, rates and charges, sewer rents and other governmental impositions and charges of every kind and nature whatsoever, extraordinary as well as ordinary (hereinafter referred to as "Taxes"), and each and every installment thereof which shall or may during the term of this Lease be charged, levied, laid, assessed, imposed, become due and payable, or a lien upon, or for, or with respect to, the Premises or any part thereof, or any buildings, appurtenances or equipment owned by Tenant thereon or therein or any part thereof, together with all interest and penalties thereon, under or by virtue of all present or future laws, ordinances, requirements, orders, directives, rules or regulations of the federal, state, county and municipal governments and of all other governmental authorities whatsoever (all of which shall also be included in the term "Taxes" as heretofore defined); and all sewer rents and charges for water, steam, gas, heat, hot water, electricity, light and power, and other service or services furnished to the Premises or the occupants thereof during the term of this Lease.

(2) To the extent that the same may be permitted by law, Tenant or its designees shall have the right to apply for the conversion of any assessment for local improvements assessed during the term of this Lease in order to cause the same to be payable in annual installments, and upon such conversion, Tenant shall pay and discharge punctually said

installments as they shall become due and payable during the term of this Lease. Landlord agrees to permit the application for the foregoing conversion to be filed in Landlord's name, if necessary, and shall execute any and all documents requested by Tenant to accomplish the foregoing result.

(3) Tenant shall be deemed to have complied with the covenants of this paragraph (a) if payment of such Taxes shall have been made either within any period allowed by law or by the governmental authority imposing the same during which payment is permitted without penalty or interest or before the same shall become a lien upon the Premises, and Tenant shall produce and exhibit to Landlord evidence of such payment, if Landlord shall demand the same in writing.

(b) All such Taxes, including assessments which have been converted into installments as set forth in the preceding paragraph (a), which shall become payable during each of the calendar or fiscal tax years, as the case may be, in which the term of this Lease commences or terminates, shall be apportioned pro rata between Landlord and Tenant in accordance with the respective portions of such year during which such term shall be in effect.

(c) (1) Tenant or its designee shall have the right to contest or review all such Taxes by legal proceedings, or in such other manner as it may deem suitable (which, if instituted, Tenant or its designees shall conduct promptly at its own cost and expense, and, if necessary, in the name of and with the cooperation of Landlord, and Landlord shall execute all documents reasonably necessary to accomplish the foregoing). Notwithstanding the foregoing, Tenant shall promptly pay all such Taxes if at any time the Premises or any part thereof shall then be immediately subject to forfeiture, or if Landlord shall be subject to any liability arising out of the nonpayment thereof.

(2) The legal proceedings referred to in the preceding subparagraph (1) shall include appropriate certiorari proceedings and appeals from orders therein and appeals from any judgments, decrees, or orders. In the event of any reduction, cancellation or discharge, Tenant shall pay the amount finally levied or assessed against the Premises or adjudicated to be due and payable on any such contested Taxes.

SECTION 8. Improvements. Repairs. Additions and Replacements: (a)(1) Tenant shall have the right to construct upon the Premises such buildings, appurtenant structures, roadways, walkways, parking areas, service areas and other similar and dissimilar improvements as Tenant shall desire, provided, however, that all such buildings, structures and other improvements shall be constructed in a good and workmanlike manner, in compliance with all applicable building and zoning codes and ordinances.

(2) After the Effective Date, Tenant shall submit to the City of Portland, Maine a completed application for site plan review. Thereafter, Tenant shall diligently and in good faith seek to obtain all zoning changes and variances, environmental and land use permits, and all other governmental licenses, permits and approvals that shall be necessary or convenient for the use and operation of the Premises in accordance with the terms of the GSA Lease. All the said zoning variances, environmental and land use permits, and other governmental licenses,

permits (including building permits) and approvals required to be obtained by Tenant for the use and operation of the Premises in accordance with the terms of the GSA Lease are hereinafter referred to as the "Permits."

(3) Landlord shall cooperate with Tenant, at no material out-of-pocket cost to Landlord, in any and all applications, proceedings and appeals relating to the Permits, and shall, at the request of Tenant, execute and deliver any application, instrument, consent, approval or other document as may be reasonably required for purposes of obtaining any of the Permits, provided that no such application, instrument, consent, approval or other document shall operate to require Landlord to incur any costs or expenses or shall operate to impose any restrictions on Landlord that are inconsistent with the rights and obligations of the parties set forth in this Lease. Tenant may prosecute such applications, proceedings and appeals in its own or in Landlord's name and through counsel of its choice, provided that if prosecuted in Landlord's name, Tenant shall use counsel reasonably acceptable to Landlord and shall indemnify, defend and hold harmless Landlord against any claims arising from Tenant's wrongful acts or the negligent or wrongful acts of Tenant's agents, principals, employees or contractors in prosecuting such applications, proceedings or appeals in Landlord's name.

(4) Notwithstanding anything to the contrary herein, if Tenant shall fail to obtain the Permits within thirty six (36) months after the Effective Date, Tenant may cancel and terminate this Lease by giving Landlord notice of such cancellation and termination within thirty six (36) months after the Effective Date, and upon the giving of such notice, this Lease shall thereby be cancelled and terminated and the parties hereto shall have no further rights or obligations hereunder except for those rights and obligations which by the express terms of this Lease survive such termination. For the purposes hereof, Tenant shall be deemed to have "obtained" the Permits only if (i) all necessary Permits have been issued, the Permits contain no conditions or requirements that in the reasonable opinion of Tenant will materially and adversely affect its proposed use of the Premises, the Permits are not subject to any legal challenge or appeal, and all periods within which any such challenge or appeal may be brought shall have expired, or (ii) Tenant shall notify Landlord that it has obtained all necessary Permits.

(5) Tenant shall perform its construction activities in a manner so as to avoid unreasonable interference with any operations of the Landlord within its adjacent or nearby real property and will cause its construction vehicles, equipment and materials to be stored within the area designated on the site plan or, if not so designated, within a staging area mutually acceptable to Landlord and Tenant, and will, upon request by Landlord, erect temporary construction fences or barricades around Tenant's construction area and will keep the remainder of the Landlord's adjacent or nearby real property free of Tenant's construction debris and equipment.

(b) During construction of the improvements on the Premises, Tenant shall maintain in force and effect, at its cost and expense, reasonable amounts of builder's risk insurance covering the improvements, and such other insurance as will protect Landlord, Tenant and their respective designees from claims for damages because of bodily injury, including death, and from claims for damages to property, which may arise out of or in connection with the construction activities at or near the Premises, whether performed by Tenant or by Tenant's contractors or subcontractors or anyone employed by any of them. Tenant shall deposit with

Landlord, prior to commencement of the construction and thereafter within ten (10) days prior to the expiration of the applicable policies, certificates evidencing such insurance coverage.

(c) Tenant alone shall be responsible for maintaining the buildings and improvements at any time erected on the Premises, and Landlord shall not be required to furnish any services or facilities or to make any improvements, repairs or alterations in or to the Premises during the term of this Lease.

(d) Until the expiration or sooner termination of this Lease, title to any building or buildings or improvements situate or erected on the Premises and the building equipment and other items installed thereon and any alteration, change or addition thereto shall remain solely in Tenant, and Tenant alone shall be entitled to deduct all depreciation on Tenant's income tax returns for any such building or buildings, building equipment and/or other items, improvements, additions, changes or alterations.

(e) On the last day or sooner termination of the term of this Lease, Tenant shall quit and surrender to Landlord the Premises, and any buildings and permanent improvements then thereon.

(f) During the term of this Lease, Landlord shall have the right, but not the obligation, to construct such access roadways and walkways between roadways and walkways of the Premises and Landlord's adjacent property as Landlord shall determine in its reasonable discretion.

SECTION 9. Requirements of Public Authority: (a) During the term of this Lease, Tenant shall, at its own cost and expense, promptly observe and comply with all present and future laws, ordinances, requirements, orders, directives, rules and regulations of the federal, state, county, town and city governments and of all other governmental authorities affecting the Premises or appurtenances thereto or any part thereof whether the same are in force at the commencement of the term of this Lease or may in the future be passed, enacted or directed.

(b) Tenant shall have the right to contest, by appropriate legal proceedings diligently conducted in good faith, in the name of Tenant, or Landlord (if legally required), or both (if legally required), without cost or expense to Landlord, the validity or application of any law, ordinance, rule, regulation or requirement of the nature referred to in paragraph (a) of this section and, if by the terms of any such law, ordinance, order, rule, regulation or requirement, compliance therewith may legally be delayed pending the prosecution of any such proceeding, Tenant may delay such compliance therewith until the final determination of such proceeding.

(c) Landlord agrees to execute and deliver any appropriate papers or other instruments which may be necessary or proper to permit Tenant so to contest the validity or application of any such law, ordinance, order, rule, regulation or requirement and to fully cooperate with Tenant in such contest.

SECTION 10. Covenant Against Liens: If, because of any act or omission of Tenant, any mechanic's lien or other lien, charge or order for the payment of money shall be filed against

Landlord or any portion of the Premises, Tenant shall, at its own cost and expense, cause the same to be discharged of record or bonded within thirty (30) days after written notice from Landlord to Tenant of the filing thereof; and Tenant shall indemnify and save harmless Landlord against and from all costs (including reasonable attorneys' fees), liabilities, suits, penalties, claims and demands resulting therefrom.

SECTION 11. Access to Premises: Subject to the terms of the GSA Lease, Landlord shall have the right to enter upon the Premises at all reasonable times upon reasonable prior notice to Tenant to examine the same provided such entry shall not unreasonably interfere with the businesses then being conducted on the Premises.

SECTION 12. Assignment and Subletting: Tenant shall have the right to enter into the GSA Lease and to assign this Lease and/or to sublet all or any part of the Premises at any time, and from time to time, during the term of this Lease, provided that, notwithstanding any such assignment or subletting, Tenant shall remain directly and primarily liable for the performance of its obligations under this Lease, unless the assignee or sublessee expressly agrees in writing with Landlord to assume all such obligations and has a financial creditworthiness that is reasonably acceptable to Landlord. As to any subletting or assignment of this Lease, within thirty (30) days after the execution of any such assignment, Tenant shall deliver to Landlord a copy of the instrument of assignment together with an agreement (which may be a part of the instrument of assignment) whereby the assignee shall assume, as a direct obligation to Landlord, all of the obligations of Tenant under this Lease.

SECTION 13. Signs: Tenant shall obtain the prior written approval of Landlord to install, maintain and replace upon the Premises or any part thereof any signs, which approval shall not be unreasonably withheld, conditioned or delayed. Any such signs shall comply with any applicable requirements of governmental authorities having jurisdiction and Tenant shall obtain any necessary permits for such purposes. As used in this Section 13, the word "sign" shall be construed to include any placard, light or other advertising symbol or object, irrespective of whether the same be temporary or permanent.

SECTION 14. Indemnity: (a) Tenant shall defend, save harmless, protect and indemnify Landlord from and against any and all losses, liabilities, damages, claims, suits, demands, actions, judgments, costs and expenses which shall arise from, grow out of, or be attributable to (i) Tenant's possession, use, occupation or control of the Premises during the term of the Lease, (ii) any injury to, or death of, any person or persons, or damage to any property while on or about the Premises during the term of the Lease, or (iii) any negligence, act or default of Tenant or its agents, servants, employees, guests or contractors. Tenant shall, at its own cost and expense, defend any and all suits or actions (just or unjust) which may be brought against Landlord or in which Landlord may be impleaded with others upon any such above-mentioned matter, except as may result from the acts set forth in paragraph (b) of this Section 14.

(b) Except for its gross negligence or willful misconduct or the gross negligence or willful misconduct of its officers, agents, servants, employees or contractors, Landlord shall not be responsible or liable for any damage or injury to any property, fixtures, buildings or other improvements, or to any person or persons, at any time on the Premises, including any damage

or injury to Tenant or to any of Tenant's officers, agents, servants, employees, contractors, customers or sublessees.

SECTION 15. Insurance: (a) Tenant shall provide at its expense, and keep in force during the term of this Lease, commercial general public liability insurance in a good and solvent insurance company or companies licensed to do business in the State of Maine, selected by Tenant, and reasonably satisfactory to Landlord, in the amount of at least One Million Dollars ($1,000,000.00) per occurrence and Two Million Dollars ($2,000,000.00) general aggregate. Such policy or policies shall include Landlord as an additional assured. Tenant agrees to deliver certificates of such insurance to Landlord at the beginning of the term of this Lease and thereafter not less than ten (10) days prior to the expiration of any such policy. Such insurance shall be noncancellable without ten (10) days' written notice to Landlord.

(b) During the term of this Lease, Tenant shall keep all buildings and improvements erected by Tenant on the Premises at any time insured for the benefit of Landlord and Tenant, as their respective interests may appear, against loss or damage by fire, and those casualties covered by the customary extended coverage endorsements, in a minimum amount necessary to avoid the effect of coinsurance provisions of the applicable policies. All proceeds payable at any time and from time to time by any insurance company under such policies shall be payable to Tenant. Any proceeds paid to Tenant shall be retained by Tenant, and Landlord shall not be entitled to, and shall have no interest in, such proceeds or any part thereof. Landlord shall, at Tenant's cost and expense, cooperate fully with Tenant in order to obtain the largest possible recovery and shall execute any and all consents and other instruments and take all other actions necessary or desirable in order to effectuate the same and to cause such proceeds to be paid as hereinbefore provided and Landlord shall not carry any insurance concurrent in coverage and contributing in the event of loss with any insurance required to be furnished by Tenant hereunder if the effect of such separate insurance would be to reduce the protection or the payment to be made under Tenant's insurance.

(c) Any insurance required to be provided by Tenant pursuant to this Lease may be provided by blanket insurance covering the Premises and other locations of Tenant provided such blanket insurance complies with all of the other requirements of this Lease with respect to the insurance involved.

(d) Each of Landlord and Tenant hereby releases the other and its officers, directors, shareholders, agents and employees, to the extent of any net insurance proceeds received by the releasor, from any and all liability or responsibility (to the other or anyone claiming through or under them by way of subrogation or otherwise) for any loss or damage to property caused by fire or other catastrophe, even if such fire or other catastrophe shall have been caused by the fault or negligence of the other party, or anyone for whom such party may be responsible.

SECTION 16. Destruction: In the event that, at any time during the term of this Lease, any one or more of the buildings on the Premises shall be destroyed or damaged in whole or in part by fire or other cause within the extended coverage of the fire insurance policies carried by Tenant in accordance with this Lease, then, Tenant, at its own cost and expense, shall cause the same to

be repaired, replaced or rebuilt within a period of time which, under all prevailing circumstances, shall be reasonable.

SECTION 17. Eminent Domain: (a) If the whole of the Premises shall be taken for any public or quasi-public use under any statute or by right of eminent domain or by private purchase in lieu thereof, then this Lease shall automatically terminate as of the date that possession has been taken. In the event of a partial taking (or purchase) of the Premises pursuant to which more than fifty percent (50%) of the land area of the Premises is so taken (or so purchased) or if as a result of a taking (or purchase) the Premises is deprived of direct access to the public streets and highways, or are not reasonably usable for Tenant's purposes, then Tenant shall have the right, but not the obligation, to terminate this Lease by giving written notice of such termination to Landlord on or prior to the date which is sixty (60) days after the date of such taking (or purchase), and upon the giving of such notice of termination the term of this Lease shall expire and come to an end on the last day of the calendar month in which such notice shall be given with the same force and effect as if said day had been originally fixed herein as the expiration date of the term of this Lease. In the event the Lease shall terminate or be terminated, the rental shall, if and when necessary, be adjusted to the day of the taking (or purchase) and neither party shall have any further rights or liabilities hereunder.

(b) In the event of a taking (or purchase) resulting in the termination of this Lease pursuant to the provisions of paragraph (a) of this Section 17 the parties hereto agree to cooperate in applying for and in prosecuting any claim for such taking and further agree that the aggregate net award pertaining to the Premises, after deducting all expenses and costs, including reasonable attorneys' fees, incurred in connection therewith, payable to both Landlord and Tenant shall be divided between Landlord and Tenant as follows:

(i) Landlord shall first be paid an amount equal to the fair market value of the land taken from Landlord, considered as a vacant, unencumbered and unrestricted land with available utilities, as of the date of taking (or purchase), together with interest thereon from the date of taking (or purchase) to the date of payment at the rate paid on said award, and if such value shall be officially determined and stated in the condemnation proceedings, then the amount thereof shall control for the purposes hereof; otherwise, the same, unless agreed upon by the parties to this Lease, shall be determined by arbitration;

(ii) Tenant shall then be paid an amount equal to the depreciated value of any leasehold improvements made upon the Premises by Tenant as carried on Tenant's books for financial reporting purposes; and

(iii) any amount then remaining, after the payments to Landlord and Tenant specified in subparts (i) and (ii) hereinabove, shall be paid to Landlord.

(c) (1) In the event of a partial taking (or purchase) not resulting in the termination of this Lease, pursuant to the provisions of paragraph (a) of this Section 17, Tenant shall, at its own cost and expense, make all repairs to the buildings and improvements on the Premises affected by such taking (or purchase) to the extent necessary to restore the same to a

complete architectural unit (to the extent permitted, however, taking into consideration the amount of land remaining after any such taking or purchase); provided, however, that Tenant shall not be obligated to expend an amount in excess of the proceeds of the net award available to Tenant for such purposes, as hereinafter provided.

(2) All compensation available or paid to Landlord and Tenant upon such a partial taking (or purchase) shall be paid to Tenant for the purpose of paying towards the cost of such restoration, or, in the event that the parties hereto agree that only a portion of the aggregate award is sufficient to so restore, then only such portion as agreed upon shall be paid to Tenant for such purpose and the balance shall be distributed pursuant to subparagraph (3) of this paragraph (c) of this Section 17.

(3) All compensation available or paid to Landlord and Tenant upon such a partial taking (or purchase) in excess of the amount thereof needed by Tenant to repair and restore the buildings and improvements shall be distributed in the same manner as is provided in subparts (i) and (ii) of paragraph (b) of this Section 17, except that all compensation for any temporary taking shall be distributed to Tenant without participation by Landlord.

SECTION 18. Utility Easements: Tenant shall have the right to enter into reasonable agreements with utility companies and/or public authorities which provide necessary utilities, creating easements in favor of such companies and/or authorities as are required in order to service the occupants of the buildings on the Premises, and Landlord covenants and agrees to consent thereto and to execute any and all documents, agreements and instruments, and to take all other actions, in order to effectuate the same, all at Tenant's cost and expense.

SECTION 19. Quiet Enjoyment: Tenant, upon paying the rent and additional rent and all other sums and charges to be paid by it as herein provided, and observing and keeping all covenants, warranties, agreements and conditions of this Lease on its part to be kept, shall quietly have and enjoy the Premises and appurtenant rights during the term of this Lease, without hindrance or molestation by any party claiming by, through or under Landlord.

SECTION 20. Tenant's Covenants; Environmental Compliance: (a) In addition and supplementary to any other provisions of this Lease and not in limitation thereof, Tenant covenants and agrees as follows:

(i) to pay when due all rent, additional rent and other charges hereunder, and to observe and perform all other agreements and obligations of Tenant under this Lease at the times and in the manner provided herein;

(ii) to procure any licenses and permits required for any use made of the Premises; and upon the expiration or termination of this Lease, to remove from the Premises all personal property, equipment, goods and effects of Tenant and those of all parties holding under Tenant and to yield up peaceably to Landlord the Premises in working order, repair and condition in all respects, damage by fire or other casualty or by condemnation or taking (provision for all

of which is made elsewhere in this Lease) and reasonable wear and tear only excepted;

(iii) not to make any use of the Premises which is improper, offensive or illegal or which is prohibited by the provisions of this Lease; nor to permit any act or thing to be done on the Premises which shall constitute waste or a nuisance; and

(iv) to furnish Landlord with the name, address and telephone number of Tenant's property manager of the Premises so that Landlord will at all times be able to contact the property manager of the Premises.

(b) Tenant shall not cause or permit the release, discharge, placement or deposit upon the Premises of any Hazardous Materials (as hereinafter defined). In the event any Hazardous Materials shall be released, discharged, placed or deposited upon the Premises during the term of this Lease, Tenant shall (1) conduct and complete all investigations, studies, sampling, and testing and all remedial, removal, reporting and other actions necessary to clean up and remove, or to identify and handle, all Hazardous Materials on, from or affecting the Premises in accordance with all applicable federal, state and local laws, regulations, rules, ordinances and policies, in accordance with the orders and directives of all federal, state and local governmental authorities, and (2) defend, indemnify and hold harmless Landlord, and its employees, agents, officers and directors, from and against any and all claims, demands, penalties, fines, liabilities, settlements, damages, costs or expenses (including, without limitation, reasonable attorney and consultant fees, investigation and laboratory fees, court costs and litigation expenses) of whatever kind or nature, known or unknown, contingent or otherwise, arising out of or in any way related to (i) the presence, disposal, release, or threatened release of any Hazardous Materials which are on, from or affecting the Premises caused by Tenant, its employees, agents, officers or directors; (ii) any personal injury (including wrongful death) or property damage (real or personal) arising out of or related to Hazardous Materials on, from or affecting the Premises caused by Tenant, its employees, agents, officers or directors; (iii) any lawsuit brought or threatened, settlement reached or government order relating to Hazardous Materials on, from or affecting the Premises and caused by Tenant, its employees, agents, officers or directors; and/or (iv) any violation of laws, orders, regulations, requirements, or demands of government authorities, or any policies or requirements of Landlord which are based upon or in any way related to Hazardous Materials on, from or affecting the Premises caused by Tenant, its employees, agents, officers or directors. For purposes of this provision, the term "Hazardous Materials" includes, without limitation, any flammable explosives, radioactive materials, hazardous materials, hazardous waste, hazardous or toxic substances, oil or petroleum products, asbestos or related materials; including as the same are defined in the Comprehensive Environmental Response Compensation and Liability Act of 1980, as amended (42 U.S.C. §§ 9601, et seq.), the Hazardous Materials Transportation Act, as amended (49 U.S.C. §§ 1801, et seq.), the Resource Conservation and Recovery Act, as amended (42 U.S.C. §§ 6901, et seq.), applicable Maine Statutes (including 38 M.R.S.A. §§ 561, et seq., 38 M.R.S.A. §§ 1361 et seq., 38 M.R.S.A. §§ 1301 et seq., and 38 M.R.S.A. §§ 1317, et seq.), and in the regulations adopted and publications promulgated pursuant thereto. Notwithstanding the foregoing, Tenant shall not be responsible or liable to Landlord for any Hazardous Materials to the extent that such

Hazardous Materials were on, from or affecting the Premises prior to the Rent Commencement Date or were generated, stored, handled, transported, disposed of, discharged or released by Landlord or its agents, employees, licensees or contractors, except to the extent exacerbated by any negligence or willful misconduct with respect to the foregoing by Tenant, its agents, employees, licensees or contractors. In addition to the foregoing, Tenant shall provide Landlord with copies of any notices, correspondence, warnings, guidance or other written materials received from any governmental authority or other person or entity in connection with Hazardous Materials on, upon, under, from or into the Premises and shall give Landlord written notice of its discovery or release of any Hazardous Materials on, upon, under, from or into the Premises. The foregoing provisions shall be in addition to any other obligations and liabilities Tenant may have under this Lease, at common law or otherwise, and shall survive the termination of this Lease.

(c) Tenant acknowledges Landlord's concern that the Premises be and remain in compliance with applicable environmental laws, regulations, rules, ordinances and policies and that Landlord has a direct interest in such matters and, therefore, without limiting Tenant's obligations under this Section 20, or otherwise, Tenant agrees that Landlord may, but shall be under no obligation to, undertake some or all of the matters referred to in the foregoing part (b) on behalf of Tenant, upon giving Tenant at least thirty (30) days prior written notice and failure by Tenant to undertake same, and thereupon Tenant shall have no further right to undertake such matters itself, but shall continue to be liable to Landlord pursuant to Tenant's indemnity.

SECTION 21. Defaults; Remedies: (a) In the event Tenant shall fail to pay any installment of rent or additional rent within ten (10) days after receipt of written notice from Landlord to Tenant, or if Tenant shall neglect or fail to perform or observe any of the terms, provisions, conditions and covenants herein contained, and on Tenant's part to be performed, or observed for a period of thirty (30) days after the Landlord shall have given Tenant notice of such neglect or failure, or if a receiver, guardian, conservator, trustee in bankruptcy or similar officer shall be appointed by a court of competent jurisdiction to take charge of all or any part of Tenant's property, which appointment is not stayed or terminated within ninety (90) days, or if Tenant commits any act of bankruptcy, or if a petition is filed by Tenant under any bankruptcy or insolvency law, and the same shall not be dismissed within ninety (90) days from the date upon which it is filed, and provided Tenant shall not cure said failure as provided in paragraph (b) of this Section 21; then, Landlord may, at its option, give to Tenant a notice of election to end the term of this Lease upon a date specified in such notice, which date shall be not less than sixty (60) days after the date of receipt by Tenant of such notice from Landlord, and upon the date specified in said notice, the term and estate hereby vested in Tenant shall cease and any and all other right, title and interest of Tenant hereunder shall likewise cease without further notice or lapse of time, as fully and with like effect as if the entire term of this Lease had elapsed.

(b) In the event that Landlord gives notice of a default of such a nature that it cannot be cured within such thirty (30) day period, then such default shall not be deemed to continue so long as Tenant, after receiving such notice, proceeds to cure the default as soon as reasonably possible and continues to take all steps necessary to complete the same within a period of time which, under all prevailing circumstances, shall be reasonable. No default shall be deemed to

continue if and so long as Tenant shall be so proceeding to cure the same in good faith or be delayed in or prevented from curing the same by any of the causes specified in Section 25 hereof.

(c) Upon any termination of the term of this Lease pursuant to paragraph (a) of this Section 21, or at any time thereafter, Landlord may, in addition to and without prejudice to any other rights and remedies Landlord shall have at law or in equity, reenter the Premises, and recover possession thereof and dispossess any or all occupants of the Premises in the manner prescribed by the statute relating to summary proceedings, or similar statutes.

(d) No such expiration or termination of this Lease, or summary proceedings, reentry or dispossess, shall relieve Tenant of its liability and obligation under this Lease, whether or not the Premises shall be relet, and Tenant covenants and agrees, in the event of any such expiration or termination of this Lease, or summary proceedings, reentry or dispossess, to pay to Landlord, upon demand, in a single lump sum, the total of (1) all minimum rent, additional rent and other charges due and unpaid as of the date of such expiration or termination, (2) all reasonable costs and expenses incurred by Landlord in connection with its termination of this Lease and/or recovery of possession of the Premises, and (3) either (x) as liquidated damages a sum equal to the discounted value (using as a discount rate the Prime Rate as quoted by The Wall Street Journal or its successor on the date of such payment) of the amount, if any, by which the rent reserved hereunder for the remainder of the term of this Lease shall exceed the fair rental value of the Premises for the remainder of the term of this Lease, discounted to the date of payment, or (y) amounts equal to the several installments of rent and other charges reserved as would, under the terms of this Lease, on the days originally fixed herein for the payment thereof, become due and payable if this Lease had not so expired or been terminated, or if Landlord had not entered or reentered as aforesaid, and whether the Premises be relet or remain vacant in whole or in part or for a period less than the remainder of the term, and for the whole thereof, up to but not exceeding the amount of any deficiency then existing after giving due credit for any net proceeds of any reletting after deducting all of Landlord's reasonable expenses in connection with such reletting, including reasonable brokers' and attorneys' fees and the reasonable costs of recovering possession of and refitting the Premises; and any suit brought to collect the amount of the deficiency for any month or other period shall not prejudice in any way the rights of Landlord to collect the amount of the deficiency for any subsequent month or other period by similar proceeding. Landlord shall use reasonable efforts to relet the Premises after any such expiration or termination of this Lease.

(e) If Tenant shall become a debtor under the United States Bankruptcy Code, 11 U.S.C. §§ 101 et seq. (the "Bankruptcy Code") then, to the extent that the Bankruptcy Code may be applicable or affect the provisions of this Lease, the following provisions shall also be applicable. If the trustee or debtor-in-possession shall fail to elect to assume this Lease within sixty (60) days after the commencement of a case under the Bankruptcy Code, this Lease shall be deemed to have been rejected; and the Landlord shall be thereafter immediately entitled to possession of the Premises and this Lease shall be terminated subject to and in accordance with the provisions of this Lease and of law (including such provisions for damages). No election to assume (and, if applicable to assign) this Lease by the trustee or debtor-in-possession shall be permitted or effective unless (i) all defaults shall have been cured and Landlord shall have been provided with adequate assurances reasonably satisfactory to Landlord, including (1) any

reasonably required guaranties and/or security deposits, and (2) any other reasonably required assurances that there will continue to be sufficient funds to professionally operate the Premises in strict compliance with all provisions of this Lease; and (ii) neither such assumption nor the operation of the Premises subsequent thereto shall, in Landlord's reasonable judgment, cause or result in any breach or other violation of any provision of this or any applicable lease, mortgage or other contract; and (iii) the assumption and, if applicable, the assignment of this Lease satisfies in full the provisions of the Bankruptcy Code, including, without limitation, Sections 365(b)(1) and (3) and (f)(2); and (iv) the assumption has been ratified and approved by order of such court or courts as have final jurisdiction over the Bankruptcy Code and the case. No assignment of this Lease by the trustee or debtor-in-possession shall be permitted or effective unless the proposed assignee likewise shall have satisfied (i), (ii), (iii) and (iv) of the preceding sentence regarding such assignment. When pursuant to the Bankruptcy Code the trustee or debtor-in-possession is obligated to pay reasonable use and occupancy charges, such charges shall not be less than the rent and other charges specified herein to be payable by Tenant. Neither Tenant's interest or estate in the Premises herein or created hereby nor any lesser interest or estate of Tenant shall pass to anyone under any law of any state or jurisdiction without the prior written consent of Landlord. In no event shall this Lease, if the term hereof has expired or has been terminated in accordance with the provisions of this Lease, be revived, and no stay or other proceedings shall nullify, postpone or otherwise affect the expiration or earlier termination of the term of this Lease pursuant to the provisions of this Section 21, or prevent Landlord from regaining possession of the Premises thereupon.

SECTION 22. Arbitration: (a) In any case in which this Lease provides that a dispute shall be determined by arbitration, the arbitration shall be facilitated through the services of JAMS and conducted in accordance with the following paragraphs.

(b) A party initiating arbitration proceedings may do so by giving notice to that effect to the other party. The notice shall designate a disinterested person as one of the arbitrators. The body which initiates arbitration is hereinafter referred to as the "first party". The other party is hereinafter referred to as the "second party". Within fifteen (15) days after the initiation of the arbitration proceedings, the second party shall give notice to the first party designating another disinterested person as an arbitrator. Within the next twenty (20) days, the two arbitrators shall select a third disinterested person as a third arbitrator. The three arbitrators shall judge the dispute. If the second party shall fail to appoint a second arbitrator within the fifteen (15) day period next following the notice initiating the arbitration, the arbitrator designated by the first party shall judge the dispute and the judgment of the first arbitrator shall be binding upon the parties.

(c) If the two arbitrators appointed by the parties shall be unable to agree upon the appointment of a third arbitrator within the twenty (20) day period after the second arbitrator is designated, the two arbitrators shall give written notice of the failure to agree to each of the parties. If the parties shall fail to agree upon the selection of a third arbitrator within fifteen (15) days after that notice has been received, then within thirty (30) days thereafter either party may apply for the appointment of a third arbitrator to the presiding justice of the existing session of the Cumberland County Superior Court.

(d) The determination of the majority of the arbitrators shall be conclusive upon the parties. The arbitrators shall be directed to interpret and apply the terms of this Lease. Judgment may be entered upon the award of the arbitrators by either party in the Cumberland County Superior Court.

(e) The obligation of Landlord and Tenant to submit a dispute to arbitration is limited to disputes arising under those Sections of this Lease which specifically provide for arbitration. Each party to the arbitration shall pay one-half (½) of the cost thereof.

SECTION 23. Waivers: The failure of Landlord or Tenant to complain of any act or omission on the part of the other party no matter how long the same may continue, shall not be deemed to be a waiver by said party of any of its rights hereunder. No waiver by Landlord or Tenant at any time, express or implied, of any breach of any provision of this Lease shall be deemed a waiver of a breach of any other provision of this Lease or a consent to any subsequent breach of the same or any other provision. No acceptance by Landlord of any partial payment shall constitute an accord or satisfaction but shall only be deemed a part payment on account.

SECTION 24. Zoning and Building Codes: Landlord covenants and agrees to cooperate fully with Tenant in any and all applications and proceedings and appeals made or prosecuted by Tenant in connection with obtaining any necessary approvals or consents under the zoning, land use and/or building regulations, ordinances, codes, laws and directives of all of the federal, state, town and other authorities having jurisdiction over the development and use of the Premises, including, without limitation, the Portland Planning Board and the State Board of Environmental Protection. Landlord shall execute any and all documents, instruments, consents and authorizations requested by Tenant which shall be necessary or desirable with respect thereto. Tenant may prosecute such applications, proceedings and appeals in its own name or in Landlord's name and through counsel of its choice, but shall do so at its own cost and expense.

SECTION 25. Force Majeure: In the event that Landlord or Tenant shall be delayed, hindered in or prevented from the performance of any act (except for the payment of rent) required hereunder by reason of strikes, lock-outs, labor troubles, inability to procure materials, failure of power, restrictive governmental laws or regulations, riots, insurrection, the act, failure to act or default of the other party, war or other reason beyond their control, then performance of such act shall be excused for the period of the delay, and the period for the performance of any such act shall be extended for a period equivalent to the period of such delay.

SECTION 26. Notices: Every notice, approval, consent or other communication authorized or required by this Lease shall not be effective unless the same shall be in writing and sent postage prepaid by United States registered or certified mail, return receipt requested, directed to the other party at its address set forth hereinbelow, or such other address as either party may designate by notice given from time to time in accordance with this Section 26. The rent payable by Tenant hereunder shall be paid to Landlord at the same place where a notice to Landlord is herein required to be directed. All such notices and other communications initially shall be addressed to Landlord at 10 Free Street, Suite 100, Portland, Maine 04101; and to the Tenant at 1001 N. 19th Street, Suite 1401, Arlington, Virginia 22209.

SECTION 27. Certificates: Either party shall, without charge, at any time and from time to time hereafter, within fifteen (15) days after written request of the other, certify by written instrument duly executed and acknowledged to any mortgagee or purchaser, or proposed mortgagee or proposed purchaser, or any other person, firm or corporation specified in such request: (a) as to whether this Lease has been supplemented or amended, and if so, the substance and manner of such supplement or amendment; (b) as to the validity and force and effect of this Lease, in accordance with its tenor as then constituted; (c) as to the existence of any default thereunder; (d) as to the existence of any offsets, counterclaims or defenses thereto on the part of such other party; (e) as to the commencement and expiration dates of the term of this Lease; and (f) as to any other matters as may reasonably be so requested. Any such certificate may be relied upon by the party requesting it and any other person, firm or corporation to whom the same may be exhibited or delivered, and the contents of such certificate shall be binding on the party executing same.

SECTION 28. Leasehold Mortgages: Tenant and every successor and assign of Tenant is hereby given the right by Landlord in addition to any other rights herein granted, without Landlord's prior written consent, to mortgage its leasehold interest in this Lease, or any part or parts thereof, under one or more leasehold mortgages, and to assign this Lease, or any part or parts thereof, and any subleases as collateral security for such leasehold mortgage(s), upon the condition that all rights acquired under such leasehold mortgage(s) shall be subject to each and all of the covenants, conditions and restrictions set forth in this Lease, and to all rights and interests of Landlord herein, none of which covenants, conditions or restrictions is or shall be waived by Landlord by reason of the right given so to grant leasehold mortgages with respect to such interest in this Lease, except as expressly provided herein. The term "leasehold mortgage(s)" as used in this Section 28 and other provisions of this Lease shall include leasehold mortgages, leasehold deeds of trust, collateral or conditional assignments of Tenant's interest in this Lease and like instruments and all modifications, extensions, renewals and replacements thereto. No leasehold mortgage given by Tenant under the provisions of this Section shall be deemed to be an assignment of this Lease so as to require the assumption of said obligations and liabilities by the holder(s) of such mortgage. If Tenant and/or Tenant's successors and assigns shall grant a leasehold mortgage with respect to this leasehold or any part or parts thereof, and if the holder(s) of such leasehold mortgage(s) shall send to Landlord written notice of such leasehold mortgage(s) specifying the name and address of the leasehold mortgagee(s), Landlord agrees that so long as any such leasehold mortgage(s) shall remain unsatisfied of record or until written notice of satisfaction is given by the holder(s) to Landlord, the following provisions shall apply:

(a) There shall be no cancellation, surrender or modification of this Lease by joint action of Landlord and Tenant without the prior consent in writing of the leasehold mortgagee(s).

(b) Landlord shall, upon serving Tenant with any notice of default, also serve a copy of such notice upon the holder(s) of such leasehold mortgage(s), and no such notice of default to Tenant shall be effective unless and until a copy of such notice is served upon each such holder. The leasehold mortgagee(s) shall thereupon have the same period, after service of such notice upon it, to remedy or cause to be remedied the defaults complained of, and Landlord shall accept

such performance by or at the instigation of such leasehold mortgagee(s) as if the same had been done by Tenant.

(c) Anything herein contained notwithstanding, while such leasehold mortgage(s) remains unsatisfied of record, or until written notice of satisfaction is given by the holder(s) to Landlord, if any default shall occur which, pursuant to any provision of this Lease, entitles Landlord to terminate this Lease, and if before the expiration of thirty (30) days from the date of service of notice of termination upon such leasehold mortgagee(s) such leasehold mortgagee(s) shall have notified Landlord of its desire to nullify such notice and shall have paid to Landlord all rent and additional rent and other payments herein provided for, and then in default, and shall have complied or shall commence the work of complying with all of the other requirements of this Lease, if any are then in default, and shall prosecute the same to completion with reasonable diligence, then in such event Landlord shall not be entitled to terminate this Lease and any notice of termination theretofore given shall be void and of no effect.

(d) If Landlord shall elect to terminate this Lease by reason of any default of Tenant, the leasehold mortgagee(s) shall not only have the right to nullify any notice of termination by curing such default, as aforesaid, but shall also have the right to postpone and extend the specified date for the termination of this Lease as fixed by Landlord in its notice of termination, for a period of not more than six (6) months, provided that such leasehold mortgagee(s) shall cure or cause to be cured any then existing money defaults and meanwhile pay the rent, additional rent and comply with and perform all of the other terms, conditions and provisions of this Lease on Tenant's part to be complied with and performed, other than past non-monetary defaults, and provided further, that the leasehold mortgagee(s) shall forthwith take steps to acquire or sell Tenant's interest in this Lease by foreclosure of the mortgage(s) or otherwise and shall prosecute the same to completion with all due diligence. If at the end of said six (6) month period the leasehold mortgagee(s) shall be actively engaged in steps to acquire or sell Tenant's interest herein, the time of said leasehold mortgagee to comply with the provisions of this Section shall be extended for such period as shall be reasonably necessary to complete such steps with reasonable diligence and continuity.

(e) Landlord agrees that in the event of termination of this Lease for any reason, Landlord will at the election of the leasehold mortgagee enter into a new lease of the Premises with the leasehold mortgagee(s) or its nominee(s), for the remainder of the term, effective as of the date of such termination, at the rent and additional rent and upon the terms, provisions, covenants and agreements as herein contained and subject only to the same conditions of title as this Lease is subject to on the date of the execution hereof, and to the rights, if any, of the parties then in possession of any part of the Premises, provided:

(i) Said leasehold mortgagee(s) or its nominee(s) shall make written request upon Landlord for such new lease within thirty (30) days after the date of such termination and such written request is accompanied by payment to Landlord of sums then due to Landlord under this Lease.

(ii) Said leasehold mortgagee(s) or its nominee(s) shall pay to Landlord at the time of the execution and delivery of said new lease, any and all

sums which would at the time of the execution and delivery thereof be due pursuant to this Lease but for such termination, and in addition thereto, any expenses, including reasonable attorneys' fees, to which Landlord shall have been subjected by reason of such default.

(iii) Said leasehold mortgagee(s) or its nominee(s) shall perform and observe all covenants herein contained on Tenant's part to be performed and shall further remedy any other conditions which Tenant under this Lease was obligated to perform under the terms of this Lease.

(iv) Landlord shall not warrant possession of the Premises to Tenant under the new lease.

(v) Such new lease shall be expressly made subject to the rights, if any, of Tenant under this Lease.

(vi) Tenant under such new lease shall have the same right, title and interest in and to the buildings and improvements on the Premises as Tenant had under this Lease.

(f) Any leasehold mortgage holder or any person acquiring the leasehold estate pursuant to a foreclosure of the leasehold mortgage or a deed or assignment in lieu of such foreclosure may, upon such acquisition, without further consent of the Landlord, sell and assign the leasehold estate on such terms and conditions as it may determine and thereafter be relieved of all obligations under this Lease accruing from and after the date of such sale and assignment.

(g) Landlord agrees promptly after submission to execute, acknowledge and deliver any agreements modifying this Lease reasonably requested by any leasehold mortgagee(s), provided that such modification does not decrease Tenant's obligations or decrease Landlord's rights pursuant to this Lease.

(h) The leasehold mortgagee(s) shall be given notice of any arbitration proceedings by the parties hereto and shall have the right to intervene therein and be made a party to such proceedings, and the parties hereto do hereby consent to such intervention. In the event that the leasehold mortgagee(s) shall not elect to intervene or become a party to such proceedings, the leasehold mortgagee(s) shall receive notice of and a copy of any award or decision made in said arbitration proceedings.

(i) The proceeds from any insurance policies or arising from a condemnation are to be held by any leasehold mortgagee(s) and used pursuant to the provisions of this Lease, but the leasehold mortgagee(s) may reserve its rights to apply to the mortgage debt all, or any part, of Tenant's share of such proceeds pursuant to such leasehold mortgage(s).

(j) There shall be no merger of this Lease, nor of the leasehold estate created hereby, with the fee estate in the Premises, by reason of the fact that this Lease, or the leasehold estate created hereby, or any interest in either thereof, may be held directly or indirectly by or for the

account of any person who shall own the fee estate in the Premises or any portion therein, and no such merger shall occur unless and until all persons at the time having any interest in the fee estate and all persons having any interest in this Lease or the leasehold estate, including the leasehold mortgagee(s), shall join in a written instrument effecting such merger.

(k) Landlord shall upon request execute, acknowledge and deliver to each leasehold mortgagee(s) an agreement prepared at the sole cost and expense of Tenant in form satisfactory to such leasehold mortgagee(s) between Landlord, Tenant and the leasehold mortgagee(s), agreeing to all of the provisions of this Section 28.

SECTION 29.: Omitted.

SECTION 30. Acceptance of Premises: Tenant agrees to accept the Premises "as is", without any representation or warranty by Landlord as to the use or condition thereof.

SECTION 31. Attorneys' Fees: Landlord shall be entitled to recover from Tenant all costs and expenses (including reasonable attorneys' fees) reasonably incurred by Landlord in enforcing the provisions of this Lease and/or in repossessing the Premises upon termination of this Lease in accordance with Section 21 hereof. The provisions of this Section 31 shall survive the termination of this Lease.

SECTION 32. Governing Law: This Lease and the performance thereof shall be governed, interpreted, construed and regulated by the laws of the State of Maine.

SECTION 33. Partial Invalidity: If any term, covenant, condition or provision of this Lease or the application thereof to any person or circumstance shall, at any time or to any extent, be invalid or unenforceable, the remainder of this Lease, or the application of such term or provision to persons or circumstances other than those as to which it is held invalid or unenforceable, shall not be affected thereby, and each term, covenant, condition and provision of this Lease shall be valid and enforceable to the fullest extent permitted by law.

SECTION 34. Short Form Lease: The parties will, at any time, at the request of either one, promptly execute duplicate originals of an instrument, in recordable form, which will constitute a short form of lease, setting forth a description of the Premises, the term of this Lease and any other portions thereof, excepting the rental provisions, as either party may request.

SECTION 35. Interpretation: Wherever herein the singular number is used, the same shall include the plural, and the masculine gender shall include the feminine and neuter genders, and vice versa, as the context shall require. The section headings used herein are for reference and convenience only, and shall not enter into the interpretation hereof. This Lease may be executed in several counterparts, each of which shall be an original, but all of which shall constitute one and the same instrument.

SECTION 36. Entire Agreement: No oral statements or prior written matter shall have any force or effect. Tenant agrees that it is not relying on any representations or agreements other

than those contained in this Lease. This Lease shall not be modified or cancelled except by writing subscribed by both parties.

SECTION 37. Parties: Except as herein otherwise expressly provided, the covenants, conditions and agreements contained in this Lease shall bind and inure to the benefit of Landlord and Tenant and their respective successors, personal representatives, administrators and assigns.

SECTION 38. Limitation of Landlord's Liability: It is understood and agreed that, except for matters resulting from the intentional misrepresentations, willful acts, or gross negligence of Landlord, Tenant shall look solely to the estate and property of Landlord subject to this Lease for the satisfaction of Tenant's remedies for the collection of a judgment (or other judicial process) requiring the payment of money by Landlord in the event of any default or breach by Landlord with respect to any of the terms, covenants and conditions of this Lease to be observed or performed by Landlord, and any other obligations of Landlord created by or under this Lease, and no other property or assets of Landlord or of its officers, directors, or members (as the case may be) shall be subject to levy, execution or other enforcement procedures for the satisfaction of Tenant's remedies except as aforesaid.

SECTION 39. Holding Over: In the event that Tenant shall continue in occupancy of the Premises after the expiration of the term hereof, such occupancy shall not be deemed to extend or renew the terms of this Lease, but such occupancy shall continue as a tenancy at will from month to month upon the covenants, provisions and conditions herein contained at a rent equal to 1.25 times the rent in effect during the last lease year of the term, prorated and payable for the period of such occupancy. This Section shall not be construed as giving Tenant any right to hold over after the expiration of the term hereof except as is otherwise expressly provided in this Lease.

SECTION 40. No Broker: Landlord and Tenant agree that no brokers have been involved in this transaction, and each agrees to hold and indemnify the other harmless from and against any losses, damages, costs or expenses (including reasonable attorneys' fee) that either party may suffer as a result of claims made or suits brought by any other broker in connection with this transaction, the obligated party hereunder to be the party whose conduct gives rise to such claim. The provisions of this Section 40 shall survive any termination of this Lease.

[SIGNATURES BEGIN ON NEXT PAGE]

IN WITNESS WHEREOF, the parties hereto have duly executed this Lease as of the day and year first above written.

WITNESS:

J.B. BROWN & SONS

By: _____
Vincent P. Veroneau
Its President

"Landlord"

WITNESS:

FDS JBB PORTLAND, LLC
By: FD Stonewater, LLC, its Managing Member

By: _____
Its Claiborne Williams
Thereunto duly authorized

"Tenant"

P:\DGALGAY\FORMS\LEASE (GROUND).DOC

EXHIBIT A

A certain lot or parcel of land situated on the westerly side of Commercial Street in the City of Portland, County of Cumberland and State of Maine, and being more particularly bounded and described as follows:

Attached

Proposed Description
Lot A
113 West Commercial Street
Portland, ME
November 12, 2019

A certain lot or parcel of land located on the northerly side of West Commercial Street in the City of Portland, County of Cumberland, State of Maine, bounded and described as follows:

Beginning at a capped iron rod (PLS 2518) located at the intersection with the southwesterly sideline of Emery Street and the northwesterly sideline of West Commercial Street. Thence:

1) S 66°07'19" W by said West Commercial Street a distance of Seven Hundred Eighty-Seven and 39/100 (787.39) feet to a point;

2) S 71°41'30" W by said West Commercial Street a distance of Six Hundred Seven and 20/100 (607.20) feet to a capped iron to be set;

3) N 18°18'30" W through land of the Grantor a distance of Fifty-Six and 55/100 (56.55) feet to a point at the centerline of a formerly contemplated street known as "K" Street and the southeasterly corner of land now or formerly of Marjorie R. Shaw as described in a deed recorded in the Cumberland County Registry of Deeds in Book 9747, Page 339;

4) N 35°07'13" W by said land of Shaw and the said centerline of "K" Street a distance of Sixty-Seven and 16/100 (67.16) feet to a capped iron rod (PLS 2518) located at the southerly sideline of a Forty (40) foot wide passageway;

5) N 54°52'47" E by said passageway a distance of Four Hundred Seventy-Nine and 00/100 (479.00) feet to a capped iron rod (PLS 2518) located at the centerline of a formerly contemplated street known as "E" Street;

6) S 35°07'13" E by said centerline of "E" Street a distance of One Hundred and 00/100 (100.00) feet to a capped iron rod (PLS 2518);

7) N 54°52'47" E by said "E" Street and land now or formerly of Susan Jane Noonan as described in a deed recorded in said Registry in Book 7400, Page 261 a distance of Eighty and 00/100 (80.00) feet to a capped iron rod (PLS 2518);

8) N 35°07'13" W by said land of Noonan a distance of One Hundred Seventeen and 61/100 (117.61) feet to a capped iron rod (PLS 2518) located at the southerly corner of land now or formerly of Devens M. Hamlen and Samar Post Jamali as described in a deed recorded in said Registry in Book 32451, Page 99;

9) N 54°40'20" E by said land of Hamlen and Jamali, land now or formerly of Michael R. Curtis and Margaret T. Curtis as described in a deed recorded in said Registry in Book 27799, Page 302, land now or formerly of Sarah P. Daignault 2016 Trust as described in a deed recorded in said Registry in Book 34034, Page 150, land now or formerly of George R. Moberg and Elizabeth J. Moberg as described in a deed recorded in said Registry in Book 2928, Page 450, land now or formerly of Michael Bruenjes and Judith

Bruenjes as described in a deed recorded in said Registry in Book 32805, Page 285, and land now or formerly of Sonia B. Robertson as described in a deed recorded in said Registry in Book 22292, Page 241 a distance of Three Hundred Sixty-Five and 73/100 (365.73) feet to a point at land now or formerly of Thomas R. Robinson and Laura C. Robinson as described in a deed recorded in said Registry in Book 31889, Page 194;

10) S 34°34'17" E by said land of Robinson a distance of One Hundred Eighteen and 82/100 (118.82) feet to a point;

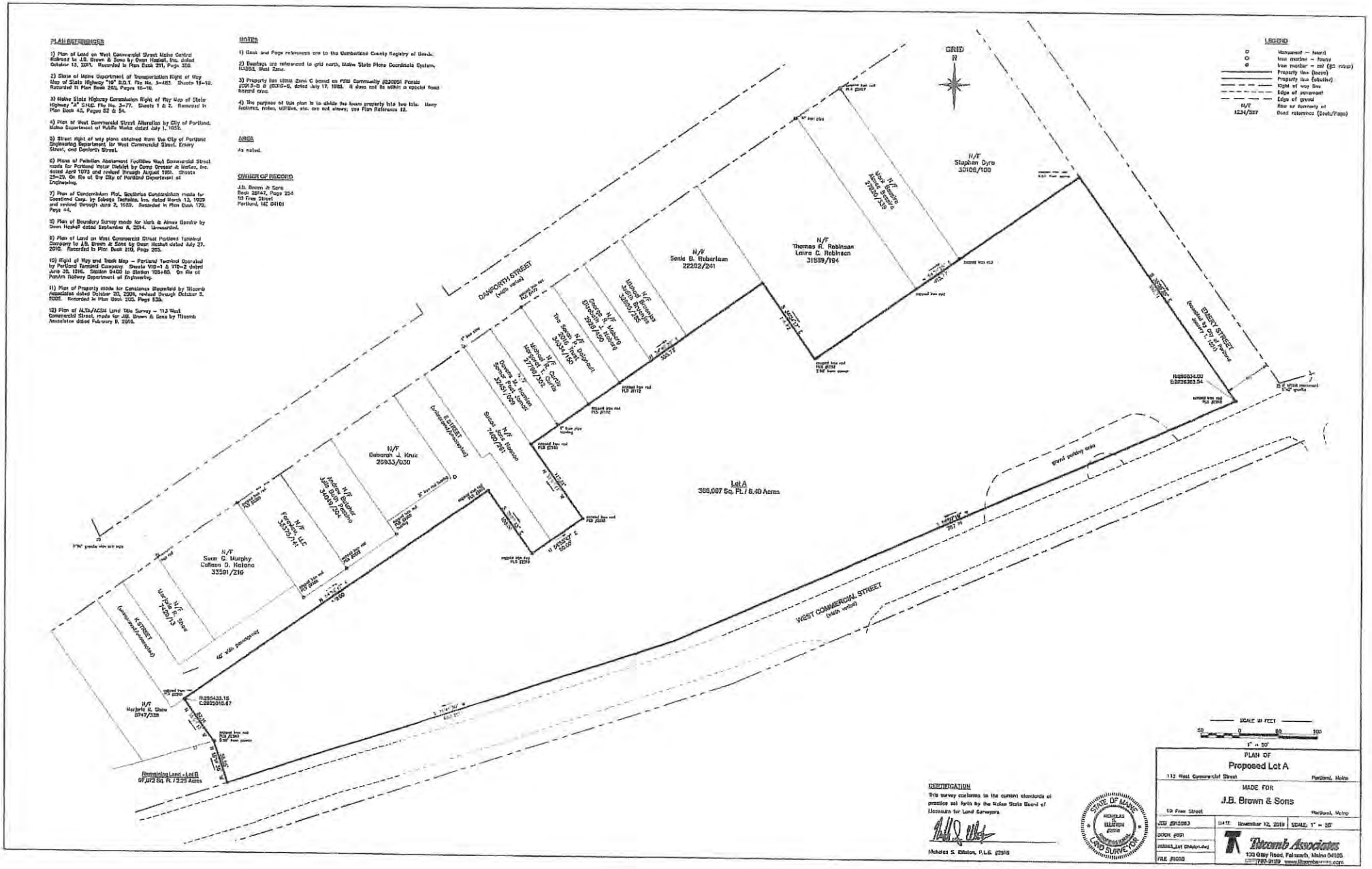
11) N 54°51'25" E by said land of Robinson, land now or formerly of Mark Bessire and Aimee Bessire as described in a deed recorded in said Registry in Book 27820, Page 339, and land now or formerly of Stephen Dyro as described in a deed recorded in said Registry in Book 30108, Page 100 a distance of Four Hundred Thirteen and 77/100 (413.77) feet to a point at the southwesterly sideline of said Emery Street;

12) S 35°05'25" E by said Emery Street a distance of Three Hundred Fifty and 71/100 (350.71) feet to the point of beginning.

Bearings are referenced to grid north, Maine State Plane Coordinate System, West Zone, NAD83.

The above described parcel contains 366,067 square feet / 8.40 acres. Meaning and intending to describe a portion of property as described in a deed recorded in the Cumberland County Registry of Deeds in Book 29147, Page 254.

CP/2015/215093/descriptions/113 West Commercial_Lot A.dsc


PLAN REFERENCES
1) Plan of Land on West Commercial Street Maine Central Railroad to J.B. Brown & Sons by Owen Haskell, Inc. dated October 13, 2011. Recorded in Plan Book 211, Page 350.
2) State of Maine Department of Transportation Right of Way Map of State Highway "10" S.D.1. File No. 3-482. Sheets 16-18. Recorded in Plan Book 202, Pages 16-18.
3) Maine State Highway Commission Right of Way Map of State Highway "A" S142. File No. 3-77. Sheets 1 & 2. Removed in Plan Book 44, Pages 52 & 54.
4) Plan of West Commercial Street Alteration by City of Portland, Maine Department of Public Works dated July 1, 1952.
5) Street right of way plans obtained from the City of Portland Engineering Department for West Commercial Street, Emery Street, and Danforth Street.
6) Plans of Pedestrian Abatement Facilities West Commercial Street roads for Portland Water District by Dana Dresser & McGee, Inc. dated April 1973 and revised through August 1981. Sheets 25-29. On file at the City of Portland Department of Engineering.
7) Plan of Condominium Plat, Sanitarios Condominium roads for Coastland Corp. by Edenga Technics, Inc. dated March 13, 1979 and revised through June 2, 1980. Recorded in Plan Book 129, Page 44.
8) Plan of Boundary Survey made for Mark & Aimee Gendre by Owen Haskell dated September 6, 2014. Unrecorded.
9) Plan of Land on West Commercial Street Portland Terminal Company to J.B. Brown & Sons by Owen Haskell dated July 27, 2010. Recorded in Plan Book 210, Page 205.
10) Right of Way and Track Map – Portland Terminal Operated by Portland Terminal Company: Sheets V10-1 & V10-2 dated June 30, 1916. Station 9480 to Station 10345. On file at Pan Am Railway Department of Engineering.
11) Plan of Property made for Constance Steenfeld by Titcomb Associates dated October 20, 2004, revised through October 3, 2005. Recorded in Plan Book 205, Page 536.
12) Plan of ALTA/ACSM Land Title Survey – 112 West Commercial Street, made for J.B. Brown & Sons by Titcomb Associates dated February 8, 2016.
NOTES
1) Book and Page references are to the Cumberland County Registry of Deeds.
2) Bearings are referenced to grid north, Maine State Plane Coordinate System, NAD83, West Zone.
3) Property lies within Zone C based on FEMA Community #230051 Panels 0001-B & 0001-C, dated July 17, 1985. It does not lie within a special flood hazard area.
4) The purpose of this plan is to divide the locus property into two lots. Many features, notes, utilities, etc. are not shown; see Plan Reference 12.
AREA
As noted.
OWNER OF RECORD
J.B. Brown & Sons
Book 28147, Page 254
10 Free Street
Portland, ME 04101
LEGEND
Monument – found
Iron marker – found
Iron marker – set (#5 rebar)
Property line (basis)
Property line (abutter)
Right of way line
Edge of pavement
Edge of gravel
N/F Now or formerly of
1234/327 Deed reference (book/page)
GRID N
DANFORTH STREET (width varies)
WEST COMMERCIAL STREET (width varies)
EMERY STREET (accepted by City of Portland March 7, 1870)
N/F Stephen Dyra 30106/100
N/F Thomas R. Robinson Laura D. Robinson 31839/194
N/F Sonia B. Robertson 22292/241
N/F Deborah J. Kruic 20933/030
N/F Susan C. Murphy Colleen D. Kelona 33591/216
N/F Marjorie M. Shaw 27747/328
Lot A
308,087 Sq. Ft. / 8.49 Acres
Remaining Land - Lot B
97,872 Sq. Ft. / 2.25 Acres
SCALE IN FEET
1" = 50'
PLAN OF
Proposed Lot A
112 West Commercial Street
Portland, Maine
MADE FOR
J.B. Brown & Sons
10 Free Street
Portland, Maine
JOB #21093
DATE November 12, 2019
SCALE 1" = 50'
DOCK #051
FILE #0093
Titcomb Associates
120 Gray Road, Falmouth, Maine 04105
207-797-3119 www.titcombassoc.com
CERTIFICATION
This survey conforms to the current standards of practice set forth by the Maine State Board of Licensure for Land Surveyors.
Nicholas S. Ellston, P.L.S. #2918
STATE OF MAINE
NICHOLAS S. ELLSTON
#2918
REGISTERED
LAND SURVEYOR

SECTION 5

PUBLIC OR PRIVATE RIGHTS-OF-WAY

The City of Portland has tentatively granted acceptance to allow the easterly garage entrance to be located within the Emery Street (Paper Street) Right-of-Way. There are no additional private or public encumbrances of the development parcel.

SECTION 6

SCHEDULE

The proposed project is currently under design with a targeted construction start date of March 2020 and completion slated for early 2022.

PLAN REFERENCES

1) Plan of Land on West Commercial Street Maine Central Railroad to J.B. Brown & Sons by Owen Haskell, Inc. dated October 13, 2011. Recorded in Plan Book 211, Page 350.

2) State of Maine Department of Transportation Right of Way Map of State Highway "10" D.O.T. File No. 3-483. Sheets 16-19. Recorded in Plan Book 208, Pages 16-19.

3) Maine State Highway Commission Right of Way Map of State Highway "A" S.H.C. File No. 3-77. Sheets 1 & 2. Recorded in Plan Book 43, Pages 52 & 54.

4) Plan of West Commercial Street Alteration by City of Portland, Maine Department of Public Works dated July 1, 1952.

5) Street right of way plans obtained from the City of Portland Engineering Department for West Commercial Street, Emery Street, and Danforth Street.

6) Plans of Pollution Abatement Facilities West Commercial Street made for Portland Water District by Camp Dresser & McKee, Inc. dated April 1973 and revised through August 1981. Sheets 25-29. On file at the City of Portland Department of Engineering.

7) Plan of Condominium Plat, Southrise Condominium made for Coastland Corp. by Sebago Technics, Inc. dated March 13, 1989 and revised through June 2, 1989. Recorded in Plan Book 179, Page 44.

8) Plan of Boundary Survey made for Mark & Aimee Bessire by Owen Haskell dated September 8, 2014. Unrecorded.

9) Plan of Land on West Commercial Street Portland Terminal Company to J.B. Brown & Sons by Owen Haskell dated July 27, 2010. Recorded in Plan Book 210, Page 285.

10) Right of Way and Track Map – Portland Terminal Operated by Portland Terminal Company. Sheets V1D-1 & V1D-2 dated June 30, 1916. Station 0+00 to Station 105+60. On file at PanAm Railway Department of Engineering.

11) Plan of Property made for Constance Bloomfield by Titcomb Associates dated October 20, 2004, revised through October 5, 2005. Recorded in Plan Book 205, Page 635.

12) Plan of ALTA/ACSM Land Title Survey – 113 West Commercial Street, made for J.B. Brown & Sons by Titcomb Associates dated February 9, 2016.

NOTES

1) Book and Page references are to the Cumberland County Registry of Deeds.

2) Bearings are referenced to grid north, Maine State Plane Coordinate System, NAD83, West Zone.

3) Property lies within Zone C based on FIRM Community #230051 Panels #0013-B & #0016-B, dated July 17, 1986. It does not lie within a special flood hazard area.

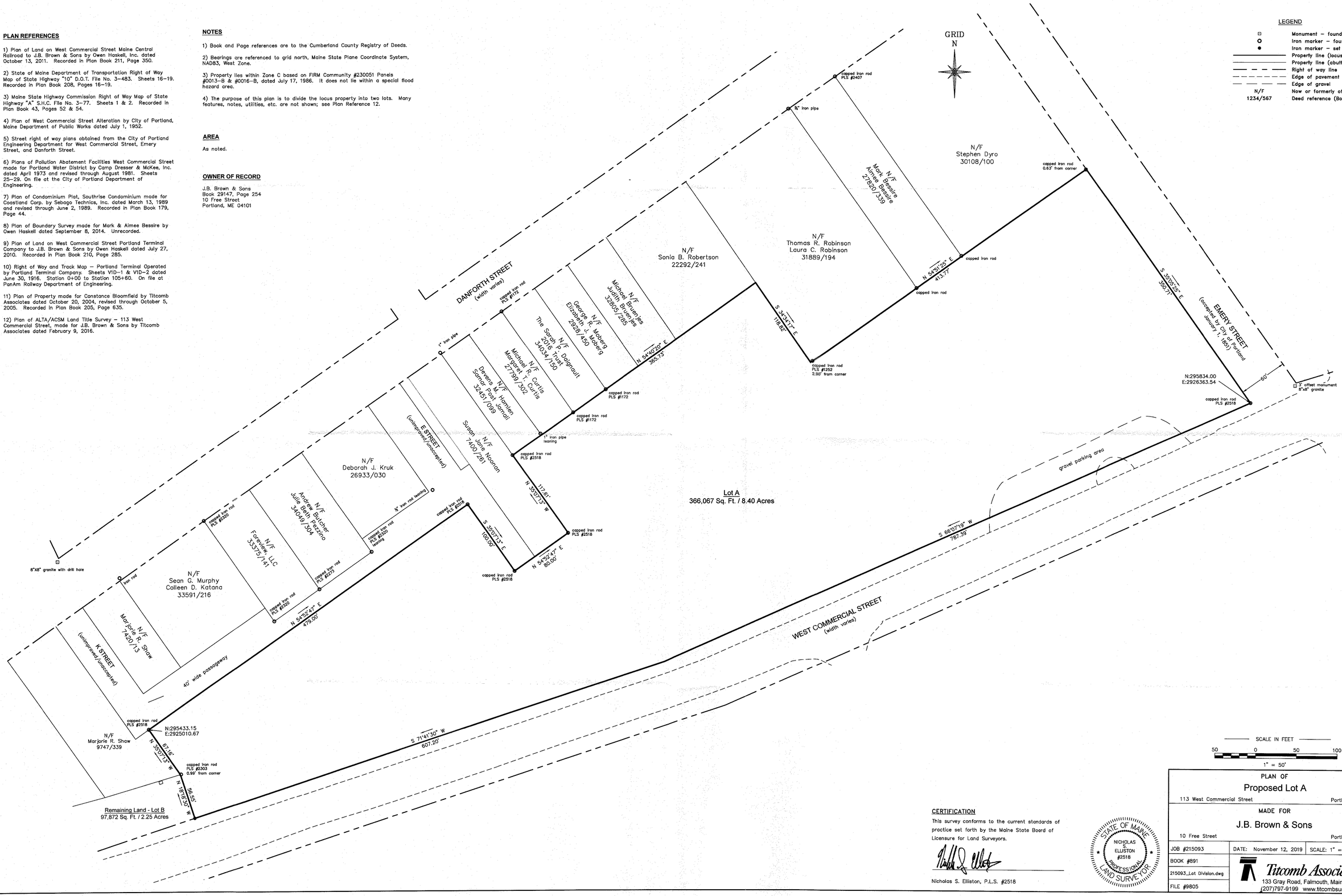
4) The purpose of this plan is to divide the locus property into two lots. Many features, notes, utilities, etc. are not shown; see Plan Reference 12.

AREA

As noted.

OWNER OF RECORD

J.B. Brown & Sons
Book 29147, Page 254
10 Free Street
Portland, ME 04101



SCALE IN FEET
50 0 50 100
1" = 50'

CERTIFICATION

This survey conforms to the current standards of practice set forth by the Maine State Board of Licensure for Land Surveyors.

Nicholas S. Elliston, P.L.S. #2518

STATE OF MAINE · NICHOLAS S. ELLISTON #2518 · PROFESSIONAL LAND SURVEYOR

PLAN OF
Proposed Lot A
113 West Commercial Street, Portland, Maine

MADE FOR
J.B. Brown & Sons
10 Free Street, Portland, Maine

JOB #215093	DATE: November 12, 2019	SCALE: 1" = 50'
BOOK #891		
215093_Lot Division.dwg		
FILE #9805		

Titcomb Associates
133 Gray Road, Falmouth, Maine 04105
(207)797-9199 www.titcombsurvey.com

CITY OF PORTLAND
SPACE AND BULK REQUIREMENTS

1.	EXISTING ZONE:	B5b - Urban Commercial Mixed-Use Zone R-4 - Residential Zone	
2.	PARCEL SIZE:	8.40 ACRES	
3.	SPACE AND BULK:	REQUIRED / ALLOWED	PROVIDED
	MAXIMUM LOT COVERAGE	100%	< 100%
	MAXIMUM BUILDING HEIGHT	55 FT. (62 FT. FOR ROOFTOP PROJECTIONS)	< 55 FT.
	MINIMUM LOT SIZE	NONE	8.40 ACRES
	MINIMUM SIDE YARD	NONE	5.3 FT.±
	MINIMUM REAR YARD	NONE	120 FT.±
	MINIMUM FRONTAGE	NONE	1,394 FT.
	MAXIMUM FRONT YARD BUILDING SETBACK	10 FT.	< 10 FT.
4.	PARKING REQUIREMENT:		
	MEDICAL OFFICE - 1 SPACE/400SF		
	PROPOSED OUTPATIENT CLINIC 62,300 SF	156 SPACES	400± SPACES

061 H003 N/F Sonia B. Robertson 22292/241

061 H004 N/F Thomas R. Robinson Laura C. Robinson 31889/194

061 H005 N/F Mark Bessire Aimee Bessire 27820/339

061 H018 N/F Stephen Dyro 30108/100

061 H009 N/F Michael P. Bruenjes Judith Bruenjes 32803/285

061 H010 N/F George R. Moberg Elizabeth J. Moberg 2928/450

061 H011 N/F Sarah N. Dalgnault 32746/060

061 H012 N/F Michael R. Curtis Margaret T. Curtis 27739/302

061 H002 N/F Devens M. Hamlen Sonya Post Hamlen 3245/099

061 H001 N/F Susan Jane Noonan 7400/261

061 I004 N/F Deborah J. Kruk 26933/030

061 I003 N/F William McFarlane Constance Bloomfield JTS 21615/268

061 I002 N/F Joseph S. Kilmartin Helen F. Kilmartin 26215/339

058 C001 N/F JB Brown & Sons

060 F001 N/F Canal Landing, LLC 32239/148

060 F002 N/F Maine DOT

DANFORTH STREET (width varies)

E STREET (unimproved/unaccepted)

WEST COMMERCIAL ST. (width varies)

EMERY ST. (accepted by City of Portland width varies)

SEE ENLARGED SITE PLANS FOR ADDITIONAL INFORMATION, INCLUDING SURFACE MATERIALS, SIGNAGE, GEOMETRIC & DIMENSIONAL INFORMATION AND RELATED SITE LAYOUT DATA.

PROPOSED OUTPATIENT CLINIC
34,155 SF FOOTPRINT
62,300 SF TOTAL AREA
(SEE ARCHITECTURAL PLANS BY SMITHGROUP)

PARKING GARAGE
35,600 SF FOOTPRINT
3 LEVELS
TOTAL 382 PARKING STALLS
(SEE GARAGE PLAN BY OTHERS)

TOTAL SURFACE PARKING (152)

TRUCK ROUTE - 24' WIDE

TRUCK ROUTE - 20' WIDE

ONE-WAY

SNOW STORAGE

GARAGE ENTRY

STAIR

MAIN ENTRANCE

STAFF ENTRANCE

LOADING DOOR

MATCH LINE

R-4 Zone / B-5b Zone

POROUS PAVEMENT

8' WIDE BITUMINOUS SIDEWALK

40' wide passageway

CENTRAL DRIVEWAY

EXISTING 'CANAL LANDING' SITE UNDER CONSTRUCTION

LARGE BLOCK RETAINING WALL OR ROCK FACE CUT - HEIGHT & EXTENT T.B.D.

CHEVRON PAVEMENT MARKINGS

EAST DRIVEWAY - 24' WIDE

CONTINUATION OF 10' SHARED PATHWAY BY OTHERS

EASTERLY LIMIT OF 10' PATHWAY

VERTICAL GRANITE CURB - CITY STANDARD

5' WIDE GRASSED ESPLANADE

10' WIDE BITUMINOUS SHARED PATHWAY

N 295834.00
E 2926363.54

MAXIMUM STREET BUILDING SETBACK LINE - 10'

MODULAR BLOCK RETAINING WALL - HEIGHT VARIES

LOT DIVISION LINE

WESTERLY LIMIT OF 10' PATHWAY

10' WIDE BITUMINOUS SHARED PATHWAY

VERTICAL GRANITE CURB - CITY STANDARD

5' WIDE ESPLANADE

ADA RAMP, TYP.

WEST DRIVEWAY - 24' WIDE

N 295324.53
E 2925066.83

EXISTING GRAVEL DRIVEWAY ENTRANCE TO BOATYARD

APPROX. PROJECT LIMITS

WESTERLY EXTENSION OF 10' PATHWAY BY OTHERS

CHORD N65°57'58"E 153.24'
R=673.74'
L=153.57'

CHORD S65°57'58"W 165.07'
R=725.74'
L=165.42'

N72°29'45"E 542.24'

S72°29'45"W 519.07'

N87°07'38"E 273.21'

S87°07'38"W 21.45'

SIGN LEGEND:

A: STOP R1-1 24"x24"
B: RESERVED PARKING R7-8 12"x18"
C: RESERVED PARKING VAN ACCESSIBLE R7-8A 12"x6"
D: NO PARKING R8-3 18"x24"
E: NO PARKING AUTHORIZED VEHICLES ONLY 18"x24"
F: NO PARKING ANY TIME 18"x24" R7-1
G: DO NOT ENTER R5-1 30"x30"

PLAN REFERENCES:

1. "PLAN OF ALTA/ACSM Land Title Survey, 113 West Commercial Street, Portland, Maine, MADE FOR, J.B. Brown & Sons, 10 Free Street, Portland, Maine", by Titcomb Associates, JOB #215093, DATE: February 9, 2016, SHEET 1 OF 2 AND SHEET 2 OF 2.
2. "PLAN OF Property Division, 113 West Commercial Street, Portland, Maine, MADE FOR, J.B. Brown & Sons, 10 Free Street, Portland, Maine", by Titcomb Associates, JOB #215093, DATE: November 12, 2019.
3. "CONTRACT NO. 3, LOWER FORE RIVER INTERCEPTOR, CROSS COUNTRY AND WEST COMMERCIAL STREET", BY CAMP DRESSER & McKEE Inc., CONSULTING ENGINEERS, BOSTON, MASS., SHEETS 25, 26 AND 27, REVISED FOR RECORD DRAWING 8/81.
4. "PLANS FOR 115 K.V. UNDERGROUND TRANSMISSION LINE, SECTION 275 – SEWALL ST. S/S TO CAPE STEAM", AS-BUILT PLAN AND PROFILE, DATED 3/26/75, SHEETS PP-7, PP-8, PP-9 & PP-10, BY CMP.
5. "CANAL LANDING AMENDED SITE PLAN, PHASE III SITE LAYOUT PLAN", FOR NEW YARD LLC, BY GORRILL PALMER, REVISED 10.08.19.

MATERIAL LEGEND:

- POROUS PAVEMENT SECTION
- STANDARD-DUTY PAVEMENT SECTION
- HEAVY-DUTY PAVEMENT SECTION
- 10' WIDE BITUMINOUS SHARED PATHWAY
- REINFORCED CONCRETE

NOTE: SEE DETAIL SHEETS FOR SECTION REQUIREMENTS.

NOTES:

1. OWNER OF RECORD: J.B. BROWN & SONS, 10 FREE STREET, PORTLAND, ME 04101, TAX MAP-BLOCK-LOT NUMBER 060 A001001, C.C.R.D. BOOK 29147 PAGE 254
2. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM, NAD83, WEST ZONE. BEARINGS ARE REFERENCED TO GRID NORTH.
3. ELEVATIONS ARE BASED ON CITY OF PORTLAND DATUM.
4. BOUNDARY LINES SHOWN ARE TAKEN FROM PLAN REFERENCE 2.
5. PROPERTY IS LOCATED IN THE CITY OF PORTLAND B-5b & R-4 ZONES, WITH A SECTION OF THE B-5b ZONE WITHIN THE WATERFRONT PORT DEVELOPMENT ZONE.
6. SNOW REMOVAL AND PROPERTY MAINTENANCE SHALL BE BY THE OWNER.
7. WASTE DISPOSAL SHALL BE BY PRIVATE WASTE HAULER.
8. ALL GRANITE TIPDOWNS SHALL BE 7' LENGTH. NO GRANITE CURB PIECES SHALL BE LESS THAN 4' LONG MINIMUM.
9. THE DOMESTIC WATER ENTRY SHALL INCLUDE SPACE FOR THE METER ASSEMBLY AND BACKFLOW PREVENTER IN ACCORDANCE WITH P.W.D. REQUIREMENTS (SEE STANDARD METER SET DETAILS).

NORTH

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 inch = 40 ft.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 11.15.19 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	11.15.19	SRB

Design: SRB | Drawn: CDD | Date: NOV. 2019
Checked: SRB | Scale: AS NOTED | Job No.: 3572
File Name: 3572-SITE.dwg

This plan shall not be modified without written permission from Gorrill Palmer Consulting Engineers, Inc.(GP). Any alterations, authorized or otherwise, shall be at the user's sole risk and without liability to GP.

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Drawing Name: OVERALL SITE LAYOUT PLAN
Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine
Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C–4.0

I:\3572_VA Clinic West Commercial St-Portland, ME\Z – CAD\DWG\3572-SITE.dwg 11/22/2019 12:44 PM

Att. K

TRAFFIC IMPACT STUDY

FOR

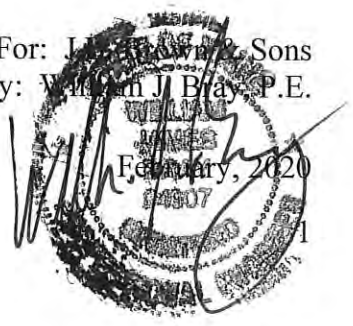
PROPOSED

Department of Veterans Affairs

"Community Based Outpatient Clinic"

Prepared For: J. [illegible] & Sons

Prepared By: William J. Bray, P.E.



February, 2020

INTRODUCTION

FDS JBB Portland, LLC are proposing to construct a 62,170 square foot two-story building on an 8.40-acre site located at 113 West Commercial Street. The Federal Department of Veterans Affairs (VA) will lease the proposed building creating a Community Based Outpatient Clinic. The proposed development includes a total of 532 on-site parking spaces with 150 surface parking spaces and 382 spaces within a three-level garage structure. The VA's lease agreement requires the applicant to provide a total of 400 on-site parking spaces to meet their programming needs. The remaining 132 unencumbered parking spaces within the proposed parking garage are presently being considered for accommodating existing parking needs of marine dependent businesses located along the Portland Waterfront.

There will be three primary driveways into the site from West Commercial Street. All three driveways are proposed to be unsignalized. The westerly driveway will provide primary access for staff/employees to the 150-space surface parking lot. Staff parking is located on the west side of the building to provide convenient access to the proposed building, as staff entry is differentiated from patient/visitor access into the building. The central driveway is the primary patient/visitor access route and it is located between the clinic building and the proposed site garage to allow for ease of patient access to the clinic building, as well as, vehicular movements in/out of the garage. The most easterly driveway is located east of the parking structure and will provide access for entering and exiting movements out of the garage. The driveway also provides for emergency and heavy vehicle movements around the garage and to the rear of the parking structure avoiding conflicts with other site uses through the westerly and central access driveways.

It is expected that each of the three driveways will require a separate left-turn lane treatment for entry movements to the site from West Commercial Street. These lanes and the projected volumes of traffic through them are not expected to significantly overlap with left-turn movements into the Canal Landing Boat facility. The Canal Landing site design also provides three points of access onto West Commercial Street with the central and far westerly driveways infrequently used and carrying limited traffic volumes. The most easterly driveway into the boat yard is located approximately 250-feet east of the proposed parking garage. The Canal Landing traffic volumes are very low and are not expected to conflict with traffic generated by the proposed clinic site.

The proposed project requires the applicant to receive approval for a Traffic Movement Permit (TMP) and Planning Board approval from the City of Portland. A TMP application was filed with the City on December 3, 2019 followed by a project scoping meeting conducted on Monday, December 30, 2019. The City's Traffic Consultant, at that time, identified a full traffic impact study would be required in support of the permit application.

The City's Traffic Consultant and Planning Staff determined the study area would include the following intersections:

Commercial Street @ Beach Street
West Commercial Street @ Cassidy Point Drive
West Commercial Street @ Valley Street
Valley Street/St. John Street and Danforth Street
West Commercial Street @ Fore River Parkway

The traffic study requirements were further defined as follows:

- There was concurrence that the 10th edition of the ITE **"TRIP GENERATION"** manual was reasonable to use for the study. The City's Traffic Consultant advised that the State Traffic Engineer has authorized use of the 10th edition in the conduct of this traffic impact study.

- The Applicant will provide additional information on employee levels, current information on patients, etc. This item will be addressed under separate cover.

- Given the magnitude of difference between the Peak Hour of Adjacent Traffic and Generator, the traffic analysis is to include a sensitivity analysis of how the higher trip level may impact traffic operations.

- Other development projects to be included in the required traffic impact study to include the following development sites: 383 Commercial Street, Canal Landing, 184 Commercial Street, EWTMP, 58 Fore Street, Portland Square, MMC, Mercy Hospital, Thompson Point and Portland Transportation Center.

- The applicant shall provide backup data that supports the assignment (employee residence). There was a request to gain an understanding of patient origins as part of this analysis. This item will be addressed under separate cover.

- The application identified one HCL location at Commercial Street and Beach Street and it was requested that 2019 data be reviewed and mitigation strategies be identified. It was also requested that the crashes at the West Commercial Street/Valley Street intersection be reviewed.

EXISTING TRAFFIC

Existing Design Hour Traffic: Manual traffic turning movement counts were collected during both weekday peak commuter hours at four traffic intersections located within the general vicinity of the proposed site. The locations and the date of the data collection are listed as follows:

1. Commercial Street @ Beach Street – August 13, 2019
2. West Commercial Street @ Fore River Parkway – August 14, 2019
3. West Commercial Street @ Valley Street – August 15, 2019
4. West Commercial Street @ Cassidy Point Drive – 1-9-2020

All traffic entering and exiting each intersection was recorded in 15-minute intervals between 7:00 and 9:00 a.m. and, again, between 3:00 and 6:00 p.m. (Copies of the traffic data is attached as an appendix to the report). From a summary of the data, it was determined that the "*morning*" peak hour falls between 7:30 and 8:30 a.m. at each of the four study intersections and the "evening" peak hour occurs between either 4:30 and 5:30 or 4:45 and 5:45 p.m. at each of the noted study intersections.

Traffic data collected during the months of July and August is generally representative of "peak" travel conditions and further adjustment is not required.

Traffic data collected during the months of September through June typically requires an adjustment to reflect "*peak*" travel conditions found during the summer months of July and August. The traffic data collected at Location #4, West Commercial Street @ Cassidy Point Drive, was collected to only establish entry and exit volumes from Cassidy Point Drive; through traffic volumes in both directions on West Commercial Street were based upon traffic data collected at the West Commercial Street/Valley Street intersection during August 2019.

Figure 1 illustratively depicts the estimated 2019 Design Hour Traffic conditions at each of the five study intersections.

TRAFFIC SAFETY

Existing Safety Trends: MaineDOT's Accident Records Section provided the latest three-year (2016 through 2018) crash data for the section of West Commercial Street between Beach Street and the Fore River Parkway, a distance of 1.40 miles. MaineDOT's report is presented as follows:

Table 1
2016 -2018 Traffic Accident Summary

Location	Total Crashes	Critical Rate Factor
1. West Commercial Street @ Valley Street	26	0.75
2. West Commercial Street @ Beach Street	**30**	**1.17**
3. West Commercial Street @ Cassidy Point Drive	5	0.37
4. West Commercial Street btw. Fore River Parkway and Valley Street	3	0.29
5. West Commercial Street btw. Valley Street and Cassidy Point Drive	1	0.27
6. West Commercial Street near Benny's Diner	2	0.65
7. West Commercial Street btw. gravel turnout and Beach Street	12	0.51

The MaineDOT considers any roadway intersection or segment a high crash location if both of the following criteria are met:

- ***8 or more accidents***
- ***A Critical Rate Factor greater than 1.00***

Commercial Street/Beach Street/IMT Entrance: As the data presented in the table shows, the intersection of West Commercial Street and Beach Street meets both of MaineDOT's criteria for identification of a high crash location, with a total of 30 crashes and a corresponding critical rate factor of 1.17. MaineDOT provided a detailed vehicle collision diagram for the intersection that maps the crash patterns of each of the 30 vehicle collisions. That document visually presents two very distinct crash patterns occurring within the intersection; 18 crashes are "rear-end" crashes involving thru vehicles on both approaches of West Commercial Street colliding with a second vehicle traveling in the same direction. A second crash pattern were "angle" collisions with a total of four incidences involving a motorist turning left from the eastbound approach of West Commercial Street to Beach Street struck by a thru vehicle traveling westbound through the intersection.

2019 crash data was obtained from the MaineDOT for the Commercial Street/Beach Street intersection to further understand and evaluate the higher than expected frequency of traffic crashes reported for the intersection.

The MaineDOT updated (2017 through 2019) crash data for the Commercial Street/Beach Street intersection shows a very minor reduction in the number of crashes at the intersection (28 crashes vs. 30 crashes), and a minor change in the critical rate factor (1.09 vs. 1.17). The crash patterns presented in the more current crash data continue to show a high number of "rear-end" crashes (17 crashes) and a slight up-tick in the number of "angle" crashes with a total of 7 crashes. The MaineDOT crash diagram identifies that 13 of the 28 vehicle crashes occurred during either the morning or afternoon peak commuter hours, when traffic loadings are at peak conditions.

Traffic Solutions conducted a detailed review of traffic operations within the intersection to identify any plausible mitigation measures that potentially could improve traffic safety conditions within the intersection. The following findings and/or recommendations summarize that effort:

Operational Observations

- The average travel speeds of motorists traveling east on Commercial Street appears well in excess of the posted speed limit of 30mph.

- Drivers turning left from Commercial Street onto Beach Street during the permissive signal phase routinely complete the desired turn using very short vehicle gaps, oftentimes forcing westbound thru Commercial Street traffic to either slow or stop in the intersection. Very few motorists attempting the desired left-turn are able to complete the turn safely during the evening peak hour with the excessively heavy traffic volumes traveling westbound on Commercial Street.
- Motorists on the Beach Street approach make a right-turn on red onto Commercial Street using very short vehicle gaps in the thru traffic stream.
- Motorists turning left from Commercial Street onto Beach Street were found "running the red light" generally during each traffic signal cycle, creating numerous near misses with opposing traffic. This observed safety condition is clearly affirmed with the high number of reported left-turn crashes occurring at the intersection.

Recommended Mitigation Measures

- Prohibit "*Right-Turn on Red*" turns from the Beach Street approach.
- Add a "*Red Signal Ahead*" Advance Traffic Light Warning Road Sign on the outside of the curve on the east approach of Commercial Street.
- Add improved directional sign on West Commercial Street in advance of the left-turn lane to Beach Street providing approaching drivers with clear destination information; such as, Casco Bay Bridge Left-Lane, Old Port Area Thru Lane.
- Long Term the City may want to consider changing the permissive/protected signal phase for left-turns to Beach Street to address the number of crashes involving left-turn movements in the intersection.

West Commercial Street @ Valley Street: Traffic safety conditions reported by MaineDOT for the study intersection of West Commercial Street and Valley Street shows a total of 26 vehicle crashes occurred at the intersection between the years of 2016 through 2018. Although this location doesn't meet MaineDOT's criterion as a high crash location, the City Reviewers requested a review of the intersection to determine what possible mitigation measures could be implemented to reduce the high number of traffic crashes occurring within the intersection. The primary crash pattern in the intersection; again, similar to the findings at the Beach Street intersection is "*rear-end*" crashes with a total of 9 crashes; a second crash pattern with a total of 6 crashes were "*angle*" crashes and a final crash pattern with a total of 5 reported crashes were "*side-swipe*" crashes involving motorists traveling in either the dual left-turn or right-turn lanes in the intersection.

This location doesn't currently meet MaineDOT's criterion as a high crash location, however, the number of reported crashes is somewhat excessive. Traffic Solutions has conducted a field review of existing traffic operations and provided a listing of possible mitigation measures for consideration.

Operational Observations

- The dual left-turn lanes on the West Commercial Street approach unknowingly direct approaching drivers unfamiliar with the area into a possible lane entrapment condition at the connecting signalized intersection at St. John Street @ Valley Street.
- White painted "*dot-lines*" guiding turning traffic through the intersection are not present in either the dual left-turn or right-turn lanes. Drivers using both dual lanes routinely were observed straddling both turn lanes. This driver action occasionally creates near misses with aggressive approaching drivers.
- Lane markings on the Valley Street approach at West Commercial Street do not extend to the St. John Street intersection, which creates confusion as to the required lane utilization on the approach.

Recommended Mitigation Measures

- Stripe white "*dot-dash*" lines through the intersection for both the dual left and right-turn traffic movements. This proposed striping improvement coupled with the following signing recommendation could potentially limit the number of side-swipe crashes occurring in the intersection.
- The City working with MaineDOT should consider adding advance directional lane utilization sign messages that inform approaching drivers which of the dual left-turn lanes to use in advance of the St. John Street/Danforth Street intersection.
- The entire length of the Valley Street approach at West Commercial Street extending back to the St. John Street intersection should be striped with white lane use and symbol markings.
- The City may want to consider adding additional lane use symbols on all approaches to better inform approaching drivers of the intended lane uses on each intersection approach.

SITE TRAFFIC

Site Trip Generation - Community Based Outpatient Clinic: Trip generation for the proposed Veterans Affairs Clinic project is based upon tables presented in the 10th edition(1) of the Institute of Transportation's Engineers "**TRIP GENERATION**" manual. The following trip rates were applied in that effort:

Land-Use Code 630 – Clinic [62,170 square foot building]

Weekday Street Peak Hour – AM Peak	= 3.69 trips/1,000sf
Weekday Street Peak Hour – PM Peak	= 3.28 trips/1,000sf
Weekday Peak Hour of Site – AM Peak	= 5.22 trips/1,000sf
Weekday Peak Hour of Site – PM Peak	= 4.64 trips/1,000sf

(1) NOTE: MaineDOT requires the use of trip tables presented in the 7th edition of the ITE publication for estimating all trip generation for development projects requiring a Traffic Movement Permit. The earlier publication provides very minimal peak hour trip generation data for a clinic site; as a result, trip data in the 10th edition was applied. This process was reviewed with the State Traffic Engineer and approved for site trip calculation purposes.

Table 2, below, provides a summary of the trip generation for the proposed Community Based Outpatient Clinic project:

Table 2
Peak Hour Trip Generation Summary

Peak Hour Time Period	Peak Hour Trip Generation
AM Peak Hour (Street)	229 trips
PM Peak Hour (Street)	204 trips
AM Peak Hour (Generator)	325 trips
PM Peak Hour (Generator)	288 trips

As highlighted in the preceding Table 2, the proposed Veterans Administration's Community Based Outpatient Clinic (CBOC) development is expected to generate a total of **229** trips during the morning street peak hour and a slightly less volume of trips (**204** trips) in the evening peak hour of the street. Site trip projections for both the morning and afternoon peak hours of the clinic site are somewhat higher at 325 trips mid-morning of a typical weekday and 288 trips mid-afternoon of the proposed site.

Site Trip Generation – Extra Parking Garage Trips (Existing Marine Dependent Businesses): The remaining 132 unencumbered parking spaces within the proposed parking garage are presently being considered for accommodating existing parking needs of marine dependent businesses located along the Portland Waterfront. Trips generated by occupants of these parking spaces will most likely arrive and depart the parking structure during times of the day or evening other than the peak hours of a typical weekday. However, to project a "*worse-*

case" condition, trips generated by these extra garage spaces have been estimated based upon existing peak hour parking trends found at an existing waterfront parking garage. The parking garage data shows that approximately 33% of the garage capacity enters or exits the structure in the AM peak hour with a directional split of 89% entering the garage and 11% exiting. The parking trends found in the evening peak hour are similar but reversed from the AM trends, with approximately 27% of the garage capacity entering or exiting the garage. The PM peak hour distribution shows about 14% of the PM trips enter and 86% exit the parking garage. These trip patterns were applied in estimating the existing garage trips that potentially will be generated by the extra (132) garage spaces in the proposed garage. Accordingly, the extra garage spaces can be expected to generate a total of 44 trips in the AM peak hour and 36 spaces in the evening peak hour. Thirty-nine of the morning trips and five of the afternoon trips will enter the garage and the remaining trips (5 AM peak and 31 PM peak) will exit.

Vehicle Trip Composition: This report has assumed all vehicle trips generated by the proposed VA Clinic site are "*primary*" or "*new*" vehicle trips to the area street network. Trips generated by the existing marine dependent businesses are existing trips presently circulating along the Commercial Street corridor, as such, their actual traffic impacts are limited to the most easterly driveway entrance to the proposed parking structure.

Site Trip Distribution VA Clinic Site: The 10th Edition of the Institute of Transportation Engineers "**TRIP GENERATION"** publication provides the following trip distributions rates for a proposed clinic site:

Land-Use Code 630 – Clinic

AM Peak Hour Street)	= 78% enter/22% exit
PM Peak Hour (Street)	= 29% enter/71% exit
AM Peak Hour (Generator)	= 58% enter/42% exit
PM Peak Hour (Generator)	= 46% enter/54% exit

Table 3, as follows, summarizes the peak hour directional distributional volumes for the proposed CBOC site:

Table 3
Site Trip Distribution Summary

Peak Hour Time period	CBOC Building Trip Distribution Volumes		Total Trips
	Enter	Exit	
AM Peak Hour (Street)	179 trips	50 trips	229 trips
PM Peak Hour (Street)	59 trips	145 trips	204 trips
AM Peak Hour (Generator)	189 trips	136 trips	325 trips
PM Peak Hour (Generator)	132 trips	156 trips	288 trips

Accordingly, in the morning peak hour of the street, the heaviest volume of trips (179 trips) enter the site and in the evening peak hour a reverse pattern occurs with 145 trips exiting the site. The remaining trips (50 trips) in the morning peak hour will exit the site and 59 trips in the evening peak hour enter the site.

Projected trip patterns occurring during the mid-morning and mid-afternoon peak hours of the site are estimated at 189 trips entering the site in the mid-morning peak hour and 156 trips exiting the site in the mid-afternoon peak hour. The remaining balance of 136 trips in the morning peak hour exits the site and the remaining trips (132 trips) in the afternoon peak hour enters the site.

Site Trip Distribution – Existing Marine Dependent Businesses: Parking operational data gathered for an existing parking structure located in the Eastern Waterfront section of the City provides the following existing distribution patterns for the 132 parking garage spaces:

AM Peak Hour – Total of 44 Trips	PM Peak Hour – Total of 36 Trips
39 trips enter/5 trips exit	5 trips enter/31 trips exit

Vehicle Trip Assignment – Proposed VA Clinic Site: The Department of Veterans Affairs provided general residency information for employees presently working at the 144 Fore Street facility in the City of Portland that shows the majority of employees reside in Portland, South Portland, Yarmouth and Falmouth. They have also advised that the expected service area of the proposed Clinic will encompass the majority of Cumberland and York counties.

A population-based traffic model was considered an appropriate instrument for assigning site generated traffic to the study area intersections. The site travel model includes the 2010 Census population of 17 municipalities generally located in the Greater Portland Area that have a combined 2010 population of 277,240 persons. Communities located both south and north of the Greater Portland Area were purposely omitted from the model development, understanding Veterans currently have other clinical options located both north and south of the proposed Portland site.

The travel model process divides the 2010 population value of each community by the total population of the 17 municipalities (277,240) and assigns the resultant percent value; either partially or fully, to one of four general travel routes to the proposed Clinic site: 1) Fore River Parkway; 2) Veterans Parkway; 3) Commercial Street East and 4) Casco Bay Bridge.

Table 4 presents the results of the population-based trips model process. As highlighted on the noted table, approximately 47% of the site trips will use the Fore River Parkway to access the proposed Clinic site; 33% will travel across the Veterans Bridge to access the site and about 11% of the site traffic will use Commercial Street from the east while the remaining 9% will use the Casco Bay Bridge for access. The trip assignment process also includes further minor trip adjustments directing lesser volumes of trips through the Valley Street/St. John Street/Danforth Street intersection. These minor trip adjustments were generally based upon existing vehicle splits found at the study intersection during both peak hour time periods.

Table 4
Population Based Model
Travel Assignment Summary
VA Community Based Outpatient Clinic

Community Name	2010 Population	Percent of Total	Site Trip Assignment (Percentage)			
			Fore River Pkwy.	Veterans Bridge	Commercial Street (E)	Casco Bay Bridge
Portland	66,193	23.9	15	-	8.9	-
Scarborough	18,910	6.8	-	6.8	-	-
South Portland	25,004	9.0	-	3.5	-	5.5
Cape Elizabeth	9,013	3.3	-	-	-	3.3
Falmouth	11,180	4.0	3.5	-	0.5	-
Westbrook	17,515	6.3	4.8	0.5	-	-
Cumberland	7,203	2.6	2.0	-	1.0	-
Freeport	7,878	2.8	2.8	-	0.6	-
Windham	16,997	6.1	6.1	-	-	-
Gorham	16,371	5.9	4.8	1.0	-	-
N. Yarmouth	3,573	1.3	1.3	-	-	-
Yarmouth	8,350	3.0	3.0	-	-	-
Standish	9,872	3.6	3.6	-	-	-
Saco	18,482	6.7	-	6.7	-	-
Biddeford	21,277	7.7	-	7.7	-	-

Kennebunk	10,798	3.9	-	3.9	-	-
Old Orchard Beach	8,624	3.1	-	3.1	-	-
TOTAL			**46.9%**	**33.3%**	**11.0%**	**8.8%**
	277,240	**100%**	**80.2%**		**19.8%**	

Site Trip Assignment – Existing Marine Dependent Businesses: These trips are existing trips presently traveling the Commercial Street corridor. Trips generated by these existing businesses, again, were directionally assigned through the most easterly garage driveway entrance applying the general directional assignment paths presented in Table 4 above. The trip assignment for these existing trips require minor adjustments to the projected through volumes along Commercial Street. Minor volumes of through trips were appropriately reduced for the AM peak hour and increased in the PM peak hour.

Figures 2a and 2b illustratively present traffic assignments, respectively, for the morning and evening peak hours of the street.

Site Trip Assignment – Peak Hour of Generator (Sensitivity Analysis): A trip assignment was prepared representing trip generation for both the AM and PM peak hour of the generator in conducting the requested sensitivity analysis. Table 2, above, establishes the volume of AM and PM peak hour trips generated by the proposed project during the AM and PM peak hour of the site (generator). The trip projections are shown as follows:

AM Peak Hour = 325 trips
PM Peak Hour = 288 trips

These vehicle trips were then assigned through the study intersections applying the directional travel routing information presented in the preceding Table 4.

Figures 2c and 2d present the trip assignments prepared for the AM and PM peak hours of the site (generator), respectively.

2022 PRE- AND POST-DEVELOPMENT TRAVEL FORECASTS

Other Development Traffic: Traffic generated by projects that have been approved by the local Planning Board and/or the Maine Department of Transportation, yet are not opened, must be included in the estimate of pre-development traffic. The City has advised that trips generated by the following projects must be included as other development trips through the study intersections:

383 Commercial Street	*58 Fore Street*
Canal Landing	*Portland Square*
184 Commercial Street	*MMC*
EWTMP	*Mercy Hospital*
Thompson's Point	*Portland Transportation Center*

Site trips generated by each of these listed development sites were appropriately assigned through the study intersections and these assignments are illustratively highlighted on Figure 3.

2022 Design Hour Traffic: The VA Clinic project is expected to be completed in 2022; therefore, 2019 design hour traffic volumes shown on Figure 1 require an annual adjustment to forecast 2022 travel conditions at each of the study intersections. Annual growth rates of less than 1% per year have been applied in recent development projects in the City. Traffic Solutions has applied a more conservative 1% growth adjustment in projecting 2022

travel conditions at the study intersections. Figure 4 illustratively presents the estimated 2022 design hour traffic volumes for the study intersections.

2022 Pre-Development Traffic: Future 2022 pre-development travel conditions were prepared for the study intersections by combining the Other Development traffic presented on Figure 3 with the 2022 Design Hour traffic forecasts presented on Figure 4. Figure 5 presents the estimated 2022 pre-development travel forecasts for the study intersections.

2022 Post-Development Traffic: Separate 2022 post-development traffic assignments were prepared for: 1) Peak Hour of the Street Conditions and 2) Peak Hour of the Generator Travel Conditions (Sensitivity Analysis). Figures 6a and 6b illustratively present the 2022 post-development traffic forecasts for the former travel period during the AM and PM peak hours, respectively, and Figures 7a and 7b highlight the projected 2022 post-development assignments for the peak hours of the generator travel conditions.

MOBILITY ANALYSIS

Capacity analyses of 2022 Pre- and Post-development traffic conditions forecast for each study intersection were conducted utilizing the Synchro and Sim Traffic computer traffic models. Two 2022 post-development travel conditions were analyzed: 1) peak hour trip generation projected for the peak hours of the street and 2) peak hour trip generation representative of the peak hour of the generator (sensitivity analysis). Lastly, traffic operations at each of the three proposed driveway entrances to the proposed site were evaluated, again, for both defined travel conditions.

Levels of Service rankings are similar to the academic grading system, where an "A" is very good with little delay and "F" represents very poor conditions.

The following table summarizes the relationship between delay and Level of Service for a signalized intersection:

Level of Service Criteria for Signalized Intersections

Level of Service	Total Control Delay (sec/veh)
A	Up to 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	Greater than 80.0

Each of the five study intersections for the 2022 pre-development condition were evaluated based upon existing intersection geometry and traffic signal timing and phasing inputs. The analyses conducted for both 2022 post-development conditions, again, are based upon existing intersection geometry, signal timing and optimization of signal timing inputs. Table 5, as follows, provides the results of the capacity analyses conducted for each of the five signalized study intersections for both the 2022 pre- and post-development travel conditions:

Table 5
Signalized Intersection Capacity Analysis
2022 Pre- and Post-Development Conditions

	2022 Pre-Development				2022 Post-Development Peak Hour Volumes (Street)				2022 Post-Development Peak Hour Volumes (Generator)			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Intersection /Approach	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**	**Delay**	**LOS**
1. Commercial St./Beach St./IMT Ent.												
- Commercial St. WB	24 sec	C	89 sec	F	22 sec	C	96 sec	F	29 sec	C	95sec	F
- Commercial St. EB	20 sec	B	69 sec	E	12 sec	B	42 sec	D	12 sec	B	60 sec	E
- Beach St. SB	23 sec	C	51 sec	D	20 sec	B	46 sec	D	19 sec	B	47 sec	D
- IMT Ent. NB	35 sec	C	226 sec	F	19 sec	B	86 sec	F	21 sec	C	61 sec	E
- Overall	22 sec	C	77 sec	E	16 sec	B	65 sec	E	18 sec	B	74 sec	E
2. W. Commercial St. @ Cassidy Point Dr.												
- W. Commercial St. WB	4 sec	A	3 sec	A	2 sec	A	3 sec	A	2 sec	A	3 sec	A
- W. Commercial St. EB	31 sec	C	13 sec	B	23 sec	C	8 sec	A	21 sec	C	7 sec	A
- Cassidy Point Dr. NE	4 sec	A	17 sec	B	13 sec	B	10 sec	A	11 sec	B	9 sec	A
- Overall	21 sec	C	9 sec	A	16 sec	B	5 sec	A	14 sec	B	5 sec	A
3. Fore River Pkwy/W. Commercial St./Valley St.												
- W. Commercial St. WB	32 sec	C	60 sec	E	17 sec	B	29 sec	C	18 sec	B	28 sec	C
- Fore River Pkwy EB	25 sec	C	36 sec	D	17 sec	B	44 sec	D	17 sec	B	43 sec	D
- Valley St. SB	8 sec	A	14 sec	B	12 sec	B	22 sec	C	13 sec	B	22 sec	C
- Overall	24 sec	C	38 sec	D	16 sec	B	34 sec	C	17 sec	B	33 sec	C
4. Veterans Bridge @ Fore River Pkwy												
- Veterans Bridge EB	13 sec	B	20 sec	B	13 sec	B	19 sec	B	13 sec	B	17 sec	B
- Fore River Pkwy WB	9 sec	A	22 sec	C	7 sec	A	14 sec	B	7 sec	A	15 sec	B
- Fore River Pkwy SB	37 sec	D	36 sec	D	40 sec	D	81 sec	F	40 sec	D	63 sec	E
- Overall	15 sec	B	23 sec	C	15 sec	B	24 sec	C	15 sec	B	22 sec	C
5. Valley St./St. John St./Danforth St.												
- Valley St. NB	7 sec	A	13 sec	B	7 sec	A	11 sec	B	8 sec	A	11 sec	B
- Valley St. SB	20 sec	B	31 sec	C	19 sec	B	38 sec	D	22 sec	C	9 sec	A
- St. John St. EB	33 sec	C	25 sec	C	28 sec	C	37 sec	D	26 sec	C	41 sec	D
- Danforth St. WB	34 sec	C	39 sec	D	34 sec	C	43 sec	D	34 sec	C	43 sec	D
- Overall	22 sec	C	25 sec	C	21 sec	C	28 sec	C	20 sec	B	28 sec	C

Each of the five study intersections are expected to operate overall at acceptable levels of service in the morning peak hour under projected 2022 pre-development travel conditions. Vehicle delay values less than 25 seconds were determined for all of the study intersections, which is representative of Level of Service C travel conditions - an acceptable level of service. Similar results are forecast during the PM peak hour at four of the five locations (Locations 2 thru 5), where forecast overall traffic operations meet acceptable levels of service. Vehicle delay values less than 40 seconds were calculated for each of the four identified study intersections. Traffic operation results determined for the final intersection at Commercial Street/Beach Street and the IMT Driveway entrance location are significantly different; whereby, thru traffic in both directions on Commercial Street will experience excessive vehicle delay, typical of Level of Service E/F travel conditions.

The 2022 post-development analysis evaluates two travel assignments: 1) 2022 Post-Development (Street Volumes) and 2) 2022 Post-development (Generator Volumes) for both peak hour time periods. The simulation model results show traffic operation conditions in the morning peak hour for both travel assignment conditions are very similar to the results determined for the 2022 pre-development travel conditions. [***The Reader is cautioned that the post-development results reflect traffic signal timing optimization at each of the five study intersections. These traffic signal timing adjustments help minimize the overall traffic impacts generated by the added site traffic.***] Each intersection in the morning peak hour, under both described traffic loadings, will operate overall at Level of Service C or better travel conditions. Conditions found in the evening peak hour are also very similar to the results determined for the 2022 pre-development evening peak hour. Vehicle delay and level of service values determined for locations 2 thru 5 meet and/or exceed Level of Service C travel conditions. Again, traffic conditions measured for Location #1: Commercial Street/Beach Street/IMT Driveway Entrance intersection show excessive vehicle delay is expected under both forecast travel conditions. Notably, thru traffic traveling westbound on Commercial Street will experience average vehicle delays in excess of 90 seconds in the evening peak hour under both travel assignment conditions.

Post-development travel conditions at each of the three unsignalized site driveway intersections with West Commercial Street were evaluated assuming dual (left and right) exit lanes on each of the three driveway approaches and construction of a Center Two-Way Left-Turn Lane on Commercial Street for accommodating left-turn entry traffic to each driveway entrance. Two travel conditions were evaluated; 2022 Post-Development (Street Volumes) Condition and 2022 Post-Development (Generator Volumes) Condition.

The following table summarizes the relationship between delay and Level of Service for an unsignalized intersection:

Level of Service Criteria for Unsignalized Intersections

Level of Service	Total Control Delay (sec/veh)
A	Up to 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	Greater than 50.0

The results of the dual analyses conducted for each of the three proposed site driveway intersections are presented in the following Table 6:

Table 6
Site Driveways
Unsignalized Intersection Capacity Analysis
2022 Post-Development

	2022 Post-Development Peak Hour Volumes (Street)				2022 Post-Development Peak Hour Volumes (Generator)			
	AM Peak Hour		PM Peak Hour		AM Peak Hour		PM Peak Hour	
Site Driveway/Approach	Delay	LOS	Delay	LOS	Delay	LOS	Delay	LOS
1. Employee Surface Lot								
- W. Commercial St. EB	9 sec	A	4 sec	A	9 sec	A	4 sec	A
- W. Commercial St. WB	3 sec	A	3 sec	A	3 sec	A	3 sec	A
- Driveway SB	10 sec	A	25 sec	C	13 sec	B	25 sec	C
- Overall	7 sec	A	4 sec	A	7 sec	A	4 sec	A
2. Main Garage Entrance								
- W. Commercial St. EB	3 sec	A	3 sec	A	3 sec	A	4 sec	A
- W. Commercial St. WB	1 sec	A	1 sec	A	1 sec	A	2 sec	A
- Garage Entrance SB	10 sec	A	25 sec	C	12 sec	B	29 sec	D
- Overall	2 sec	A	3 sec	A	3 sec	A	3 sec	A
3. Secondary Garage Entrance								
- W. Commercial St. EB	2 sec	A	2 sec	A	2 sec	A	2 sec	A
- W. Commercial St. WB	5 sec	A	5 sec	A	5 sec	A	5 sec	A
- Garage Entrance SB	10 sec	A	25 sec	C	13 sec	B	26 sec	D
- Overall	3 sec	A	4 sec	A	3 sec	A	4 sec	A

The preceding table 6 clearly demonstrates that each of the proposed site driveway intersections at W. Commercial Street will meet and exceed the parameters for Level of Service A travel conditions. Motorists exiting through each of the three site driveways are only minimally delayed in both left and right turns onto W. Commercial Street. Vehicle delay values of 29 seconds or less were determined from the site driveway exit lanes onto W. Commercial Street.

VEHICLE QUEUE ASSESSMENT

A vehicle queuing analysis was conducted using the SimTraffic microsimulation traffic software. The model was set up in a manner that vehicles exiting left out of the three site driveways would use the CTWLTL before merging with EB Commercial Street through traffic. Generally, the model shows that for the post-development scenarios (as well as the model using trip generation based on the generator peak hour traffic) a 95th percentile queue length of 2 to 3 cars for each critical entry and exit lane. The exception occurs at the employee surface lot in the AM peak hour where left-turn entry trips to the parking lot peak at around 290-feet. Adequate vehicle storage should be provided in the CTWLTL lane of at least 300-feet to ensure sufficient storage is provided to accommodate the expected vehicle queue.

Post-Development AM

Location	W. Commercial Street EB Left-Turn Entry	Driveway Left-Turn Exit Lane	Driveway Right-Turn Exit Lane
Secondary Entrance	60	18	32
Employee Entrance	290	19	36
Main Entrance	59	20	40

Post-Development AM - Generator

Location	W. Commercial Street EB Left-Turn Entry	Driveway Left-Turn Exit Lane	Driveway Right-Turn Exit Lane
Secondary Entrance	55	26	45
Employee Entrance	292	30	58
Main Entrance	60	35	52

Post-Development PM

Location	W. Commercial Street EB Left-Turn Entry	Driveway Left-Turn Exit Lane	Driveway Right-Turn Exit Lane
Secondary Entrance	35	32	65
Employee Entrance	76	29	67
Main Entrance	43	32	61

Post-Development PM - Generator

Location	W. Commercial Street EB Left-Turn Entry	Driveway Left-Turn Exit Lane	Driveway Right-Turn Exit Lane
Secondary Entrance	50	34	70
Employee Entrance	61	36	63
Main Entrance	58	36	70

SIGHT DISTANCE

The City of Portland's Technical Standards require the following sight distance standards for a non-mobility roadway:

Sight Distance Standards

Speed Limit	Sight Distance
25 mph	200 feet
30	**250**
35	305
40	**360**
45	425
50	495
55	570

West Commercial Street is currently posted at 40mph across a portion of the frontage of the proposed site, with the remaining section posted at 30mph. The City's Technical Standards require an unobstructed sight distance of 250-feet for a posted speed limit of 30mph and 360-feet for a 40mph speed limit. A clear line-of-sight in excess of 500-feet was measured "*looking*" in both directions from each of the three proposed driveway entrances to the site.

SUMMARY

1. The proposed Veterans Administration's Community Based Outpatient Clinic (CBOC) development is expected to generate a total of **229** trips during the morning street peak hour and a slightly less volume of trips (**204** trips) in the evening peak hour of the street. Site trip projections for both the morning and afternoon peak hours of the clinic site are somewhat higher at 325 trips mid-morning of a typical weekday and 288 trips mid-afternoon of the proposed site.

2. An additional 44 trips in the morning peak hour and 36 trips in the evening peak hour are also generated by the surplus parking spaces in the proposed parking garage. The site design creates an additional 132 parking spaces not required by the Veterans Administration CBOC project. These extra parking spaces are currently being considered for accommodating existing parking needs of existing marine dependent businesses located along the Portland Waterfront. Trips generated by occupants of these extra site parking spaces, which will ingress and egress the proposed garage structure through the most easterly garage entrance, are existing trips presently found on Commercial Street. It is very likely that most of these vehicle trips occur during times other than the peak travel times of a typical day. However, to project a "*worse-case*" condition, trips generated by these extra garage spaces have been appropriately combined with the peak hour trip totals for proposed VA Clinic site.

3. MaineDOT's Accident Records Section provided the latest three-year (2016 through 2018) crash data for the section of West Commercial Street between Beach Street and the Fore River Parkway. The road safety data identifies a single intersection as a high crash location. MaineDOT considers any roadway intersection or segment a high crash location if both of the following criteria are met:
    - ***8 or more accidents***
    - ***A Critical Rate Factor greater than 1.00***

    As the data presented in the table shows, the intersection of West Commercial Street and Beach Street meets both of MaineDOT's criteria for identification of a high crash location with a total of 30 crashes and a corresponding critical rate factor of 1.17. MaineDOT provided a detailed vehicle collision diagram for the intersection that maps the crash patterns of each of the 30 vehicle collisions. That document visually presents two very distinct crash patterns occurring within the intersection; 18 crashes are "rear-end" crashes involving through vehicles on both approaches of West Commercial Street colliding with a second vehicle traveling in the same direction. A second crash pattern were "angle" collisions with a total of four incidences involving a motorist turning left from the eastbound approach of West Commercial Street to Beach Street stuck by a thru vehicle traveling westbound through the intersection. Further review of this intersection was completed based upon safety data provided by MaineDOT for the study years of 2017 through 2019. The more current safety data shows a similar but slightly lower number of crashes (28) and a lower critical rate factor of 1.09 than the data presented for the 2016 thru 2018 study period.

    Further review of traffic operations within the intersection were conducted to determine if intersection geometry and/or driver behaviors were potentially impacting the higher than expected level of traffic crashes. The findings of the field review show:
    - Average travel speeds of motorists traveling east on Commercial Street appear well in excess of the posted speed limit of 30mph.
    - Drivers turning left from Commercial Street onto Beach Street during the permissive signal phase routinely complete the desired turn using very short vehicle gaps, oftentimes forcing westbound thru Commercial Street traffic to either slow or stop in the intersection.
    - Very few motorists attempting the desired left-turn onto Beach Street are able to complete the turn safely during the evening peak hour with the excessively heavy traffic volumes traveling westbound on Commercial Street.
    - Motorists on the Beach Street approach make a right-turn on red onto Commercial Street using very short vehicle gaps in the thru traffic stream.
    - Motorists turning left from Commercial Street onto Beach Street were found "running the red light" generally during each traffic signal cycle, creating numerous near misses with opposing traffic. This observed safety condition is clearly affirmed with the high number of reported left-turn crashes occurring at the intersection.

Traffic Solutions would recommend four possible mitigation measures that with implementation, may potentially improve existing safety conditions.

Recommended Mitigation Measures

- Evaluate the long-term safety benefits of converting the Eastbound Commercial Street permissive/protected Beach Street left-turn traffic signal phase to a protected signal phase, only.
- Prohibit "*Right-Turn on Red*" turns from the Beach Street approach.
- Add a "*Red Signal Ahead*" Advance Traffic Light Warning Road Sign on the outside of the curve on the east approach of Commercial Street.
- Add improved directional signage on West Commercial Street in advance of the left-turn lane to Beach Street providing approaching drivers with clear destination information; such as, Casco Bay Bridge Left-Lane, Old Port Area Thru Lane.

West Commercial Street @ Valley Street Intersection: A detailed safety review of this signalized intersection was completed as directed by the City Staff and Traffic Peer Review Consultant. Although this location doesn't currently meet MaineDOT's criterion as a high crash location, the number of reported crashes is somewhat excessive. MaineDOT's most recent 2016 through 2018 report shows a total of 26 vehicle crashes occurred at the intersection. The primary crash pattern occurring in the intersection; again, similar to the findings at the Beach Street intersection, is "*rear-end*" crashes with a total of 9 crashes. A second crash pattern with a total of 6 crashes were "*angle*" crashes and a final crash pattern with a total of 5 reported crashes were "*side-swipe*" crashes involving motorists traveling in either the dual left-turn or right-turn lanes in the intersection.

Traffic Solutions conducted a field review of existing conditions at the intersection with the following comments:

- The dual left-turn lanes on the West Commercial Street approach lead approaching drivers unfamiliar with the area into a possible lane entrapment condition at the connecting signalized intersection at St. John Street @ Valley Street.
- White painted "*dot-lines*" guiding turning traffic through the intersection are not present in either the dual left-turn or right-turn lanes. Drivers using both dual lanes routinely were observed unknowingly straddling both lanes. This driver action occasionally creates near misses with aggressive approaching drivers.
- Lane markings on the Valley Street approach at West Commercial Street do not extend to the St. John Street intersection, which creates confusion as to the required lane utilization on the approach.

Traffic Solutions suggests the following possible mitigation measures for improving safety conditions at the intersection.

- Stripe white "*dot-dash*" lines through the intersection for both the dual left and right-turn traffic movements. This proposed striping improvement coupled with the following signing recommendation could potentially limit the number of side-swipe crashes occurring in the intersection.
- The City working with MaineDOT should consider adding advance directional lane utilization sign messages that inform approaching drivers which of the dual left-turn lanes to use in advance of the St. John Street/Danforth Street intersection.
- The entire length of the Valley Street approach at West Commercial Street extending back to the St. John Street intersection should be striped with appropriate white lane and symbol markings.
- The City may want to consider adding additional lane use symbols on all approaches to better inform approaching drivers of the intended lane uses on each intersection approach.

4. Each of the five study intersections are expected to operate overall at acceptable levels of service in the morning peak hour under projected 2022 pre-development travel conditions. Similar results are forecast during the PM peak hour at four of the five locations (Locations 2 thru 5), where forecast overall traffic operations meet acceptable levels of service. Traffic operation results determined for the final intersection at Commercial Street/Beach Street and the IMT Driveway entrance location are significantly different; whereby, thru traffic in both directions on Commercial Street will experience excessive vehicle delay, typical of Level of Service E/F travel conditions.

5. Two 2022 post-development travel conditions were tested to determine the expected operational impacts at each of the five study intersections. These travel conditions included: 1) 2022 Post-Development (Street Volumes) and 2) 2022 Post-development (Generator Volumes) for both peak hour time periods. The simulation model results show traffic operation conditions in the morning peak hour for both travel assignment conditions are very similar to the results determined for the 2022 pre-development travel conditions. [***The reader is cautioned that the post-development results reflect traffic signal timing optimization at each of the five study intersections. These traffic signal timing adjustments help minimize the overall traffic impacts generated by the added site traffic.***] Each intersection in the morning peak hour, under both described traffic loadings, will operate overall at Level of Service C or better travel conditions. Conditions found in the evening peak hour are also very similar to the results determined for the 2022 pre-development evening peak hour. Vehicle delay and level of service values determined for locations 2 thru 5 meet and/or exceed Level of Service C travel conditions. Again, traffic conditions measured for Location #1: Commercial Street/Beach Street/IMT Driveway Entrance intersection show excessive vehicle delay is expected under both forecast travel conditions.

   City Staff and Consultant asked that the traffic analyses include a sensitivity analysis of how the higher peak hour trip levels projected for the peak hour of the generator potentially impact operations at the study intersections. A second traffic assignment, which added more than 80 peak hours trips in both peak hour time periods, was tested concurrently with the analyses completed for post-development travel conditions based upon site trip generation for the street peak hour. A "side-by-side" comparison of the results of the dual 2022 post-development analyses shows that the added site trips included in the second 2022 post-development travel condition has no measurable additional impact at each of the five study intersections.

6. The results of the detailed capacity analysis completed for each of the three site driveway intersections demonstrates that acceptable levels of service are provided at each site entrance. Each driveway intersection is projected to operate at Level of Service A travel conditions.

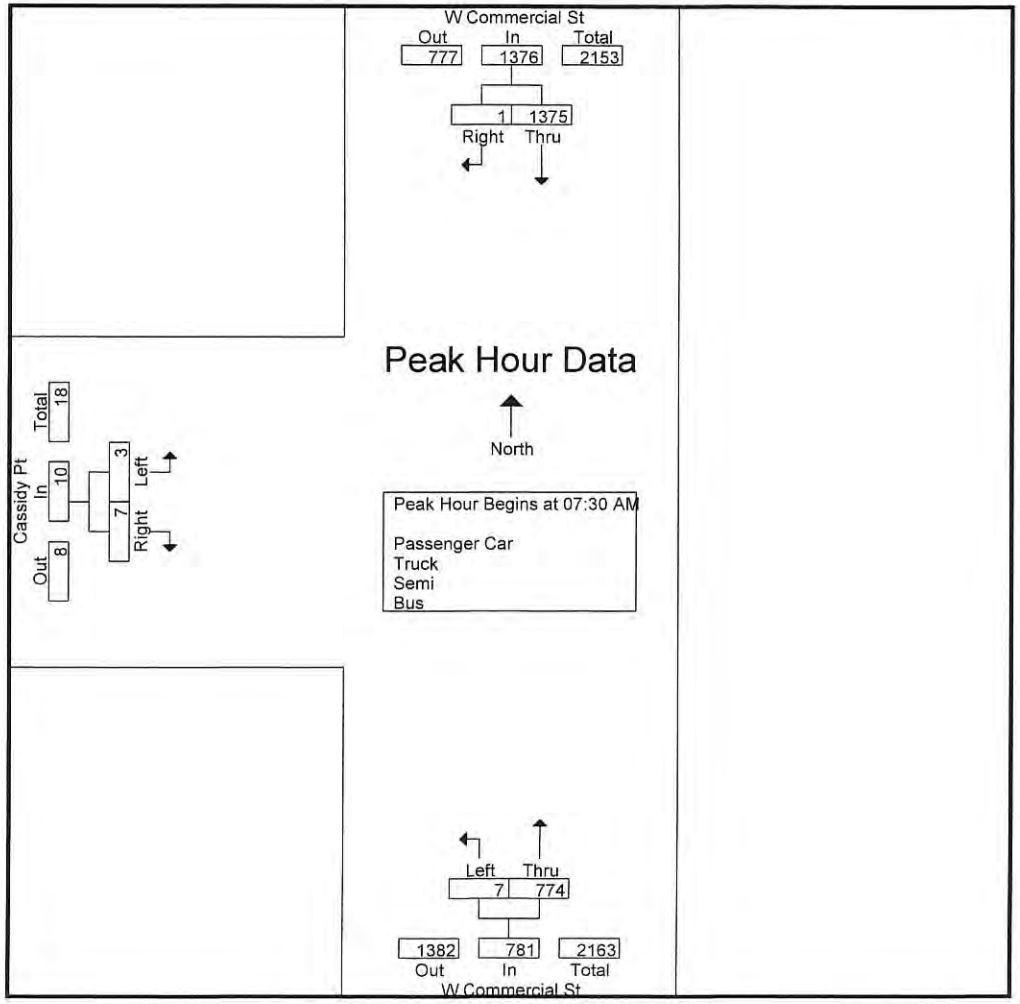
7. Generally, the model shows that for the post-development scenarios (as well as the model using trip generation based on the generator peak hour traffic) 95th percentile vehicle queue lengths of 2 to 3 cars are expected in each critical entry and exit lane. The exception occurs at the employee surface lot in the AM peak hour where left-turn entry trips to the parking lot peak at around 290-feet. Adequate vehicle storage should be provided in the CTWLTL lane of at least 300-feet to ensure sufficient storage is provided to accommodate the expected vehicle queue.

8. Acceptable vehicle sight distance is provided at each of the three proposed site driveway entrances. Sightline distances in excess of 500-feet was measured directionally at each of the three sight entrances.

Traffic Solutions
17 Mountview Drive
Gorham, ME 04038

Portland W Commercial & Cassidy Pt
January 9, 2020 AM
Sunny
Count by Jen Gilbert

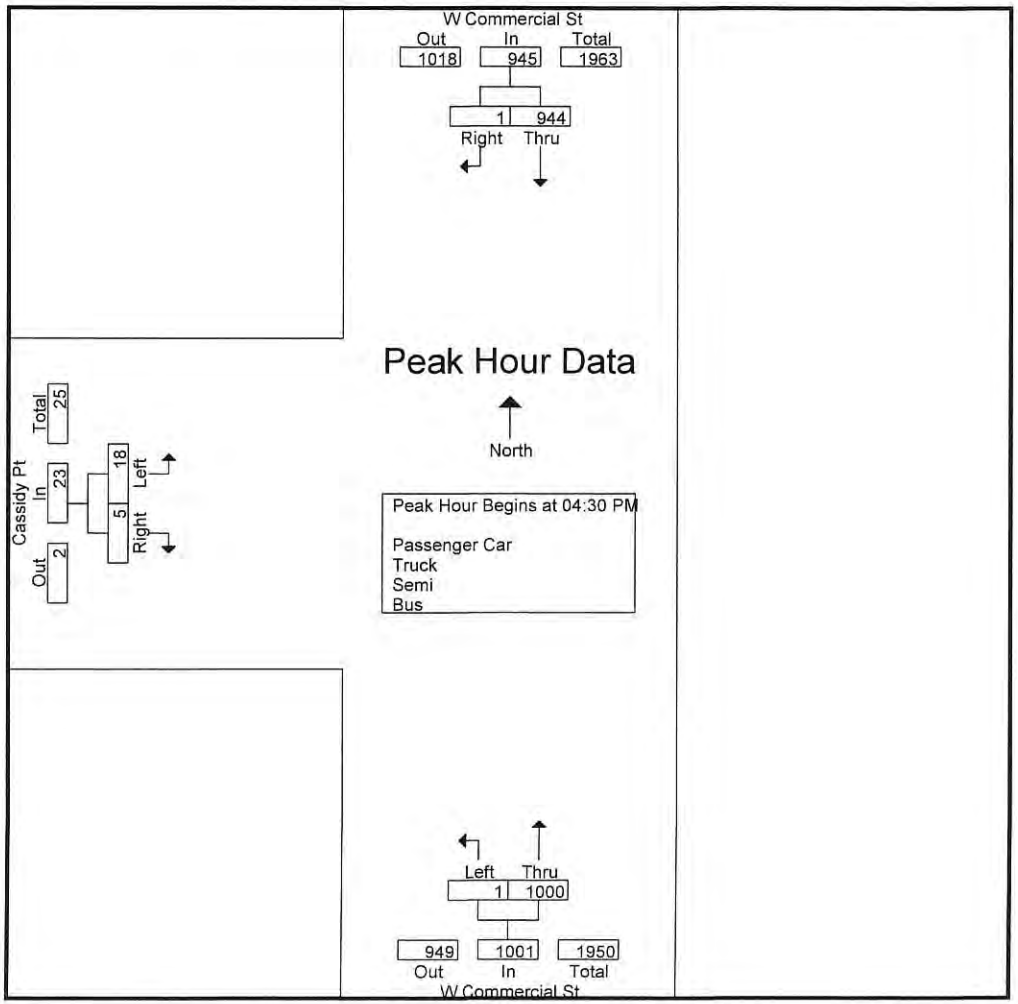
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Site Code : 00109201
Start Date : 1/9/2020
Page No : 6



Traffic Solutions
17 Mountview Drive
Gorham, ME 04038

Portland W Commercial & Cassidy Pt
January 9, 2020 PM
Sunny
Count by Jen Gilbert

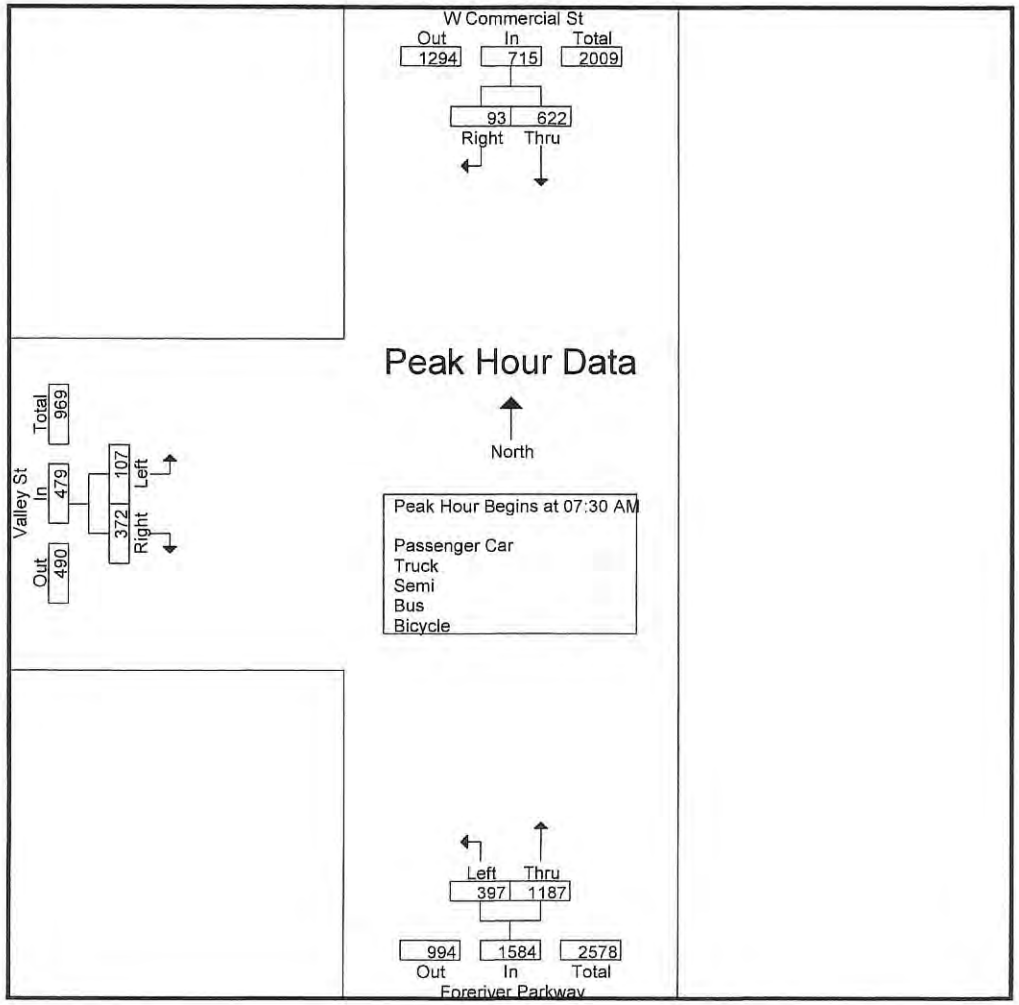
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Start Date : 1/9/2020
Page No : 6



Traffic Solutions
17 Mountview Drive
Gorham, ME 04038

Portland Foreriver, Valley & WCommercial
August 15, 2019 AM
Sunny
Count by Jen Gilbert

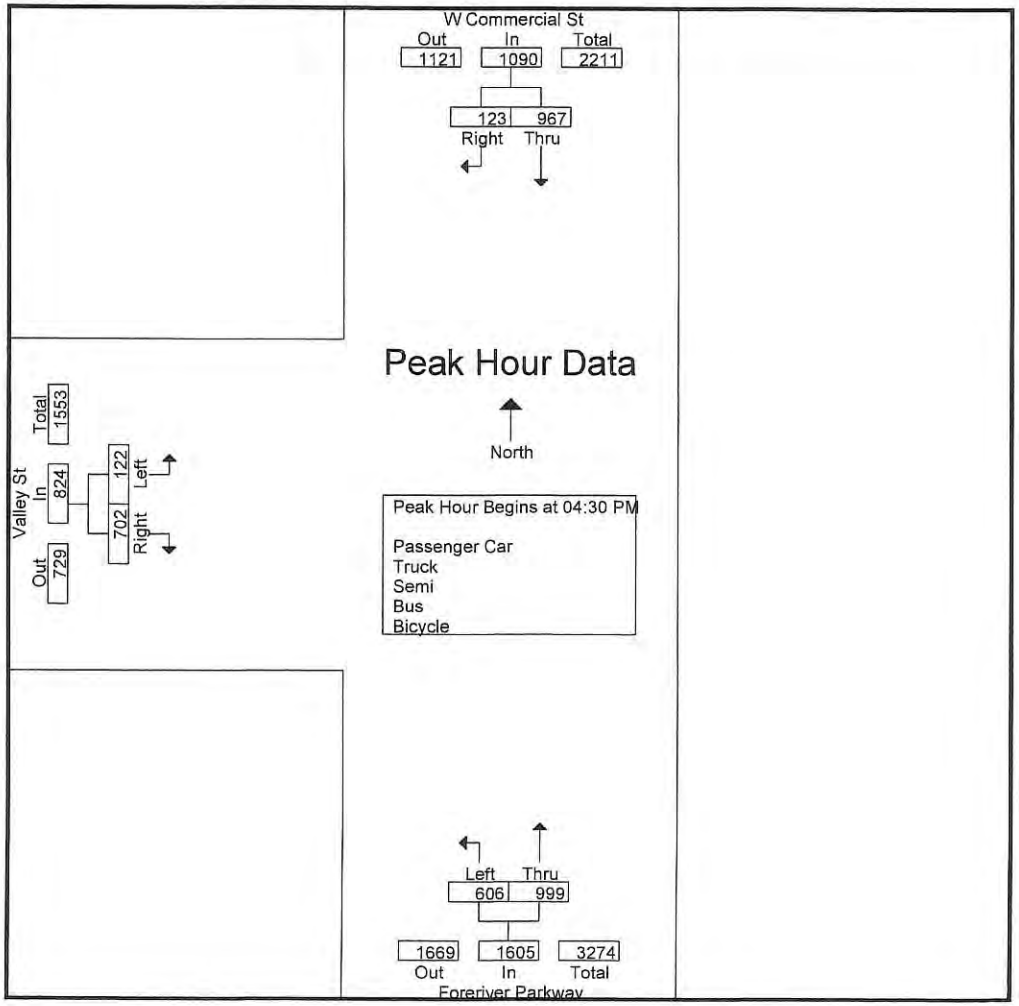
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Site Code : 00815191
Start Date : 8/15/2019
Page No : 6



Traffic Solutions
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Gorham, ME 04038

Portland Foreriver, Valley & WCommerical
August 15, 2019 PM
Sunny
Count by Jen Gilbert

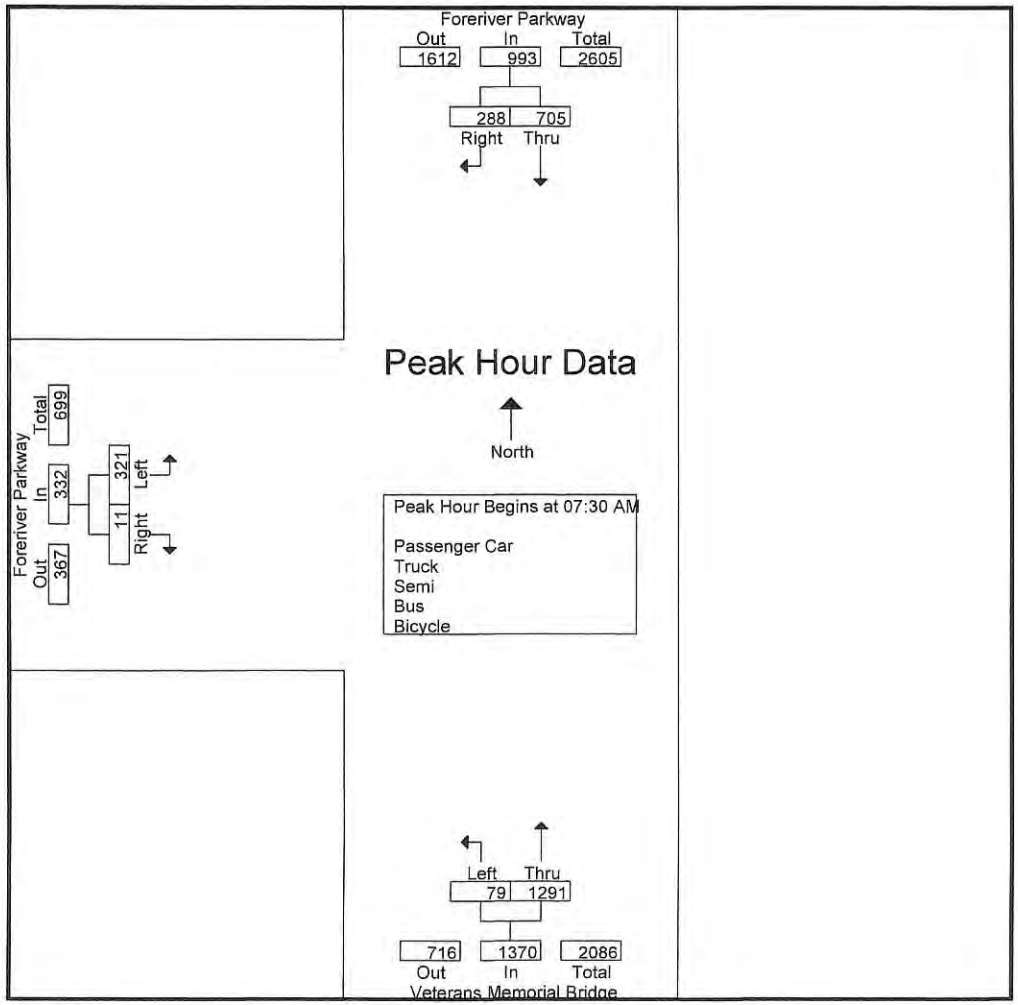
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Site Code : 00815192
Start Date : 8/15/2019
Page No : 6



Traffic Solutions
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Gorham, ME 04038

Portland Foreriver Parkway & Memorial Br
August 14, 2019 AM
Sunny
Count by Jen Gilbert

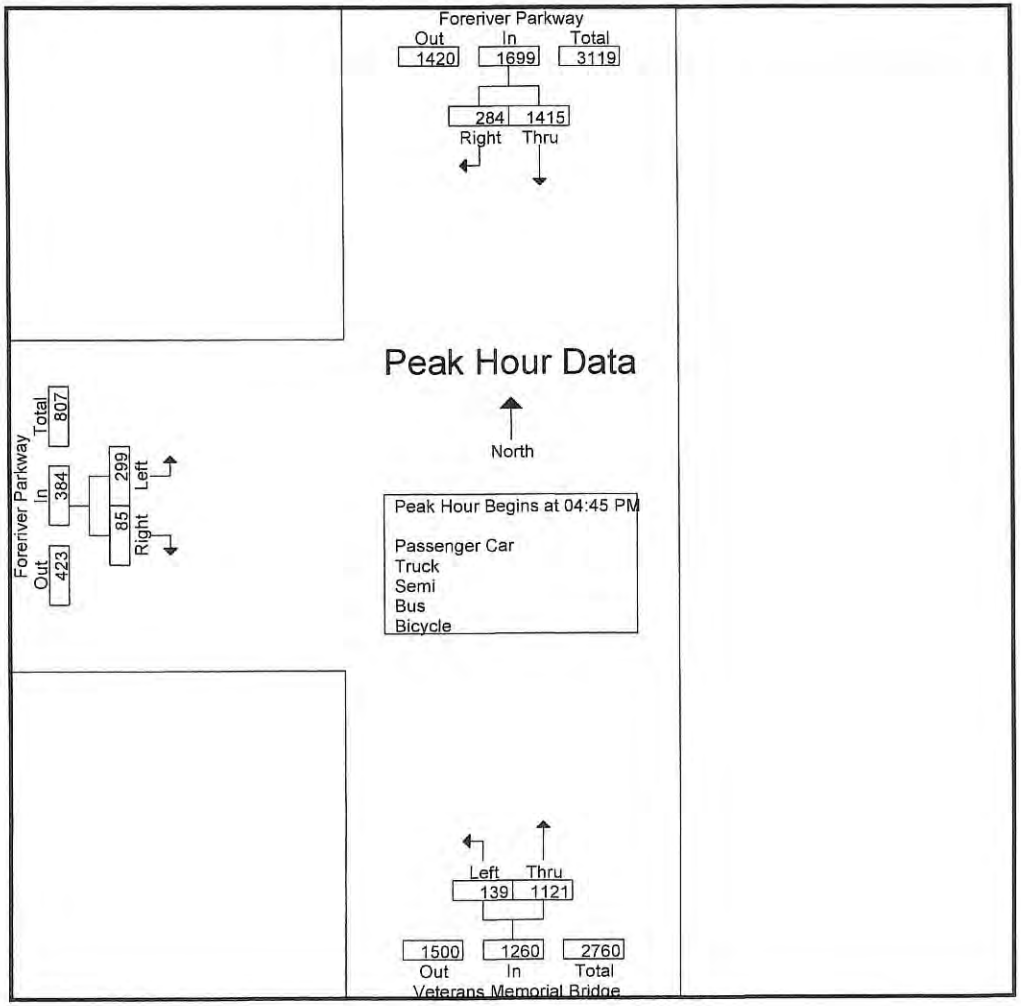
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Start Date : 8/14/2019
Page No : 6



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Gorham, ME 04038

Portland Foreriver Parkway & Memorial Br
August 14, 2019 PM
Sunny
Count by Jen Gilbert

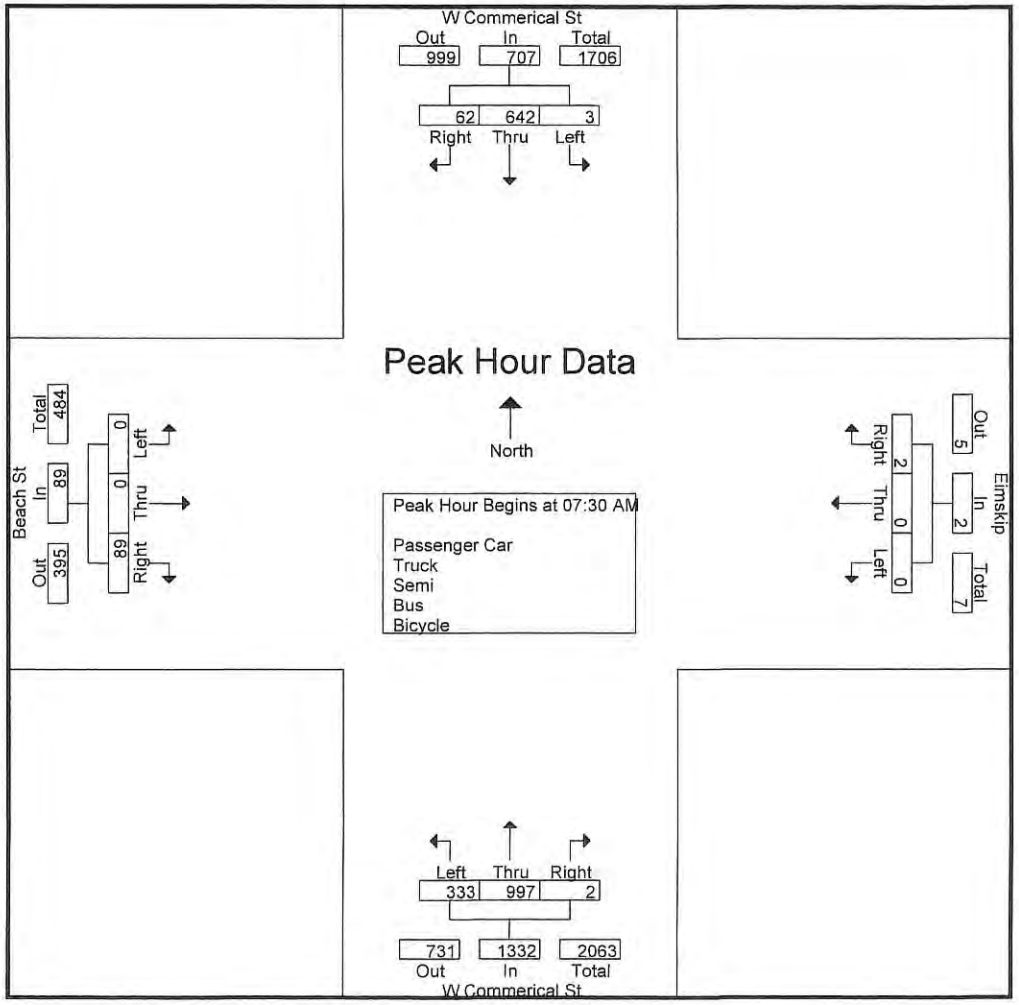
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Start Date : 8/14/2019
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Traffic Solutions
17 Mountview Drive
Gorham, ME 04038

Portland W Commerical & Beach St
August 13, 2019 AM
Light Rain
Count by Jen Gilbert

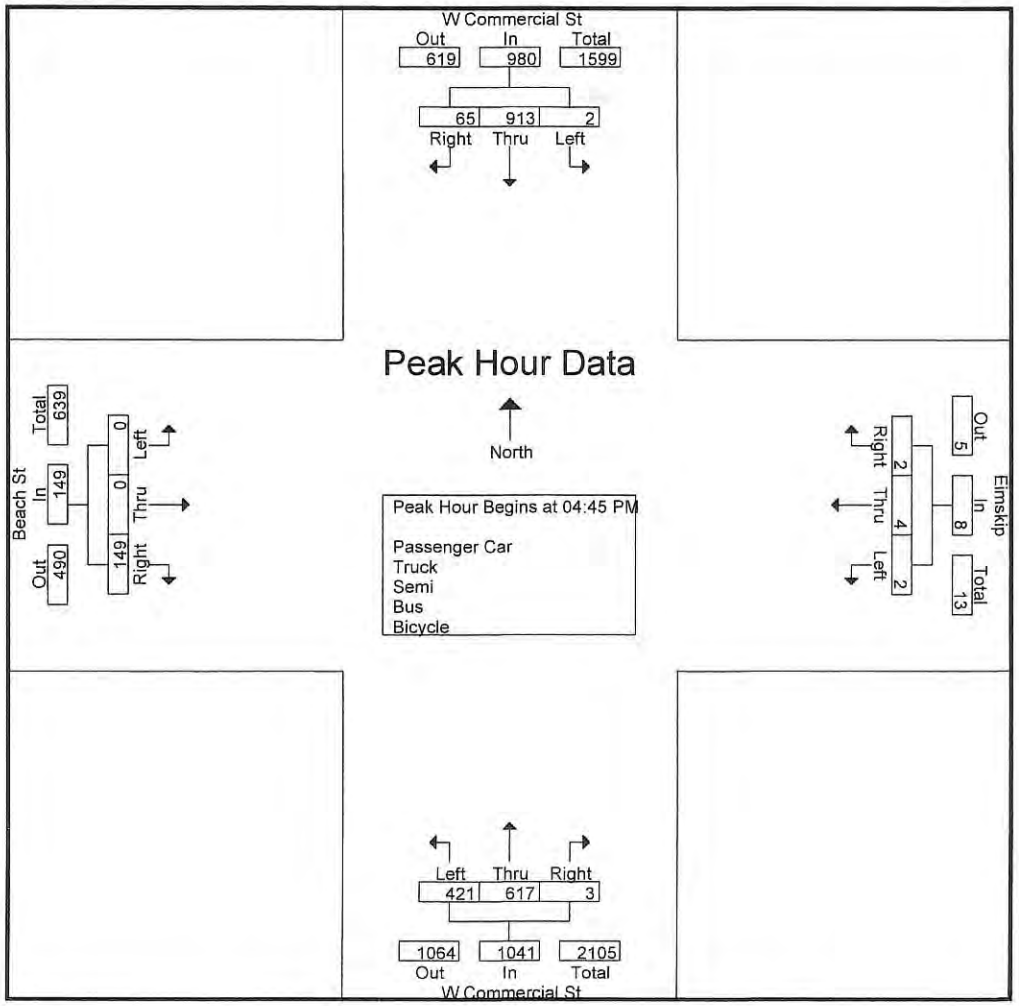
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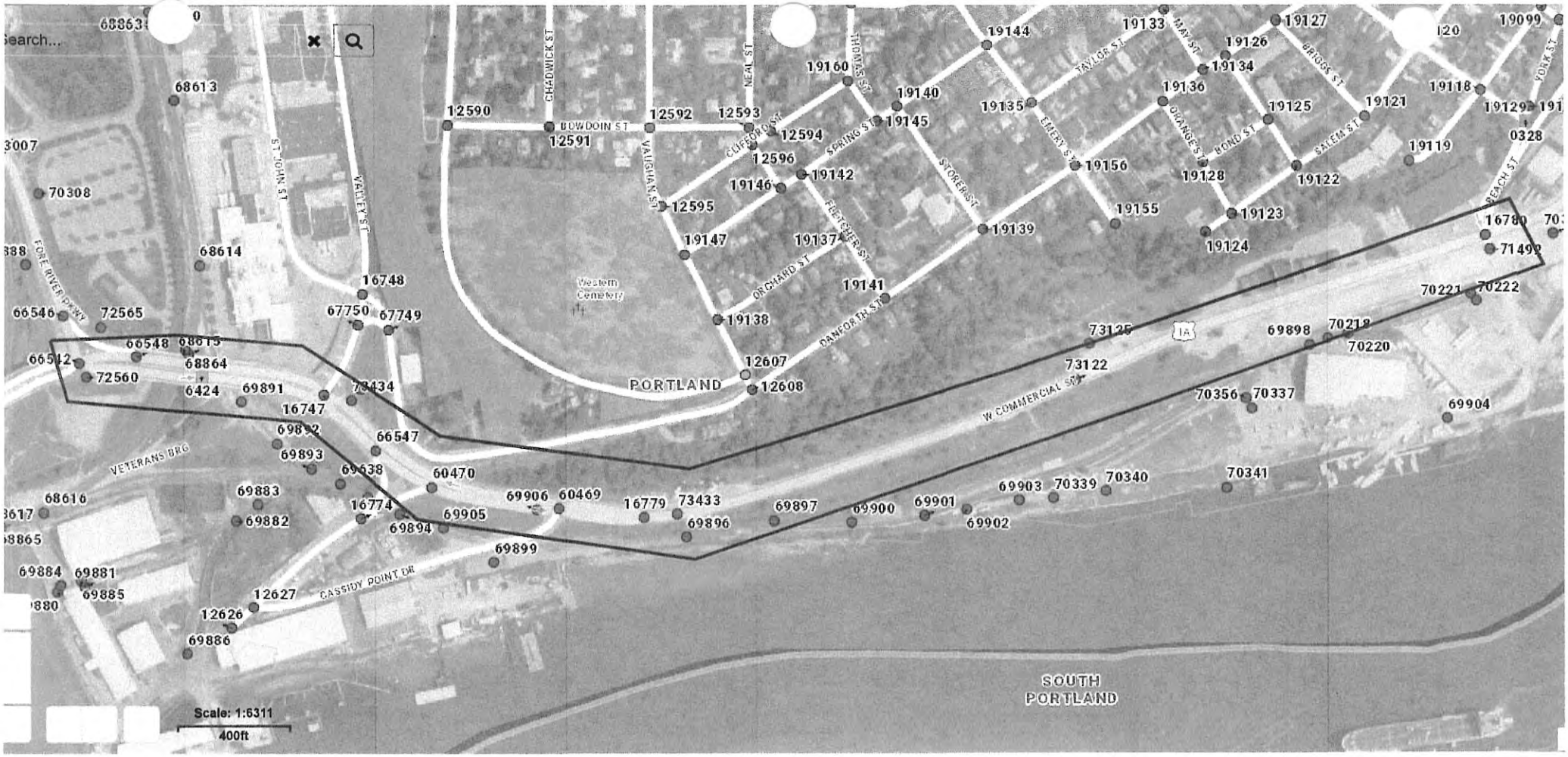


Traffic Solutions
17 Mountview Drive
Gorham, ME 04038

Portland W Commerical & Beach St
August 13, 2019 PM
Thunder Showers
Count by Jen Gilbert

File Name : Portland W Commercial St & Beach St 8-14-19 PM
Site Code : 00813192
Start Date : 8/13/2019
Page No : 6




Search...
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VALLEY ST
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FLETCHER ST
ORCHARD ST
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DANFORTH ST
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Western Cemetery
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PORTLAND
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W COMMERCIAL ST
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CASSIDY POINT DR
SOUTH PORTLAND
Scale: 1:6311
400ft

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary port

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I ☐ Section Detail ☑ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☐ 1320 Summary

REPORT DESCRIPTION

Portland: Rte 1/W Commercial St from intersection with Fore River Pkwy/Veterans Bridge (node 66542) to intersection with Beach St (node 16780)

REPORT PARAMETERS

Year 2016, Start Month 1 through Year 2018 End Month: 12

Route: **0001A**	Start Node: **66542**	Start Offset: **0**	☐ Exclude First Node
	End Node: **16780**	End Offset: **0**	☐ Exclude Last Node
Route: **001AS**	Start Node: **16779**	Start Offset: **0**	☑ Exclude First Node
	End Node: **60469**	End Offset: **0**	☑ Exclude Last Node
Route: **001AS**	Start Node: **60469**	Start Offset: **0**	☑ Exclude First Node
	End Node: **16747**	End Offset: **0**	☑ Exclude Last Node
Route: **001AS**	Start Node: **16747**	Start Offset: **0**	☑ Exclude First Node
	End Node: **66542**	End Offset: **0**	☑ Exclude Last Node

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
16747	0001A - 9.86	Int of FORE RIVER PKY VALLEY ST W COMMERCIAL ST	9	26	0	1	2	4	19	26.9	10.594	0.82	1.10	0.00
												Statewide Crash Rate:	0.73	
16780	0001A - 10.69	Int of BEACH ST ENT TO PORTLAND YACHT RAMP BEACI	9	30	1	0	2	9	18	40.0	7.273	1.37	1.18	1.17
												Statewide Crash Rate:	0.73	
16779	0001A - 10.10	Non Int W COMMERCIAL ST	2	0	0	0	0	0	0	0.0	7.676	0.00	0.34	0.00
												Statewide Crash Rate:	0.15	
66547	0001A - 9.91	Int of CASSIDY POINT DR W COMMERCIAL ST	2	0	0	0	0	0	0	0.0	4.020	0.00	0.40	0.00
												Statewide Crash Rate:	0.15	
73122	0001A - 10.40	Non Int W COMMERCIAL ST	2	0	0	0	0	0	0	0.0	3.818	0.00	0.40	0.00
												Statewide Crash Rate:	0.15	
66542	0001A - 9.70	Int of FORE RIVER PKY VETERANS BRIDGE	9	12	0	0	0	1	11	8.3	9.466	0.42	1.13	0.00
												Statewide Crash Rate:	0.73	
60469	0001A - 10.04	Int of CASSIDY POINT DR W COMMERCIAL ST	9	5	0	0	0	1	4	20.0	7.894	0.21	1.16	0.00
												Statewide Crash Rate:	0.73	
60470	0001A - 9.95	Int of CASSIDY POINT DR W COMMERCIAL ST	2	0	0	0	0	0	0	0.0	3.976	0.00	0.40	0.00
												Statewide Crash Rate:	0.15	
73433	0001A - 10.12	Non Int W COMMERCIAL ST	2	0	0	0	0	0	0	0.0	3.818	0.00	0.40	0.00
												Statewide Crash Rate:	0.15	
66548	001AS - 2.59	Int of FORE RIVER PKY RD INV 3209586	2	0	0	0	0	0	0	0.0	5.487	0.00	0.37	0.00
												Statewide Crash Rate:	0.15	
Study Years:	3.00	**NODE TOTALS:**		73	1	1	4	15	52	28.8	64.022	0.38	0.59	0.64

Crash Summary I

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
66542	16747	3140171	0 - 0.16	0001A - 9.70	0.16	2	3	0	0	0	1	2	33.3	0.00788	126.95	441.67	0.00
Int of FORE RIVER PKY VETERANS BRIDGE				US 1A											Statewide Crash Rate: 216.35		
16747	66547	3117392	0 - 0.05	0001A - 9.86	0.05	2	1	0	0	0	0	1	0.0	0.00201	165.82	621.35	0.00
Int of FORE RIVER PKY VALLEY ST W COMMERCIAL ST				US 1A											Statewide Crash Rate: 216.35		
66547	60470	3510989	0 - 0.04	0001A - 9.91	0.04	2	0	0	0	0	0	0	0.0	0.00158	0.00	660.91	0.00
Int of CASSIDY POINT DR W COMMERCIAL ST				US 1A											Statewide Crash Rate: 216.35		
60470	60469	3510990	0 - 0.09	0001A - 9.95	0.09	2	1	0	0	0	0	1	0.0	0.00363	91.93	533.67	0.00
Int of CASSIDY POINT DR W COMMERCIAL ST				US 1A											Statewide Crash Rate: 216.35		
60469	16779	3121916	0 - 0.06	0001A - 10.04	0.06	2	1	0	0	0	0	1	0.0	0.00231	144.01	599.04	0.00
Int of CASSIDY POINT DR W COMMERCIAL ST				US 1A											Statewide Crash Rate: 216.35		
16779	73433	4628058	0 - 0.02	0001A - 10.10	0.02	2	2	0	0	0	0	2	0.0	0.00153	436.48	666.98	0.00
Non Int W COMMERCIAL ST				US 1A											Statewide Crash Rate: 216.35		
73433	73122	4628059	0 - 0.28	0001A - 10.12	0.28	2	2	0	0	1	0	1	50.0	0.02138	31.18	358.15	0.00
Non Int W COMMERCIAL ST				US 1A											Statewide Crash Rate: 216.35		
73122	16780	4364862	0 - 0.29	0001A - 10.40	0.29	2	12	0	0	1	1	10	16.7	0.02215	180.61	355.82	0.00
Non Int W COMMERCIAL ST				US 1A											Statewide Crash Rate: 216.35		
16779	60469	3121919	0 - 0.06	001AS - 2.22	0.06	2	0	0	0	0	0	0	0.0	0.00227	0.00	602.24	0.00
Non Int W COMMERCIAL ST				US 1AS											Statewide Crash Rate: 216.35		
60469	16747	4628063	0 - 0.18	001AS - 2.28	0.18	2	0	0	0	0	0	0	0.0	0.00739	0.00	448.24	0.00
Int of CASSIDY POINT DR W COMMERCIAL ST				US 1AS											Statewide Crash Rate: 216.35		
16747	66548	3117394	0 - 0.13	001AS - 2.46	0.13	2	3	0	0	0	1	2	33.3	0.00713	140.18	451.99	0.00
Int of FORE RIVER PKY VALLEY ST W COMMERCIAL ST				US 1AS											Statewide Crash Rate: 216.35		
66548	66542	3121654	0 - 0.04	001AS - 2.59	0.04	2	0	0	0	0	0	0	0.0	0.00188	0.00	631.93	0.00
Int of FORE RIVER PKY RD INV 3209586				US 1AS											Statewide Crash Rate: 216.35		
Study Years: 3.00				**Section Totals:**	1.40		25	0	0	2	3	20	20.0	0.08114	102.70	291.09	0.35
				Grand Totals:	1.40		98	1	1	6	18	72	26.5	0.08114	402.57	415.60	0.97

H. C. L.
CRASH COLLISION DIAGRAM
DATA PACKAGE

COUNTY: **CUMBERLAND** TOWN: **PORTLAND**

LOW NODE: **16780** HIGH NODE: **0000** REGION: **1** U/R: **URBAN**

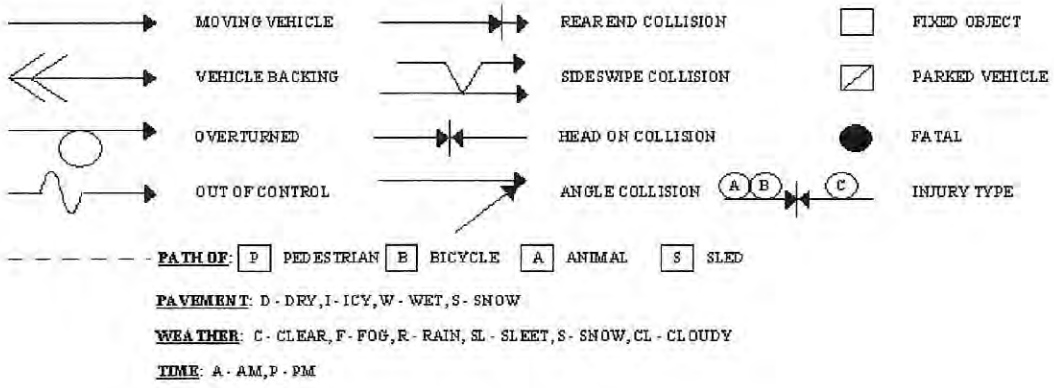
DESCRIPTION: **Jct of West Commercial St & Beach St/Yacht Club**

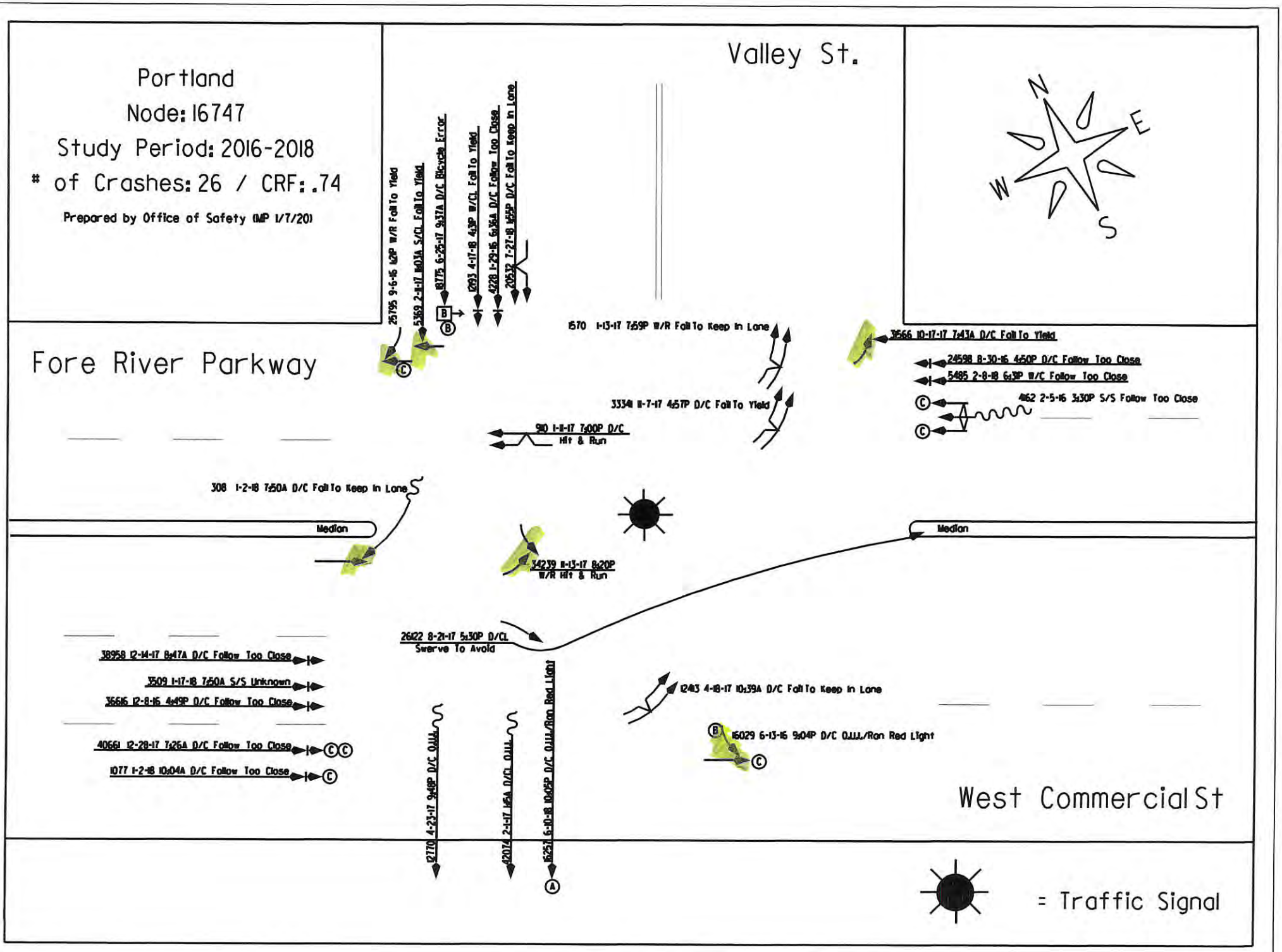
RTE # / RD #: **0001A** DATE DRAWN: **8/22/2019** DRAWN BY: **Michelle**

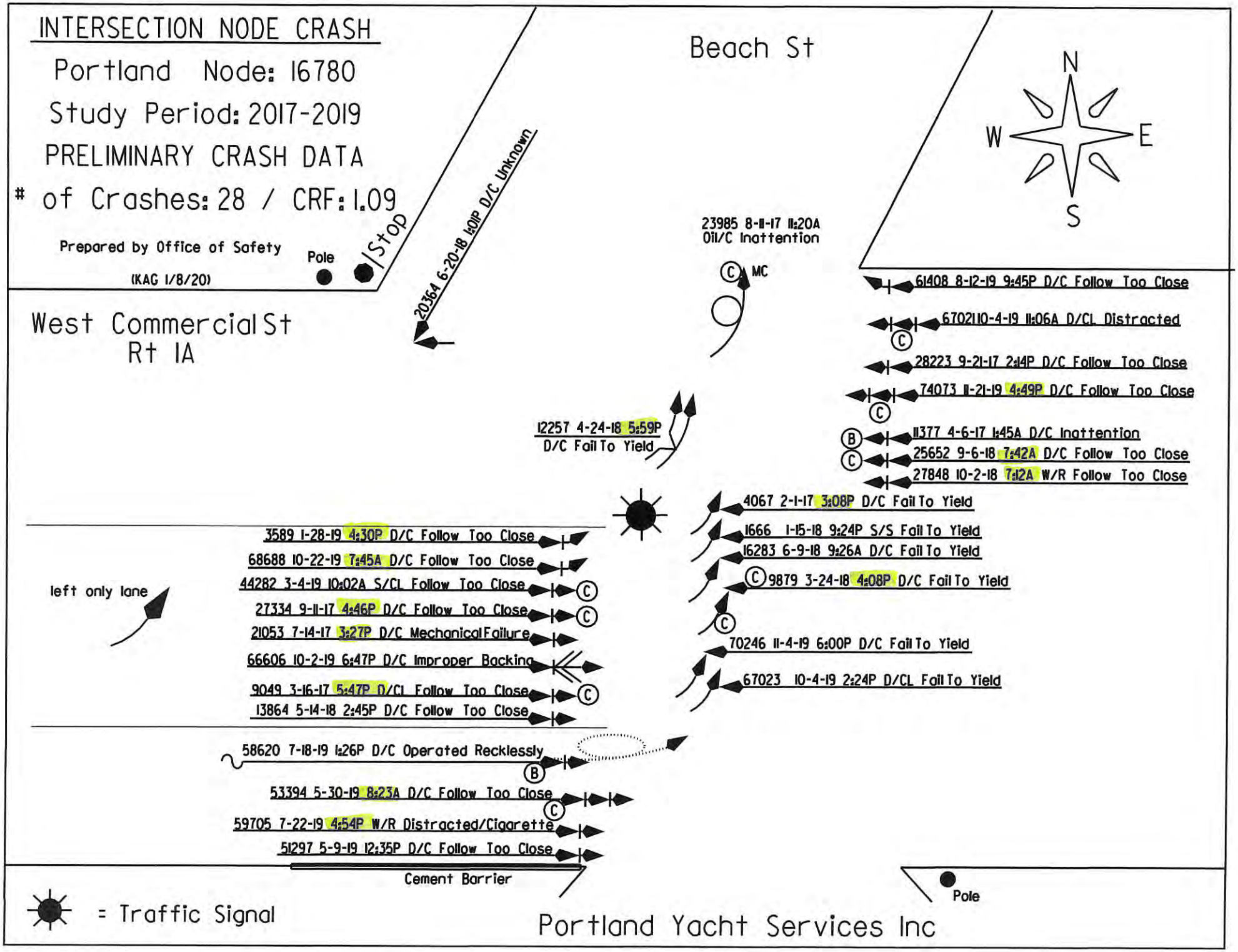
STUDY FROM: **1/1/2016** STUDY TO: **12/31/2018**

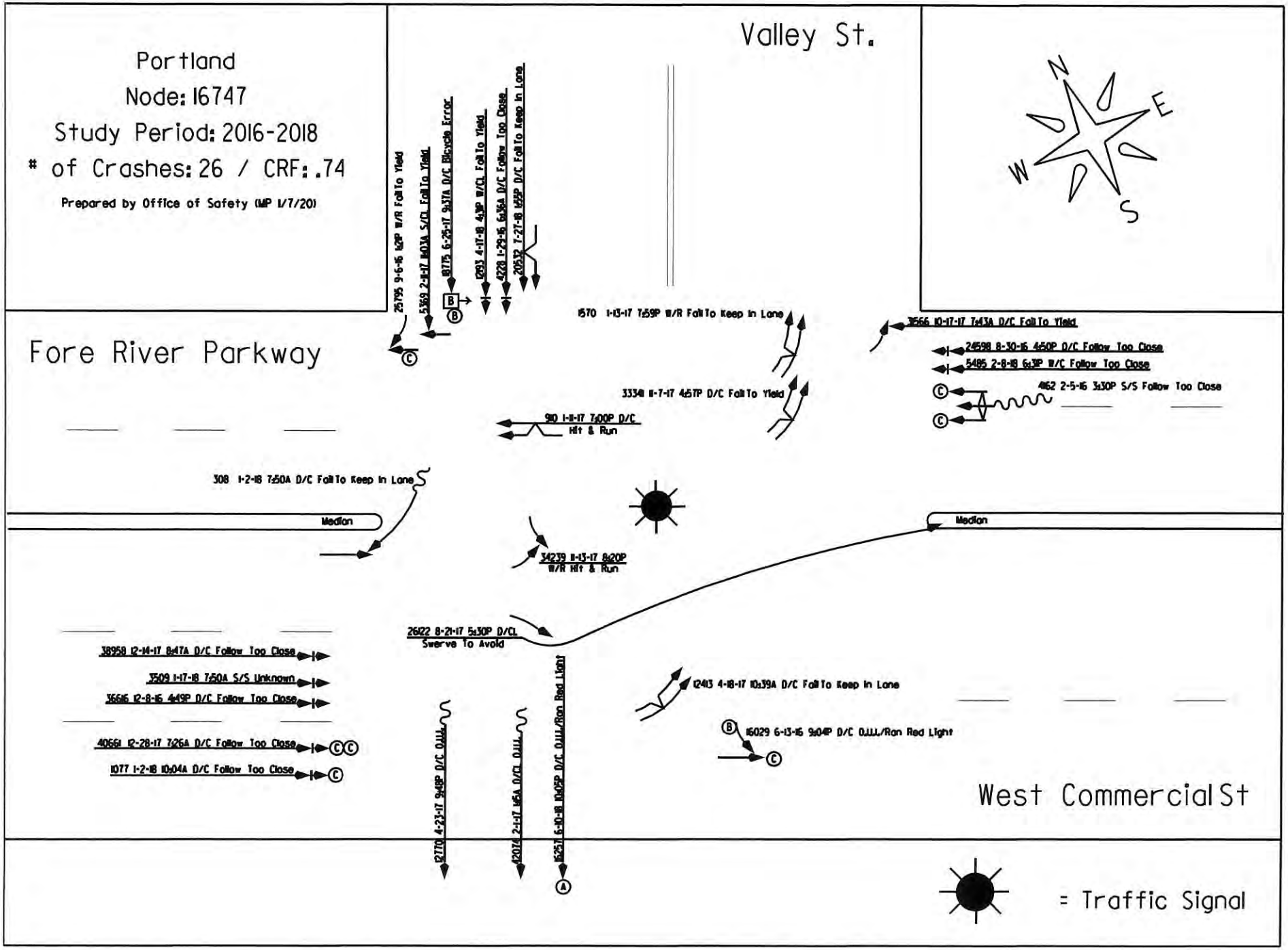
CRASH RATE: **1.37** CRF: **1.17** % INJURY: **40** TOTAL CRASHES: **30**

LEGEND




Portland
Node: 16747
Study Period: 2016-2018
# of Crashes: 26 / CRF: .74
Prepared by Office of Safety (MP 1/7/20)
Valley St.
Fore River Parkway
West Commercial St
N
E
S
W
25795 9-6-16 4:12P W/R Fail To Yield
5369 2-11-17 11:03A S/CL Fail To Yield
8775 6-25-17 9:17A D/C Bicycle Error
12893 4-17-18 4:39P W/CL Fail To Yield
4728 1-23-16 6:36A D/C Follow Too Close
20532 7-27-18 4:55P D/C Fail To Keep in Lane
1570 1-13-17 7:59P W/R Fail To Keep in Lane
33348 11-7-17 4:57P D/C Fail To Yield
980 1-11-17 7:00P D/C Hit & Run
35666 10-17-17 7:43A D/C Fail To Yield
24598 8-30-16 4:50P D/C Follow Too Close
5485 2-8-18 6:38P W/C Follow Too Close
462 2-5-16 3:30P S/S Follow Too Close
308 1-2-18 7:50A D/C Fail To Keep in Lane
Median
34239 11-13-17 8:20P W/R Hit & Run
Median
26622 8-21-17 5:30P D/CL Swerve To Avoid
38958 12-14-17 8:47A D/C Follow Too Close
3509 1-17-18 7:50A S/S Unknown
36616 12-8-16 4:49P D/C Follow Too Close
40661 12-28-17 7:25A D/C Follow Too Close
1077 1-2-18 10:04A D/C Follow Too Close
12483 4-18-17 10:39A D/C Fail To Keep in Lane
16029 6-13-16 9:04P D/C O.U.I./Ran Red Light
12770 4-23-17 9:48P D/C O.U.I.
12074 2-11-17 1:54A D/CL O.U.I.
16251 6-10-18 10:05P D/C O.U.I./Ran Red Light
= Traffic Signal


INTERSECTION NODE CRASH
Portland Node: 16780
Study Period: 2017-2019
PRELIMINARY CRASH DATA
# of Crashes: 28 / CRF: 1.09
Prepared by Office of Safety
(KAG 1/8/20)
Pole
Stop
20364 6-20-18 4:01P D/C Unknown
Beach St
N
W
E
S
23985 8-11-17 11:20A
Oil/C Inattention
C
MC
West Commercial St
Rt 1A
61408 8-12-19 9:45P D/C Follow Too Close
6702110-4-19 11:06A D/CL Distracted
28223 9-21-17 2:14P D/C Follow Too Close
74073 11-21-19 4:49P D/C Follow Too Close
12257 4-24-18 5:59P
D/C Fail To Yield
11377 4-6-17 1:45A D/C Inattention
25652 9-6-18 7:42A D/C Follow Too Close
27848 10-2-18 7:12A W/R Follow Too Close
4067 2-1-17 3:08P D/C Fail To Yield
1666 1-15-18 9:24P S/S Fail To Yield
16283 6-9-18 9:26A D/C Fail To Yield
9879 3-24-18 4:08P D/C Fail To Yield
3589 1-28-19 4:30P D/C Follow Too Close
68688 10-22-19 7:45A D/C Follow Too Close
44282 3-4-19 10:02A S/CL Follow Too Close
27334 9-11-17 4:46P D/C Follow Too Close
21053 7-14-17 3:27P D/C Mechanical Failure
66606 10-2-19 6:47P D/C Improper Backing
9049 3-16-17 5:47P D/CL Follow Too Close
13864 5-14-18 2:45P D/C Follow Too Close
left only lane
70246 11-4-19 6:00P D/C Fail To Yield
67023 10-4-19 2:24P D/CL Fail To Yield
58620 7-18-19 1:26P D/C Operated Recklessly
53394 5-30-19 8:23A D/C Follow Too Close
59705 7-22-19 4:54P W/R Distracted/Cigarette
51297 5-9-19 12:35P D/C Follow Too Close
Cement Barrier
Pole
= Traffic Signal
Portland Yacht Services Inc


Portland
Node: 16747
Study Period: 2016-2018
# of Crashes: 26 / CRF: .74
Prepared by Office of Safety (MP 1/7/20)
Valley St.
N
E
W
S
Fore River Parkway
25795 9-6-16 4:29P W/R Fail To Yield
5369 2-9-17 8:03A S/CL Fail To Yield
8175 6-25-17 9:37A D/C Bicycle Error
12193 4-17-18 4:19P W/CL Fail To Yield
4228 1-29-16 6:45A D/C Follow Too Close
20532 7-27-18 1:55P D/C Fail To Keep In Lane
1570 1-13-17 7:59P W/R Fail To Keep In Lane
3334 11-7-17 4:57P D/C Fail To Yield
980 1-11-17 7:00P D/C Hit & Run
35566 10-17-17 7:43A D/C Fail To Yield
24598 8-30-16 4:50P D/C Follow Too Close
5485 2-8-18 6:32P W/C Follow Too Close
462 2-5-16 3:30P S/S Follow Too Close
308 1-2-18 7:50A D/C Fail To Keep In Lane
Median
Median
34239 11-13-17 8:20P W/R Hit & Run
26622 8-21-17 5:30P D/CL Swerve To Avoid
38958 12-14-17 8:47A D/C Follow Too Close
3509 1-17-18 7:50A S/S Unknown
35686 12-8-16 4:49P D/C Follow Too Close
40661 12-28-17 7:26A D/C Follow Too Close
1077 1-2-18 10:04A D/C Follow Too Close
12413 4-18-17 10:39A D/C Fail To Keep In Lane
16029 6-13-16 9:04P D/C O.U.I./Ran Red Light
12770 4-23-17 9:48P D/C O.U.I.
12076 2-1-17 1:45A D/CL O.U.I.
15257 6-10-18 10:02P D/C O.U.I./Ran Red Light
West Commercial St
= Traffic Signal

Summary of All Intervals

Run Number	1	3	4	5	7	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	3741	3849	3878	3853	3866	3838
Vehs Exited	3680	3751	3817	3789	3832	3772
Starting Vehs	159	134	166	136	186	157
Ending Vehs	220	232	227	200	220	216
Travel Distance (mi)	4037	4044	4166	4136	4121	4101
Travel Time (hr)	224.3	218.2	243.8	225.3	225.3	227.4
Total Delay (hr)	83.0	76.2	97.7	80.4	80.9	83.6
Total Stops	7000	5985	7811	6409	6445	6730
Fuel Used (gal)	148.9	148.9	157.7	152.9	153.8	152.4

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	3	4	5	7	Avg
Vehs Entered	3741	3849	3878	3853	3866	3838
Vehs Exited	3680	3751	3817	3789	3832	3772
Starting Vehs	159	134	166	136	186	157
Ending Vehs	220	232	227	200	220	216
Travel Distance (mi)	4037	4044	4166	4136	4121	4101
Travel Time (hr)	224.3	218.2	243.8	225.3	225.3	227.4
Total Delay (hr)	83.0	76.2	97.7	80.4	80.9	83.6
Total Stops	7000	5985	7811	6409	6445	6730
Fuel Used (gal)	148.9	148.9	157.7	152.9	153.8	152.4

1: VMB & Fore River Pkwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.5	0.0	0.1	0.3
Total Del/Veh (s)	12.7	9.4	36.7	14.6

2: Fore River Pkwy/W. Commercial & Valley St Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	25.3	31.6	8.0	24.3

3: Valley St & St. John St/Danforth Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	3.7	1.4	0.0	1.9	1.4
Total Del/Veh (s)	33.2	33.9	6.7	19.9	21.8

4: Cassidy Point & W. Commercial Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.1	0.0	0.1	0.1
Total Del/Veh (s)	30.6	3.5	3.6	21.0

5: Ferry Terminal/Beach St & W. Commercial Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	0.9	0.1	0.2	0.3
Total Del/Veh (s)	20.4	24.2	35.1	22.7	21.8

Total Network Performance

Denied Del/Veh (s)	1.0
Total Del/Veh (s)	74.6

Intersection: 1: VMB & Fore River Pkwy

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	T	T	L	LR
Maximum Queue (ft)	164	332	280	192	196	248	238
Average Queue (ft)	70	185	155	90	113	154	118
95th Queue (ft)	144	294	260	168	181	228	209
Link Distance (ft)		1434	1434	768	768	1249	1249
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	90						
Storage Blk Time (%)	5	17					
Queuing Penalty (veh)	34	14					

Intersection: 2: Fore River Pkwy/W. Commercial & Valley St

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	R	L	R	R
Maximum Queue (ft)	207	361	393	370	358	394	182	131	120	100
Average Queue (ft)	86	193	238	199	189	223	47	45	53	35
95th Queue (ft)	172	306	378	337	314	344	119	101	93	71
Link Distance (ft)			768	768	830	830		304	304	304
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	350	350					400			
Storage Blk Time (%)		0	2			0				
Queuing Penalty (veh)		1	8			0				

Intersection: 3: Valley St & St. John St/Danforth

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	LT	TR
Maximum Queue (ft)	349	175	304	152	113	159	27	30
Average Queue (ft)	132	136	164	36	36	42	6	5
95th Queue (ft)	344	206	273	99	90	103	21	21
Link Distance (ft)	562		480		304	304	480	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		100		300				100
Storage Blk Time (%)	3	26	1					
Queuing Penalty (veh)	10	0	1					

Intersection: 4: Cassidy Point & W. Commercial

Movement	EB	EB	WB	WB	NE	NE
Directions Served	T	TR	LT	T	L	R
Maximum Queue (ft)	794	785	155	168	26	35
Average Queue (ft)	406	351	31	29	1	5
95th Queue (ft)	866	839	103	111	12	22
Link Distance (ft)	830	830		294	548	548
Upstream Blk Time (%)	0	0				
Queuing Penalty (veh)	2	1				
Storage Bay Dist (ft)			250			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: Ferry Terminal/Beach St & W. Commercial

Movement	EB	EB	B16	B16	WB	WB	NB	SB
Directions Served	L	TR	T		L	TR	R	TR
Maximum Queue (ft)	363	438	290	134	95	724	36	97
Average Queue (ft)	172	146	48	4	5	348	4	37
95th Queue (ft)	314	332	243	68	41	626	26	75
Link Distance (ft)		2975	294	294		1078	321	442
Upstream Blk Time (%)			1	0				
Queuing Penalty (veh)			5	0				
Storage Bay Dist (ft)	700				75			
Storage Blk Time (%)						29		
Queuing Penalty (veh)						1		

Network Summary

Network wide Queuing Penalty: 77

Intersection: 1: VMB & Fore River Pkwy

Phase	1	2	6	8	9
Movement(s) Served	EBL	WBT	EBT	SBL	Ped
Maximum Green (s)	18.0	30.0	53.0	21.0	6.5
Minimum Green (s)	5.0	20.0	20.0	8.0	5.0
Recall	None	C-Max	None	None	None
Avg. Green (s)	8.2	56.0	66.9	18.0	0.0
g/C Ratio	-0.01	NA	NA	NA	-0.01
Cycles Skipped (%)	16	0	0	0	100
Cycles @ Minimum (%)	24	0	0	0	0
Cycles Maxed Out (%)	0	100	100	42	0
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 2: Fore River Pkwy/W. Commercial & Valley St

Phase	1	2	3	6	9
Movement(s) Served	EBL	WBT	SBL	EBT	Ped
Maximum Green (s)	22.0	19.0	28.0	46.0	6.5
Minimum Green (s)	10.0	15.0	10.0	15.0	5.0
Recall	None	C-Max	Max	None	None
Avg. Green (s)	22.9	29.1	28.0	57.0	0.0
g/C Ratio	NA	NA	NA	NA	-0.01
Cycles Skipped (%)	0	0	0	0	100
Cycles @ Minimum (%)	3	0	0	0	0
Cycles Maxed Out (%)	16	100	100	100	0
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 3: Valley St & St. John St/Danforth

Phase	2	3	4	6	8
Movement(s) Served	NBTL	WBL	EBTL	SBTL	WBT
Maximum Green (s)	33.5	23.5	24.5	33.5	52.5
Minimum Green (s)	10.0	4.0	4.0	10.0	4.0
Recall	C-Max	None	None	Max	None
Avg. Green (s)	44.1	17.4	21.2	44.1	41.9
g/C Ratio	NA	NA	-0.01	NA	NA
Cycles Skipped (%)	0	0	3	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	100	27	32	100	32
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 4: Cassidy Point & W. Commercial

Phase	1	2	6	8
Movement(s) Served	WBL	EBT	WBTL	NEL
Maximum Green (s)	11.5	61.5	67.5	25.5
Minimum Green (s)	4.0	6.0	6.0	4.0
Recall	None	Min	None	None
Avg. Green (s)	0.0	404.7	404.7	9.4
g/C Ratio	-0.01	NA	NA	NA
Cycles Skipped (%)	100	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	0	100	86	0
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 5: Ferry Terminal/Beach St & W. Commercial

Phase	1	2	4	5	6	8
Movement(s) Served	WBL	EBTL	NBTL	EBL	WBTL	SBT
Maximum Green (s)	5.0	91.0	14.0	35.0	100.0	14.0
Minimum Green (s)	4.0	4.0	4.0	10.0	8.0	4.0
Recall	None	Min	None	None	Min	None
Avg. Green (s)	0.0	128.8	6.2	20.0	65.9	6.2
g/C Ratio	-0.01	-0.01	-0.01	-0.01	NA	-0.01
Cycles Skipped (%)	100	30	29	3	0	29
Cycles @ Minimum (%)	0	0	35	18	0	35
Cycles Maxed Out (%)	0	55	3	12	18	3
Cycles with Peds (%)	0	0	0	0	0	0

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

SimTraffic Simulation Summary
PreDev PM 02/05/2020

Summary of All Intervals

Run Number	3	4	5	6	7	Avg
Start Time	4:57	4:57	4:57	4:57	4:57	4:57
End Time	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4482	4407	4467	4474	4456	4459
Vehs Exited	4298	4260	4339	4286	4254	4288
Starting Vehs	208	210	187	223	197	204
Ending Vehs	392	357	315	411	399	375
Travel Distance (mi)	4518	4443	4518	4448	4453	4476
Travel Time (hr)	444.4	399.1	433.3	425.4	408.2	422.1
Total Delay (hr)	284.6	242.0	273.7	267.8	250.5	263.7
Total Stops	10743	8977	9449	10157	9596	9784
Fuel Used (gal)	214.3	201.7	211.7	208.7	203.2	207.9

Interval #0 Information Seeding

Start Time	4:57
End Time	5:00
Total Time (min)	3

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	3	4	5	6	7	Avg
Vehs Entered	4482	4407	4467	4474	4456	4459
Vehs Exited	4298	4260	4339	4286	4254	4288
Starting Vehs	208	210	187	223	197	204
Ending Vehs	392	357	315	411	399	375
Travel Distance (mi)	4518	4443	4518	4448	4453	4476
Travel Time (hr)	444.4	399.1	433.3	425.4	408.2	422.1
Total Delay (hr)	284.6	242.0	273.7	267.8	250.5	263.7
Total Stops	10743	8977	9449	10157	9596	9784
Fuel Used (gal)	214.3	201.7	211.7	208.7	203.2	207.9

1: VMB & Fore River Pkwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.6	0.0	0.2	0.3
Total Del/Veh (s)	19.7	21.8	36.3	22.6

2: Fore River Pkwy/W. Commercial & Valley St Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	36.0	59.6	14.4	38.2

3: Valley St & St. John St/Danforth Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	3.6	1.4	0.0	3.0	1.5
Total Del/Veh (s)	25.3	39.0	13.3	30.7	24.5

4: Cassidy Point & W. Commercial Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	13.4	2.8	17.0	8.6

5: Ferry Terminal/Beach St & W. Commercial Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	303.6	0.1	0.2	144.9
Total Del/Veh (s)	68.9	88.8	226.3	51.4	76.9

Total Network Performance

Denied Del/Veh (s)	87.5
Total Del/Veh (s)	115.3

Intersection: 1: VMB & Fore River Pkwy

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	L	T	T	T	T	R	L	LR
Maximum Queue (ft)	165	687	897	464	485	51	268	236
Average Queue (ft)	120	252	212	263	277	2	160	125
95th Queue (ft)	193	500	520	378	393	36	240	208
Link Distance (ft)		1434	1434	768	768	768	1249	1249
Upstream Blk Time (%)		0	0	0	0			
Queuing Penalty (veh)		0	0	0	0			
Storage Bay Dist (ft)	90							
Storage Blk Time (%)	17	26						
Queuing Penalty (veh)	123	38						

Intersection: 2: Fore River Pkwy/W. Commercial & Valley St

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	R	L	R	R
Maximum Queue (ft)	387	425	739	736	556	562	398	147	266	225
Average Queue (ft)	255	324	334	267	362	382	144	70	125	76
95th Queue (ft)	452	469	786	723	575	597	430	125	207	162
Link Distance (ft)			768	768	830	830		304	304	304
Upstream Blk Time (%)			2	1					0	0
Queuing Penalty (veh)			14	5					0	0
Storage Bay Dist (ft)	350	350					400			
Storage Blk Time (%)	4	22	0			17				
Queuing Penalty (veh)	22	131	1			27				

Intersection: 3: Valley St & St. John St/Danforth

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	LT	TR
Maximum Queue (ft)	340	175	412	197	198	276	158	139
Average Queue (ft)	90	126	232	37	75	113	50	59
95th Queue (ft)	283	201	380	145	153	229	120	114
Link Distance (ft)	562		480		304	304	480	
Upstream Blk Time (%)			1			0		
Queuing Penalty (veh)			0			0		
Storage Bay Dist (ft)		100		300				100
Storage Blk Time (%)	1	21	6				4	1
Queuing Penalty (veh)	4	1	5				4	2

Intersection: 4: Cassidy Point & W. Commercial

Movement	EB	EB	WB	WB	NE	NE
Directions Served	T	TR	LT	T	L	R
Maximum Queue (ft)	514	422	130	160	37	14
Average Queue (ft)	168	112	34	56	10	1
95th Queue (ft)	438	347	106	151	29	7
Link Distance (ft)	830	830		297	548	548
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			250			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: Ferry Terminal/Beach St & W. Commercial

Movement	EB	EB	B15	WB	WB	NB	NB	SB
Directions Served	L	TR	T	L	TR	LT	R	TR
Maximum Queue (ft)	775	2249	280	11	1119	76	52	222
Average Queue (ft)	562	550	21	1	1042	19	5	105
95th Queue (ft)	866	1727	155	8	1334	73	28	187
Link Distance (ft)		2972	297		1078	321	321	442
Upstream Blk Time (%)		0	0		43			
Queuing Penalty (veh)		4	2		0			
Storage Bay Dist (ft)	700			75				
Storage Blk Time (%)	14	6			36			
Queuing Penalty (veh)	116	26			1			

Network Summary

Network wide Queuing Penalty: 526

Intersection: 1: VMB & Fore River Pkwy

Phase	1	2	6	8	9
Movement(s) Served	EBL	WBT	EBT	SBL	Ped
Maximum Green (s)	10.0	34.0	29.0	20.0	6.5
Minimum Green (s)	5.0	20.0	20.0	8.0	5.0
Recall	None	C-Max	None	None	None
Avg. Green (s)	11.3	46.9	62.1	17.9	0.0
g/C Ratio	-0.01	NA	NA	NA	-0.01
Cycles Skipped (%)	5	0	0	0	100
Cycles @ Minimum (%)	8	0	0	0	0
Cycles Maxed Out (%)	3	100	100	58	0
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 2: Fore River Pkwy/W. Commercial & Valley St

Phase	1	2	3	6	9
Movement(s) Served	EBL	WBT	SBL	EBT	Ped
Maximum Green (s)	19.0	26.0	19.0	46.0	5.0
Minimum Green (s)	10.0	15.0	10.0	15.0	1.0
Recall	None	C-Max	None	None	None
Avg. Green (s)	29.2	27.0	18.9	61.1	0.0
g/C Ratio	NA	NA	NA	NA	-0.01
Cycles Skipped (%)	0	0	0	0	100
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	88	100	95	100	0
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 3: Valley St & St. John St/Danforth

Phase	2	3	4	6	8
Movement(s) Served	NBTL	WBL	EBTL	SBTL	WBT
Maximum Green (s)	28.5	24.5	23.5	28.5	52.5
Minimum Green (s)	10.0	4.0	4.0	10.0	4.0
Recall	C-Max	None	None	None	None
Avg. Green (s)	36.9	22.1	18.7	36.9	44.1
g/C Ratio	NA	NA	-0.01	NA	NA
Cycles Skipped (%)	0	0	3	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	100	63	38	100	38
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 4: Cassidy Point & W. Commercial

Phase	1	2	6	8
Movement(s) Served	WBL	EBT	WBTL	NEL
Maximum Green (s)	11.5	61.5	67.5	25.5
Minimum Green (s)	4.0	6.0	6.0	4.0
Recall	None	Min	None	None
Avg. Green (s)	0.0	167.6	167.6	9.4
g/C Ratio	-0.01	NA	NA	NA
Cycles Skipped (%)	100	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	0	88	59	0
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 5: Ferry Terminal/Beach St & W. Commercial

Phase	1	2	4	5	6	8
Movement(s) Served	WBL	EBTL	NBTL	EBL	WBTL	SBT
Maximum Green (s)	4.0	141.0	4.0	36.0	109.0	4.0
Minimum Green (s)	4.0	4.0	4.0	10.0	8.0	4.0
Recall	None	Min	None	None	Min	None
Avg. Green (s)	0.0	155.5	4.0	36.2	108.4	4.0
g/C Ratio	-0.01	NA	NA	NA	NA	NA
Cycles Skipped (%)	100	0	0	0	0	0
Cycles @ Minimum (%)	0	0	100	0	0	100
Cycles Maxed Out (%)	0	95	100	95	95	100
Cycles with Peds (%)	0	0	0	0	0	0

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0

Summary of All Intervals

Run Number	2	3	5	6	7	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4202	4229	4115	4175	4153	4176
Vehs Exited	4112	4144	4038	4109	4094	4100
Starting Vehs	153	154	161	180	158	160
Ending Vehs	243	239	238	246	217	232
Travel Distance (mi)	4343	4338	4235	4329	4290	4307
Travel Time (hr)	229.6	233.7	224.9	251.8	226.0	233.2
Total Delay (hr)	77.1	81.7	76.2	100.0	75.6	82.1
Total Stops	7030	7211	6993	8879	6842	7389
Fuel Used (gal)	159.6	160.3	155.7	165.6	157.5	159.7

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	2	3	5	6	7	Avg
Vehs Entered	4202	4229	4115	4175	4153	4176
Vehs Exited	4112	4144	4038	4109	4094	4100
Starting Vehs	153	154	161	180	158	160
Ending Vehs	243	239	238	246	217	232
Travel Distance (mi)	4343	4338	4235	4329	4290	4307
Travel Time (hr)	229.6	233.7	224.9	251.8	226.0	233.2
Total Delay (hr)	77.1	81.7	76.2	100.0	75.6	82.1
Total Stops	7030	7211	6993	8879	6842	7389
Fuel Used (gal)	159.6	160.3	155.7	165.6	157.5	159.7

1: VMB & Fore River Pkwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.5	0.0	0.2	0.3
Total Del/Veh (s)	12.6	7.3	39.4	14.5

2: Fore River Pkwy/W. Commercial & Valley St Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	16.5	16.9	12.2	15.9

3: Valley St & St. John St/Danforth Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	3.6	1.4	0.0	1.7	1.5
Total Del/Veh (s)	27.6	33.6	7.3	19.4	21.0

4: Cassidy Point & W. Commercial Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.9	0.0	0.1	0.6
Total Del/Veh (s)	22.7	2.0	12.6	15.6

5: Ferry Terminal/Beach St & W. Commercial Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.9	0.1	0.2	0.3
Total Del/Veh (s)	11.5	22.3	18.7	19.6	15.5

15: W. Commercial & Sec, Ent. Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	1.5	4.5	9.8	2.7

17: W. Commercial & Employee Lot Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	3.4	0.0	0.1	2.2
Total Del/Veh (s)	9.2	2.6	10.3	7.0

19: W. Commercial & Main Ent. Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	2.9	1.3	10.2	2.4

Total Network Performance

Denied Del/Veh (s)	2.7
Total Del/Veh (s)	65.6

Intersection: 1: VMB & Fore River Pkwy

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	T	T	L	LR
Maximum Queue (ft)	165	311	303	134	143	278	260
Average Queue (ft)	74	180	164	68	89	170	143
95th Queue (ft)	148	280	263	118	132	255	233
Link Distance (ft)		1434	1434	768	768	1249	1249
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	90						
Storage Blk Time (%)	5	17					
Queuing Penalty (veh)	37	13					

Intersection: 2: Fore River Pkwy/W. Commercial & Valley St

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	R	L	R	R
Maximum Queue (ft)	222	291	314	346	272	276	95	197	142	113
Average Queue (ft)	96	174	151	179	130	162	39	86	75	50
95th Queue (ft)	187	268	279	293	220	246	81	164	122	90
Link Distance (ft)			768	768	830	830		304	304	304
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	350	350					400			
Storage Blk Time (%)		0	0							
Queuing Penalty (veh)		2	0							

Intersection: 3: Valley St & St. John St/Danforth

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	LT	TR
Maximum Queue (ft)	359	175	289	107	102	146	35	30
Average Queue (ft)	121	139	167	34	28	49	7	5
95th Queue (ft)	316	204	264	79	74	102	23	23
Link Distance (ft)	562		480		304	304	480	
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)		100		300				100
Storage Blk Time (%)	2	23	0					
Queuing Penalty (veh)	6	0	0					

Intersection: 4: Cassidy Point & W. Commercial

Movement	EB	EB	WB	WB	NE	NE
Directions Served	T	TR	LT	T	L	R
Maximum Queue (ft)	635	668	96	135	21	49
Average Queue (ft)	220	266	22	29	1	8
95th Queue (ft)	628	677	71	101	10	33
Link Distance (ft)	830	830		308	548	548
Upstream Blk Time (%)	0	0				
Queuing Penalty (veh)	1	3				
Storage Bay Dist (ft)			250			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: Ferry Terminal/Beach St & W. Commercial

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	R	R
Maximum Queue (ft)	307	278	52	618	56	96
Average Queue (ft)	142	131	5	297	3	40
95th Queue (ft)	238	254	35	523	27	80
Link Distance (ft)	1239	1239		1078	321	442
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			75			
Storage Blk Time (%)				30		
Queuing Penalty (veh)				1		

Intersection: 15: W. Commercial & Sec, Ent.

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (ft)	79	15	27	39
Average Queue (ft)	25	1	3	9
95th Queue (ft)	60	9	18	32
Link Distance (ft)	341	1239	465	465
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 17: W. Commercial & Employee Lot

Movement	EB	EB	B21	B21	WB	SB	SB
Directions Served	L	T	T	T	TR	L	R
Maximum Queue (ft)	435	482	361	342	9	29	39
Average Queue (ft)	76	244	159	198	0	4	12
95th Queue (ft)	290	618	403	429	4	19	36
Link Distance (ft)	385	385	308	308	792	515	515
Upstream Blk Time (%)	1	6	2	5			
Queuing Penalty (veh)	5	51	17	45			
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 19: W. Commercial & Main Ent.

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (ft)	79	8	29	42
Average Queue (ft)	25	0	4	15
95th Queue (ft)	59	4	20	40
Link Distance (ft)	792	341	491	491
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 182

Intersection: 1: VMB & Fore River Pkwy

Phase	1	2	6	8	9
Movement(s) Served	EBL	WBT	EBT	SBL	Ped
Maximum Green (s)	10.0	40.5	55.5	20.0	5.0
Minimum Green (s)	5.0	20.0	20.0	8.0	5.0
Recall	None	C-Max	None	None	None
Avg. Green (s)	8.4	55.3	66.6	18.3	0.0
g/C Ratio	-0.01	NA	NA	NA	-0.01
Cycles Skipped (%)	14	0	0	0	100
Cycles @ Minimum (%)	22	0	0	0	0
Cycles Maxed Out (%)	0	100	100	66	0
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 2: Fore River Pkwy/W. Commercial & Valley St

Phase	1	2	3	6	9
Movement(s) Served	EBL	WBT	SBL	EBT	Ped
Maximum Green (s)	17.0	36.0	17.5	58.0	5.0
Minimum Green (s)	10.0	15.0	10.0	15.0	5.0
Recall	None	C-Max	None	None	None
Avg. Green (s)	21.4	43.9	15.3	69.6	0.0
g/C Ratio	NA	NA	NA	NA	-0.01
Cycles Skipped (%)	0	0	0	0	100
Cycles @ Minimum (%)	0	0	8	0	0
Cycles Maxed Out (%)	16	100	51	100	0
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 3: Valley St & St. John St/Danforth

Phase	2	3	4	6	8
Movement(s) Served	NBTL	WBL	EBTL	SBTL	WBT
Maximum Green (s)	30.5	23.5	27.5	30.5	55.5
Minimum Green (s)	10.0	4.0	4.0	10.0	4.0
Recall	C-Max	None	None	None	None
Avg. Green (s)	42.3	18.0	22.9	42.3	43.9
g/C Ratio	NA	NA	-0.01	NA	NA
Cycles Skipped (%)	0	0	3	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	100	27	31	100	30
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 4: Cassidy Point & W. Commercial

Phase	1	2	6	8
Movement(s) Served	WBL	EBT	WBTL	NEL
Maximum Green (s)	4.0	61.0	71.5	4.5
Minimum Green (s)	4.0	6.0	6.0	4.0
Recall	None	Min	None	None
Avg. Green (s)	0.0	263.1	263.1	4.5
g/C Ratio	-0.01	NA	NA	NA
Cycles Skipped (%)	100	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	0	91	64	100
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 5: Ferry Terminal/Beach St & W. Commercial

Phase	1	2	4	5	6	8
Movement(s) Served	WBL	EBTL	NBTL	EBL	WBTL	SBR
Maximum Green (s)	4.0	64.0	4.0	15.0	53.0	4.0
Minimum Green (s)	4.0	4.0	4.0	10.0	8.0	4.0
Recall	None	Min	None	None	Min	None
Avg. Green (s)	4.0	95.3	4.0	13.5	48.4	4.0
g/C Ratio	-0.01	-0.01	-0.01	-0.01	NA	-0.01
Cycles Skipped (%)	98	30	29	4	0	29
Cycles @ Minimum (%)	2	0	71	20	0	71
Cycles Maxed Out (%)	2	66	71	51	61	71
Cycles with Peds (%)	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	3	4	5	6	Avg
Start Time	4:57	4:57	4:57	4:57	4:57	4:57
End Time	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4589	4595	4568	4480	4689	4587
Vehs Exited	4472	4484	4414	4411	4522	4460
Starting Vehs	186	186	222	225	198	208
Ending Vehs	303	297	376	294	365	325
Travel Distance (mi)	4561	4619	4511	4555	4653	4580
Travel Time (hr)	446.7	424.2	463.1	419.8	423.2	435.4
Total Delay (hr)	285.0	261.0	302.9	258.9	258.7	273.3
Total Stops	9144	8479	9245	8061	9352	8854
Fuel Used (gal)	214.7	212.0	217.6	208.5	212.5	213.0

Interval #0 Information Seeding

Start Time	4:57
End Time	5:00
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	3	4	5	6	Avg
Vehs Entered	4589	4595	4568	4480	4689	4587
Vehs Exited	4472	4484	4414	4411	4522	4460
Starting Vehs	186	186	222	225	198	208
Ending Vehs	303	297	376	294	365	325
Travel Distance (mi)	4561	4619	4511	4555	4653	4580
Travel Time (hr)	446.7	424.2	463.1	419.8	423.2	435.4
Total Delay (hr)	285.0	261.0	302.9	258.9	258.7	273.3
Total Stops	9144	8479	9245	8061	9352	8854
Fuel Used (gal)	214.7	212.0	217.6	208.5	212.5	213.0

1: VMB & Fore River Pkwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.6	0.0	0.2	0.3
Total Del/Veh (s)	18.9	14.0	81.0	24.0

2: Fore River Pkwy/W. Commercial & Valley St Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	44.4	28.6	22.1	34.3

3: Valley St & St. John St/Danforth Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	3.6	1.2	0.0	3.1	1.4
Total Del/Veh (s)	36.5	42.9	10.6	38.2	27.8

4: Cassidy Point & W. Commercial Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	7.5	3.0	10.3	5.4

5: Ferry Terminal/Beach St & W. Commercial Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	347.6	0.1	0.2	165.8
Total Del/Veh (s)	42.2	95.5	86.2	45.6	65.1

15: W. Commercial & Sec, Ent. Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	1.7	5.1	25.4	3.7

17: W. Commercial & Employee Lot Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	3.6	2.8	24.8	3.7

19: W. Commercial & Main Ent. Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	3.0	1.4	25.0	2.7

Total Network Performance

Denied Del/Veh (s)	96.8
Total Del/Veh (s)	107.3

Intersection: 1: VMB & Fore River Pkwy

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	T	T	L	LR
Maximum Queue (ft)	165	561	509	280	292	481	450
Average Queue (ft)	118	235	194	191	205	252	220
95th Queue (ft)	192	416	364	263	274	509	483
Link Distance (ft)		1434	1434	768	768	1249	1249
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	90						
Storage Blk Time (%)	25	22					
Queuing Penalty (veh)	176	32					

Intersection: 2: Fore River Pkwy/W. Commercial & Valley St

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	R	L	R	R
Maximum Queue (ft)	387	425	716	691	364	398	117	225	317	311
Average Queue (ft)	323	385	461	316	263	286	52	103	184	123
95th Queue (ft)	500	491	962	790	365	394	102	189	283	238
Link Distance (ft)			768	768	830	830		304	304	304
Upstream Blk Time (%)			5	0					0	0
Queuing Penalty (veh)			48	3					1	1
Storage Bay Dist (ft)	350	350					400			
Storage Blk Time (%)	3	47	0			0				
Queuing Penalty (veh)	19	282	1			0				

Intersection: 3: Valley St & St. John St/Danforth

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	LT	TR
Maximum Queue (ft)	366	175	443	375	186	172	238	147
Average Queue (ft)	152	146	254	46	59	70	57	73
95th Queue (ft)	368	209	381	171	133	136	178	141
Link Distance (ft)	562		480		304	304	480	
Upstream Blk Time (%)			0				0	
Queuing Penalty (veh)			0				0	
Storage Bay Dist (ft)		100		300				100
Storage Blk Time (%)	4	33	5				9	3
Queuing Penalty (veh)	14	1	4				9	4

Intersection: 4: Cassidy Point & W. Commercial

Movement	EB	EB	WB	WB	NE	NE
Directions Served	T	TR	LT	T	L	R
Maximum Queue (ft)	264	336	158	159	49	9
Average Queue (ft)	62	114	45	64	9	1
95th Queue (ft)	198	292	128	159	29	6
Link Distance (ft)	830	830		308	548	548
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			250			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: Ferry Terminal/Beach St & W. Commercial

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	LT	R	R
Maximum Queue (ft)	874	482	38	1139	63	59	204
Average Queue (ft)	491	122	2	1073	12	4	96
95th Queue (ft)	864	474	22	1271	47	27	169
Link Distance (ft)	1239	1239		1078	321	321	442
Upstream Blk Time (%)		0		47			
Queuing Penalty (veh)		2		0			
Storage Bay Dist (ft)			75				
Storage Blk Time (%)				38			
Queuing Penalty (veh)				1			

Intersection: 15: W. Commercial & Sec, Ent.

Movement	EB	EB	SB	SB
Directions Served	L	T	L	R
Maximum Queue (ft)	36	68	42	82
Average Queue (ft)	10	7	9	32
95th Queue (ft)	35	85	32	65
Link Distance (ft)	341	341	465	465
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		1		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 17: W. Commercial & Employee Lot

Movement	EB	EB	B21	B21	WB	SB	SB
Directions Served	L	T	T	T	TR	L	R
Maximum Queue (ft)	122	292	81	179	4	38	82
Average Queue (ft)	17	19	3	13	0	7	32
95th Queue (ft)	76	164	34	90	3	29	67
Link Distance (ft)	385	385	308	308	792	515	515
Upstream Blk Time (%)	0	0					
Queuing Penalty (veh)	0	1					
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 19: W. Commercial & Main Ent.

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	52	152	4	41	73
Average Queue (ft)	14	8	0	9	32
95th Queue (ft)	43	119	3	32	61
Link Distance (ft)	792	792	341	491	491
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 600

Intersection: 1: VMB & Fore River Pkwy

Phase	1	2	6	8	9
Movement(s) Served	EBL	WBT	EBT	SBL	Ped
Maximum Green (s)	9.0	51.0	65.0	25.5	5.0
Minimum Green (s)	5.0	20.0	20.0	8.0	5.0
Recall	None	C-Max	None	None	None
Avg. Green (s)	12.6	60.1	77.2	22.7	0.0
g/C Ratio	-0.01	NA	NA	NA	-0.01
Cycles Skipped (%)	3	0	0	0	100
Cycles @ Minimum (%)	6	0	0	0	0
Cycles Maxed Out (%)	9	100	100	61	0
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 2: Fore River Pkwy/W. Commercial & Valley St

Phase	1	2	3	6	9
Movement(s) Served	EBL	WBT	SBL	EBT	Ped
Maximum Green (s)	21.0	45.5	17.5	71.5	5.0
Minimum Green (s)	10.0	15.0	10.0	15.0	1.0
Recall	None	C-Max	None	None	None
Avg. Green (s)	31.8	45.7	17.5	82.5	0.0
g/C Ratio	NA	NA	NA	NA	-0.01
Cycles Skipped (%)	0	0	0	0	100
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	94	100	100	100	0
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 3: Valley St & St. John St/Danforth

Phase	2	3	4	6	8
Movement(s) Served	NBTL	WBL	EBTL	SBTL	WBT
Maximum Green (s)	43.5	30.5	22.5	43.5	57.5
Minimum Green (s)	10.0	4.0	4.0	10.0	4.0
Recall	C-Max	None	None	None	None
Avg. Green (s)	48.0	27.5	21.6	48.0	53.0
g/C Ratio	NA	NA	NA	NA	NA
Cycles Skipped (%)	0	0	0	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	100	53	63	100	59
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 4: Cassidy Point & W. Commercial

Phase	1	2	6	8
Movement(s) Served	WBL	EBT	WBTL	NEL
Maximum Green (s)	4.5	31.5	42.5	18.5
Minimum Green (s)	4.0	6.0	6.0	4.0
Recall	None	Min	None	None
Avg. Green (s)	0.0	153.4	153.4	9.6
g/C Ratio	-0.01	NA	NA	NA
Cycles Skipped (%)	100	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	0	100	79	0
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 5: Ferry Terminal/Beach St & W. Commercial

Phase	1	2	4	5	6	8
Movement(s) Served	WBL	EBTL	NBTL	EBL	WBTL	SBR
Maximum Green (s)	4.0	124.0	4.0	32.0	96.0	4.0
Minimum Green (s)	4.0	4.0	4.0	10.0	8.0	4.0
Recall	None	Min	None	None	Min	None
Avg. Green (s)	0.0	134.6	4.0	31.4	98.5	4.0
g/C Ratio	-0.01	NA	NA	NA	NA	NA
Cycles Skipped (%)	100	0	0	0	0	0
Cycles @ Minimum (%)	0	0	100	0	0	100
Cycles Maxed Out (%)	0	96	100	92	100	100
Cycles with Peds (%)	0	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	3	4	5	6	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4271	4181	4203	4187	4309	4230
Vehs Exited	4173	4114	4158	4126	4180	4154
Starting Vehs	147	206	182	184	185	180
Ending Vehs	245	273	227	245	314	255
Travel Distance (mi)	4337	4332	4328	4324	4416	4347
Travel Time (hr)	231.7	240.6	231.9	230.2	258.0	238.5
Total Delay (hr)	79.0	88.9	79.8	78.2	102.7	85.7
Total Stops	7221	7752	7336	6839	8867	7605
Fuel Used (gal)	160.5	162.3	161.4	159.4	169.2	162.6

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.
No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	3	4	5	6	Avg
Vehs Entered	4271	4181	4203	4187	4309	4230
Vehs Exited	4173	4114	4158	4126	4180	4154
Starting Vehs	147	206	182	184	185	180
Ending Vehs	245	273	227	245	314	255
Travel Distance (mi)	4337	4332	4328	4324	4416	4347
Travel Time (hr)	231.7	240.6	231.9	230.2	258.0	238.5
Total Delay (hr)	79.0	88.9	79.8	78.2	102.7	85.7
Total Stops	7221	7752	7336	6839	8867	7605
Fuel Used (gal)	160.5	162.3	161.4	159.4	169.2	162.6

1: VMB & Fore River Pkwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.5	0.0	0.2	0.3
Total Del/Veh (s)	12.7	7.3	40.1	14.8

2: Fore River Pkwy/W. Commercial & Valley St Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	17.4	18.4	12.5	16.9

3: Valley St & St. John St/Danforth Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	3.7	1.4	0.0	1.7	1.4
Total Del/Veh (s)	26.3	33.5	8.0	22.4	20.4

4: Cassidy Point & W. Commercial Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.2	0.0	0.1	0.1
Total Del/Veh (s)	21.1	1.9	10.8	14.3

5: Ferry Terminal/Beach St & W. Commercial Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.9	0.1	0.2	0.3
Total Del/Veh (s)	11.7	28.9	20.6	19.4	17.9

15: W. Commercial & Sec, Ent. Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	1.6	4.7	12.8	2.9

17: W. Commercial & Employee Lot Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	4.9	0.0	0.1	3.1
Total Del/Veh (s)	9.4	2.5	12.7	7.1

19: W. Commercial & Main Ent. Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	3.2	1.4	11.5	2.8

ok

Total Network Performance

Denied Del/Veh (s)	3.0
Total Del/Veh (s)	67.1

Intersection: 1: VMB & Fore River Pkwy

Movement	EB	EB	EB	WB	WB	SB	SB
Directions Served	L	T	T	T	T	L	LR
Maximum Queue (ft)	164	332	286	128	155	285	270
Average Queue (ft)	70	180	166	59	85	181	151
95th Queue (ft)	142	282	261	110	129	256	233
Link Distance (ft)		1434	1434	768	768	1249	1249
Upstream Blk Time (%)							
Queuing Penalty (veh)							
Storage Bay Dist (ft)	90						
Storage Blk Time (%)	5	16					
Queuing Penalty (veh)	36	13					

Intersection: 2: Fore River Pkwy/W. Commercial & Valley St

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	R	L	R	R
Maximum Queue (ft)	278	337	390	409	263	290	111	194	147	107
Average Queue (ft)	106	188	155	188	141	173	43	91	71	46
95th Queue (ft)	210	290	298	326	229	254	86	167	118	83
Link Distance (ft)			768	768	830	830		304	304	304
Upstream Blk Time (%)										
Queuing Penalty (veh)										
Storage Bay Dist (ft)	350	350					400			
Storage Blk Time (%)	0	0	1							
Queuing Penalty (veh)	0	0	3							

Intersection: 3: Valley St & St. John St/Danforth

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	LT	TR
Maximum Queue (ft)	304	175	275	102	138	193	45	30
Average Queue (ft)	82	131	154	33	29	54	9	4
95th Queue (ft)	258	202	237	74	85	128	30	19
Link Distance (ft)	562		480		304	304	480	
Upstream Blk Time (%)						0		
Queuing Penalty (veh)						0		
Storage Bay Dist (ft)		100		300				100
Storage Blk Time (%)	2	20	0					
Queuing Penalty (veh)	8	0	0					

Intersection: 4: Cassidy Point & W. Commercial

Movement	EB	EB	WB	WB	NE	NE
Directions Served	T	TR	LT	T	L	R
Maximum Queue (ft)	636	649	100	130	29	45
Average Queue (ft)	200	249	22	24	2	5
95th Queue (ft)	602	648	75	91	12	26
Link Distance (ft)	830	830		308	548	548
Upstream Blk Time (%)	0	0				
Queuing Penalty (veh)	0	2				
Storage Bay Dist (ft)			250			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: Ferry Terminal/Beach St & W. Commercial

Movement	EB	EB	WB	WB	NB	SB
Directions Served	L	TR	L	TR	R	R
Maximum Queue (ft)	256	295	100	784	59	91
Average Queue (ft)	138	136	6	361	5	38
95th Queue (ft)	229	256	51	693	32	76
Link Distance (ft)	1239	1239		1078	321	442
Upstream Blk Time (%)				0		
Queuing Penalty (veh)				0		
Storage Bay Dist (ft)			75			
Storage Blk Time (%)				33		
Queuing Penalty (veh)				1		

Intersection: 15: W. Commercial & Sec, Ent.

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (ft)	64	8	29	47
Average Queue (ft)	24	0	7	19
95th Queue (ft)	55	5	26	45
Link Distance (ft)	341	1239	465	465
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 17: W. Commercial & Employee Lot

Movement	EB	EB	B21	B21	WB	SB	SB
Directions Served	L	T	T	T	TR	L	R
Maximum Queue (ft)	435	477	348	346	9	33	74
Average Queue (ft)	79	244	174	209	0	8	27
95th Queue (ft)	292	620	409	437	4	30	58
Link Distance (ft)	385	385	308	308	792	515	515
Upstream Blk Time (%)	0	5	2	6			
Queuing Penalty (veh)	4	46	13	51			
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 19: W. Commercial & Main Ent.

Movement	EB	WB	SB	SB
Directions Served	L	TR	L	R
Maximum Queue (ft)	70	4	37	61
Average Queue (ft)	29	1	12	27
95th Queue (ft)	60	6	35	52
Link Distance (ft)	792	341	491	491
Upstream Blk Time (%)				
Queuing Penalty (veh)				
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Network Summary

Network wide Queuing Penalty: 177

Intersection: 1: VMB & Fore River Pkwy

Phase	1	2	6	8	9
Movement(s) Served	EBL	WBT	EBT	SBL	Ped
Maximum Green (s)	10.0	40.5	55.5	20.0	5.0
Minimum Green (s)	5.0	20.0	20.0	8.0	5.0
Recall	None	C-Max	None	None	None
Avg. Green (s)	8.4	54.5	66.2	18.9	0.0
g/C Ratio	-0.01	NA	NA	NA	-0.01
Cycles Skipped (%)	11	0	0	0	100
Cycles @ Minimum (%)	22	0	0	0	0
Cycles Maxed Out (%)	0	100	100	71	0
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 2: Fore River Pkwy/W. Commercial & Valley St

Phase	1	2	3	6	9
Movement(s) Served	EBL	WBT	SBL	EBT	Ped
Maximum Green (s)	17.0	36.0	17.5	58.0	5.0
Minimum Green (s)	10.0	15.0	10.0	15.0	5.0
Recall	None	C-Max	None	None	None
Avg. Green (s)	21.8	43.0	15.3	69.8	0.0
g/C Ratio	NA	NA	NA	NA	-0.01
Cycles Skipped (%)	0	0	0	0	100
Cycles @ Minimum (%)	3	0	8	0	0
Cycles Maxed Out (%)	18	100	49	100	0
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 3: Valley St & St. John St/Danforth

Phase	2	3	4	6	8
Movement(s) Served	NBTL	WBL	EBTL	SBTL	WBT
Maximum Green (s)	30.5	23.5	27.5	30.5	55.5
Minimum Green (s)	10.0	4.0	4.0	10.0	4.0
Recall	C-Max	None	None	None	None
Avg. Green (s)	45.4	17.5	20.8	45.4	41.3
g/C Ratio	NA	NA	-0.01	NA	NA
Cycles Skipped (%)	0	0	3	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	100	24	19	100	19
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 4: Cassidy Point & W. Commercial

Phase	1	2	6	8
Movement(s) Served	WBL	EBT	WBTL	NEL
Maximum Green (s)	4.0	61.0	71.5	4.5
Minimum Green (s)	4.0	6.0	6.0	4.0
Recall	None	Min	None	None
Avg. Green (s)	0.0	406.4	406.4	4.6
g/C Ratio	-0.01	NA	NA	NA
Cycles Skipped (%)	100	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	0	100	71	100
Cycles with Peds (%)	0	0	0	0

Controller Summary

Average Cycle Length (s): NA

Number of Complete Cycles : 0

Intersection: 5: Ferry Terminal/Beach St & W. Commercial

Phase	1	2	4	5	6	8
Movement(s) Served	WBL	EBTL	NBTL	EBL	WBTL	SBR
Maximum Green (s)	4.0	64.0	4.0	15.0	53.0	4.0
Minimum Green (s)	4.0	4.0	4.0	10.0	8.0	4.0
Recall	None	Min	None	None	Min	None
Avg. Green (s)	0.0	93.4	4.1	13.4	48.3	4.1
g/C Ratio	-0.01	-0.01	-0.01	-0.01	NA	-0.01
Cycles Skipped (%)	100	28	30	2	0	30
Cycles @ Minimum (%)	0	0	70	20	0	70
Cycles Maxed Out (%)	0	67	70	56	61	70
Cycles with Peds (%)	0	0	0	0	0	0

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	4	5	7	Avg
Start Time	4:57	4:57	4:57	4:57	4:57	4:57
End Time	6:00	6:00	6:00	6:00	6:00	6:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	4640	4631	4618	4659	4640	4638
Vehs Exited	4511	4541	4512	4552	4557	4537
Starting Vehs	201	220	219	216	227	213
Ending Vehs	330	310	325	323	310	317
Travel Distance (mi)	4660	4622	4628	4628	4635	4635
Travel Time (hr)	454.1	456.1	439.1	456.7	465.6	454.3
Total Delay (hr)	289.1	292.0	275.6	292.6	301.1	290.1
Total Stops	9528	9620	8212	9100	8930	9077
Fuel Used (gal)	219.8	218.9	215.5	219.3	221.8	219.1

Interval #0 Information Seeding

Start Time	4:57
End Time	5:00
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	5:00
End Time	6:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	4	5	7	Avg
Vehs Entered	4640	4631	4618	4659	4640	4638
Vehs Exited	4511	4541	4512	4552	4557	4537
Starting Vehs	201	220	219	216	227	213
Ending Vehs	330	310	325	323	310	317
Travel Distance (mi)	4660	4622	4628	4628	4635	4635
Travel Time (hr)	454.1	456.1	439.1	456.7	465.6	454.3
Total Delay (hr)	289.1	292.0	275.6	292.6	301.1	290.1
Total Stops	9528	9620	8212	9100	8930	9077
Fuel Used (gal)	219.8	218.9	215.5	219.3	221.8	219.1

1: VMB & Fore River Pkwy Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.6	0.0	0.2	0.3
Total Del/Veh (s)	17.9	14.6	63.4	22.3

2: Fore River Pkwy/W. Commercial & Valley St Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.0	0.0
Total Del/Veh (s)	42.5	28.4	21.8	33.4

3: Valley St & St. John St/Danforth Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	3.6	1.2	0.0	3.0	1.4
Total Del/Veh (s)	40.5	43.3	11.1	28.5	27.8

4: Cassidy Point & W. Commercial Performance by approach

Approach	EB	WB	NE	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	7.0	3.0	9.2	5.1

5: Ferry Terminal/Beach St & W. Commercial Performance by approach

Approach	EB	WB	NB	SB	All
Denied Del/Veh (s)	0.0	370.2	0.1	0.3	178.6
Total Del/Veh (s)	60.3	95.3	61.4	47.4	74.3

15: W. Commercial & Sec, Ent. Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	2.4	5.1	26.3	4.3

17: W. Commercial & Employee Lot Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	3.9	2.8	25.4	3.9

19: W. Commercial & Main Ent. Performance by approach

Approach	EB	WB	SB	All
Denied Del/Veh (s)	0.0	0.0	0.1	0.0
Total Del/Veh (s)	3.6	1.6	28.6	3.3

Total Network Performance

Denied Del/Veh (s)	103.3
Total Del/Veh (s)	109.9

Intersection: 1: VMB & Fore River Pkwy

Movement	EB	EB	EB	WB	WB	WB	SB	SB
Directions Served	L	T	T	T	T	R	L	LR
Maximum Queue (ft)	164	444	416	279	311	51	383	354
Average Queue (ft)	115	225	180	198	214	2	231	201
95th Queue (ft)	183	367	325	269	285	36	406	382
Link Distance (ft)		1434	1434	768	768	768	1249	1249
Upstream Blk Time (%)								
Queuing Penalty (veh)								
Storage Bay Dist (ft)	90							
Storage Blk Time (%)	22	22						
Queuing Penalty (veh)	164	31						

Intersection: 2: Fore River Pkwy/W. Commercial & Valley St

Movement	EB	EB	EB	EB	WB	WB	WB	SB	SB	SB
Directions Served	L	L	T	T	T	T	R	L	R	R
Maximum Queue (ft)	387	425	748	714	383	400	137	208	302	298
Average Queue (ft)	324	385	447	357	261	281	50	99	180	122
95th Queue (ft)	505	489	935	830	365	383	102	177	277	240
Link Distance (ft)			768	768	830	830		304	304	304
Upstream Blk Time (%)			3	0					0	0
Queuing Penalty (veh)			28	3					0	0
Storage Bay Dist (ft)	350	350					400			
Storage Blk Time (%)	5	46	0			0				
Queuing Penalty (veh)	32	287	1			0				

Intersection: 3: Valley St & St. John St/Danforth

Movement	EB	EB	WB	WB	NB	NB	SB	SB
Directions Served	L	TR	L	TR	L	TR	LT	TR
Maximum Queue (ft)	446	175	454	322	205	177	215	164
Average Queue (ft)	171	143	252	49	63	68	47	66
95th Queue (ft)	436	213	390	176	138	131	145	127
Link Distance (ft)	562		480		304	304	480	
Upstream Blk Time (%)	0		0					
Queuing Penalty (veh)	0		0					
Storage Bay Dist (ft)		100		300				100
Storage Blk Time (%)	2	35	6				4	3
Queuing Penalty (veh)	9	1	5				5	3

Intersection: 4: Cassidy Point & W. Commercial

Movement	EB	EB	WB	WB	NE	NE
Directions Served	T	TR	LT	T	L	R
Maximum Queue (ft)	238	314	138	179	35	14
Average Queue (ft)	63	116	45	67	10	1
95th Queue (ft)	190	285	116	163	29	7
Link Distance (ft)	830	830		308	548	548
Upstream Blk Time (%)						
Queuing Penalty (veh)						
Storage Bay Dist (ft)			250			
Storage Blk Time (%)						
Queuing Penalty (veh)						

Intersection: 5: Ferry Terminal/Beach St & W. Commercial

Movement	EB	EB	WB	WB	NB	NB	SB
Directions Served	L	TR	L	TR	LT	R	R
Maximum Queue (ft)	943	564	71	1132	54	45	218
Average Queue (ft)	638	210	3	1076	8	4	105
95th Queue (ft)	1075	812	32	1264	34	26	186
Link Distance (ft)	1239	1239		1078	321	321	442
Upstream Blk Time (%)	0	1		47			
Queuing Penalty (veh)	0	6		0			
Storage Bay Dist (ft)			75				
Storage Blk Time (%)				38			
Queuing Penalty (veh)				1			

Intersection: 15: W. Commercial & Sec, Ent.

Movement	EB	EB	SB	SB
Directions Served	L	T	L	R
Maximum Queue (ft)	61	71	37	86
Average Queue (ft)	17	17	11	34
95th Queue (ft)	50	133	34	70
Link Distance (ft)	341	341	465	465
Upstream Blk Time (%)		0		
Queuing Penalty (veh)		3		
Storage Bay Dist (ft)				
Storage Blk Time (%)				
Queuing Penalty (veh)				

Intersection: 17: W. Commercial & Employee Lot

Movement	EB	EB	B21	B21	WB	SB	SB
Directions Served	L	T	T	T	TR	L	R
Maximum Queue (ft)	83	456	158	256	13	42	76
Average Queue (ft)	24	42	7	17	0	11	30
95th Queue (ft)	61	258	72	114	5	36	63
Link Distance (ft)	385	385	308	308	792	515	515
Upstream Blk Time (%)		0	0	0			
Queuing Penalty (veh)		3	0	1			
Storage Bay Dist (ft)							
Storage Blk Time (%)							
Queuing Penalty (veh)							

Intersection: 19: W. Commercial & Main Ent.

Movement	EB	EB	WB	SB	SB
Directions Served	L	T	TR	L	R
Maximum Queue (ft)	66	131	4	42	87
Average Queue (ft)	28	17	0	11	34
95th Queue (ft)	58	162	3	36	70
Link Distance (ft)	792	792	341	491	491
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)					
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 584

Intersection: 1: VMB & Fore River Pkwy

Phase	1	2	6	8	9
Movement(s) Served	EBL	WBT	EBT	SBL	Ped
Maximum Green (s)	9.0	51.0	65.0	25.5	5.0
Minimum Green (s)	5.0	20.0	20.0	8.0	5.0
Recall	None	C-Max	None	None	None
Avg. Green (s)	12.4	59.6	76.5	23.5	0.0
g/C Ratio	NA	NA	NA	NA	-0.01
Cycles Skipped (%)	0	0	0	0	100
Cycles @ Minimum (%)	6	0	0	0	0
Cycles Maxed Out (%)	9	100	100	67	0
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 2: Fore River Pkwy/W. Commercial & Valley St

Phase	1	2	3	6	9
Movement(s) Served	EBL	WBT	SBL	EBT	Ped
Maximum Green (s)	21.0	45.5	17.5	71.5	5.0
Minimum Green (s)	10.0	15.0	10.0	15.0	1.0
Recall	None	C-Max	None	None	None
Avg. Green (s)	31.7	45.9	17.4	82.6	0.0
g/C Ratio	NA	NA	NA	NA	-0.01
Cycles Skipped (%)	0	0	0	0	100
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	94	100	97	100	0
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 3: Valley St & St. John St/Danforth

Phase	2	3	4	6	8
Movement(s) Served	NBTL	WBL	EBTL	SBTL	WBT
Maximum Green (s)	43.5	30.5	22.5	43.5	57.5
Minimum Green (s)	10.0	4.0	4.0	10.0	4.0
Recall	C-Max	None	None	None	None
Avg. Green (s)	49.0	26.7	22.2	49.0	51.9
g/C Ratio	NA	NA	-0.01	NA	NA
Cycles Skipped (%)	0	0	3	0	0
Cycles @ Minimum (%)	0	0	0	0	0
Cycles Maxed Out (%)	100	50	63	100	59
Cycles with Peds (%)	0	0	0	0	0

Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 4: Cassidy Point & W. Commercial

Phase	1	2	6	8
Movement(s) Served	WBL	EBT	WBTL	NEL
Maximum Green (s)	4.5	31.5	42.5	18.5
Minimum Green (s)	4.0	6.0	6.0	4.0
Recall	None	Min	None	None
Avg. Green (s)	0.0	165.7	165.7	9.3
g/C Ratio	-0.01	NA	NA	NA
Cycles Skipped (%)	100	0	0	0
Cycles @ Minimum (%)	0	0	0	0
Cycles Maxed Out (%)	0	100	94	0
Cycles with Peds (%)	0	0	0	0

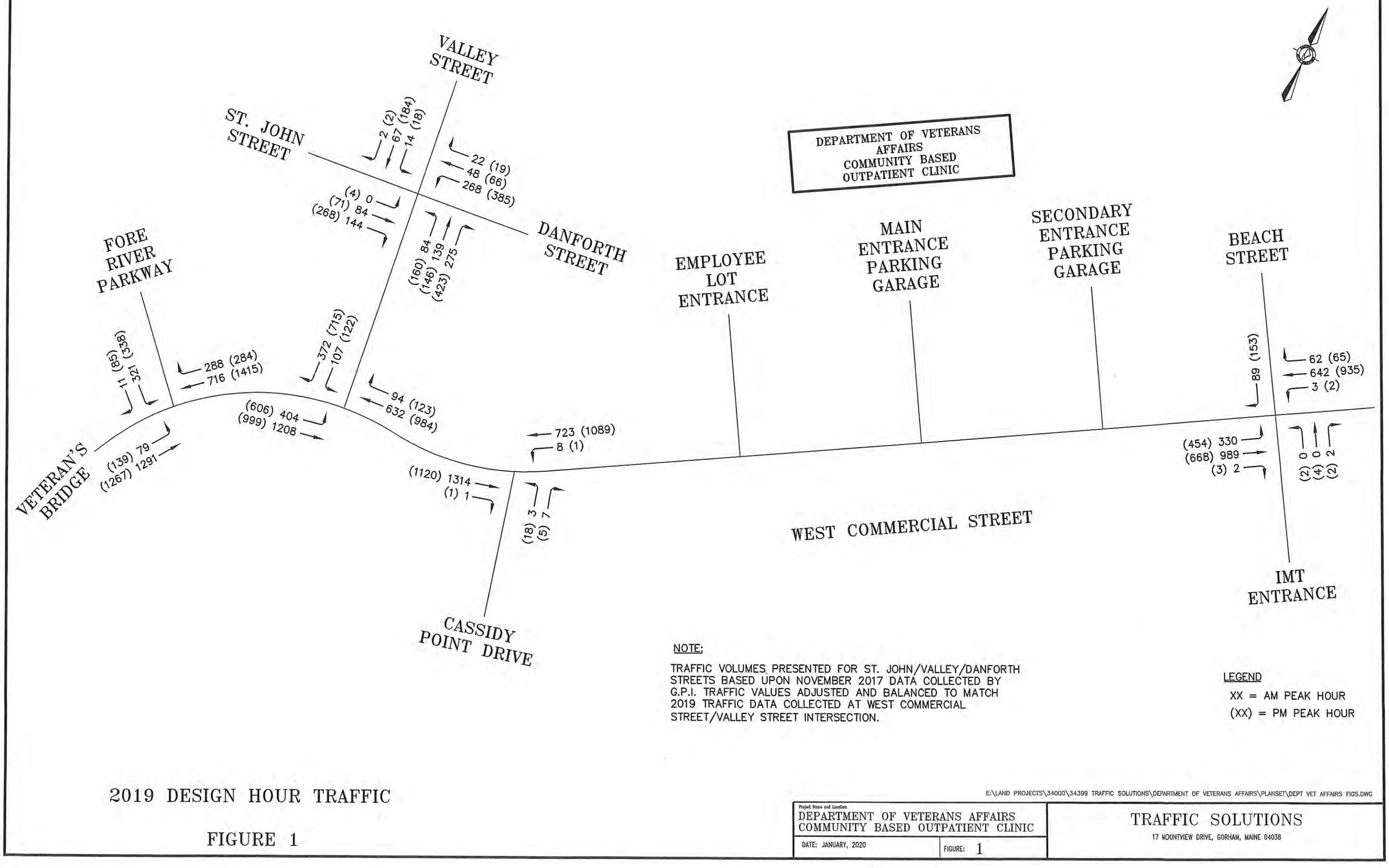
Controller Summary

Average Cycle Length (s): NA
Number of Complete Cycles : 0

Intersection: 5: Ferry Terminal/Beach St & W. Commercial

Phase	1	2	4	5	6	8
Movement(s) Served	WBL	EBTL	NBTL	EBL	WBTL	SBR
Maximum Green (s)	4.0	124.0	4.0	32.0	96.0	4.0
Minimum Green (s)	4.0	4.0	4.0	10.0	8.0	4.0
Recall	None	Min	None	None	Min	None
Avg. Green (s)	0.0	139.7	4.1	31.5	97.6	4.1
g/C Ratio	-0.01	NA	NA	NA	NA	NA
Cycles Skipped (%)	100	0	0	0	0	0
Cycles @ Minimum (%)	0	0	100	0	0	100
Cycles Maxed Out (%)	0	100	100	92	100	100
Cycles with Peds (%)	0	0	0	0	0	0

Controller Summary
Average Cycle Length (s): NA
Number of Complete Cycles : 0



NOTE:

TRAFFIC VOLUMES PRESENTED FOR ST. JOHN/VALLEY/DANFORTH STREETS BASED UPON NOVEMBER 2017 DATA COLLECTED BY G.P.I. TRAFFIC VALUES ADJUSTED AND BALANCED TO MATCH 2019 TRAFFIC DATA COLLECTED AT WEST COMMERCIAL STREET/VALLEY STREET INTERSECTION.

LEGEND

XX = AM PEAK HOUR

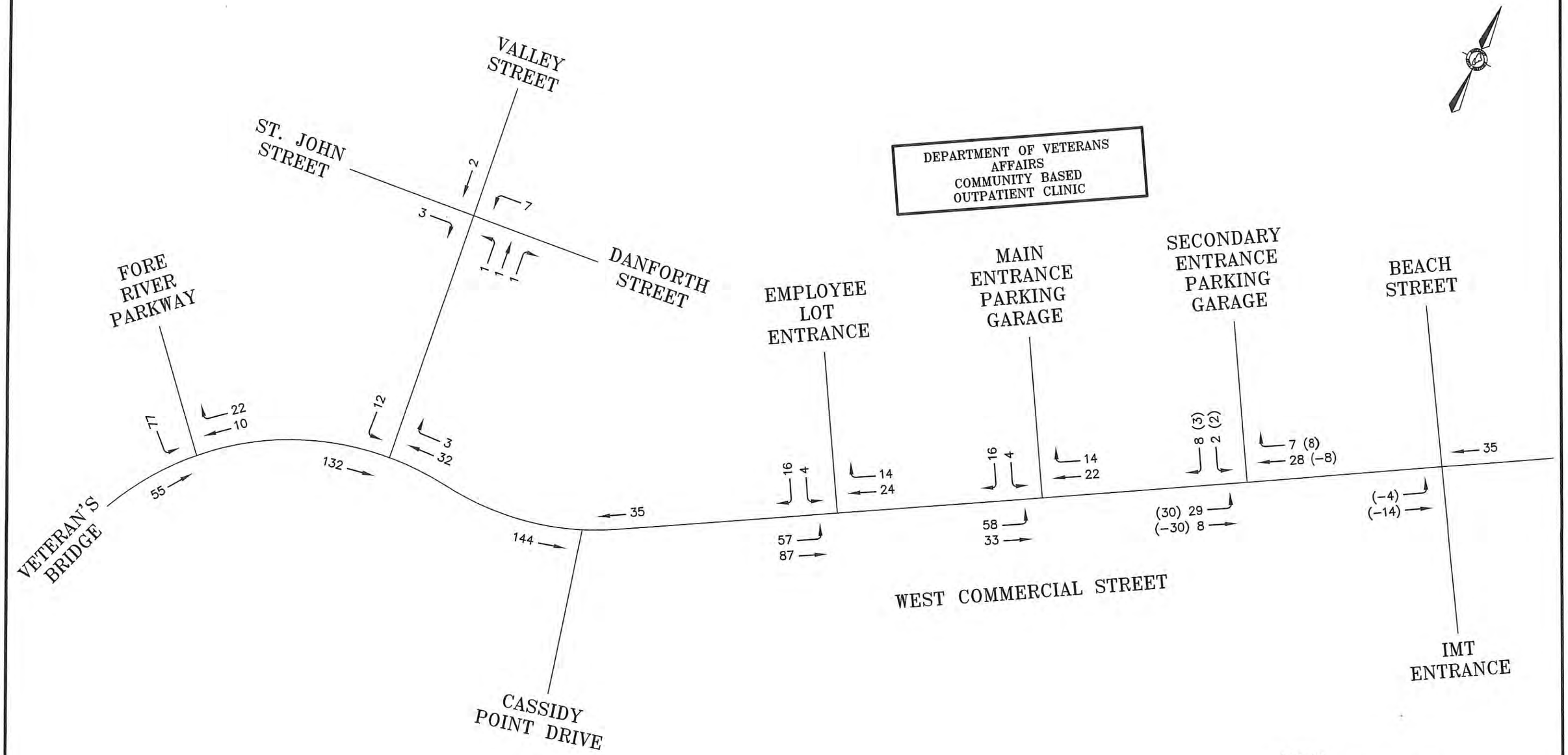
(XX) = PM PEAK HOUR

2019 DESIGN HOUR TRAFFIC

FIGURE 1

E:\LAND PROJECTS\34000\34399 TRAFFIC SOLUTIONS\DEPARTMENT OF VETERANS AFFAIRS\PLANSET\DEPT VET AFFAIRS FIGS.DWG

Project Name and Location: DEPARTMENT OF VETERANS AFFAIRS COMMUNITY BASED OUTPATIENT CLINIC		TRAFFIC SOLUTIONS 17 MOUNTVIEW DRIVE, GORHAM, MAINE 04038
DATE: JANUARY, 2020	FIGURE: 1	



LEGEND

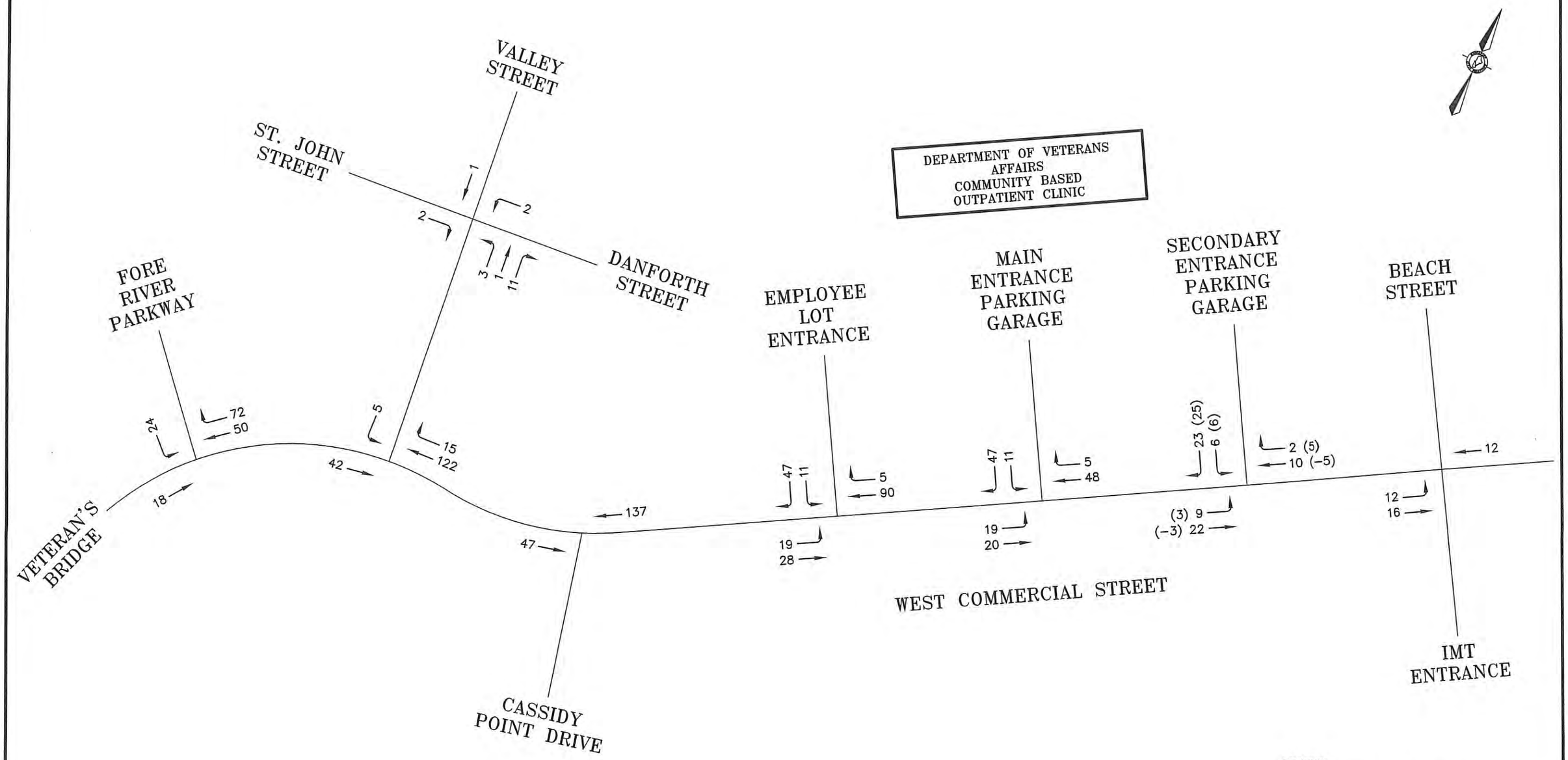
XX = VA CLINIC SITE TRIPS

(XX) = EXTRA GARAGE SPACES – TRIPS

SITE TRAFFIC ASSIGNMENT
AM PEAK HOUR (STREET)
FIGURE 2A

E:\LAND PROJECTS\34000\34399 TRAFFIC SOLUTIONS\DEPARTMENT OF VETERANS AFFAIRS\PLANSET\DEPT VET AFFAIRS FIGS.DWG

Project Name and Location: DEPARTMENT OF VETERANS AFFAIRS COMMUNITY BASED OUTPATIENT CLINIC	TRAFFIC SOLUTIONS
DATE: JANUARY, 2020 — FIGURE: 2A	17 MOUNTVIEW DRIVE, GORHAM, MAINE 04038



SITE TRAFFIC ASSIGNMENT
PM PEAK HOUR (STREET)
FIGURE 2B

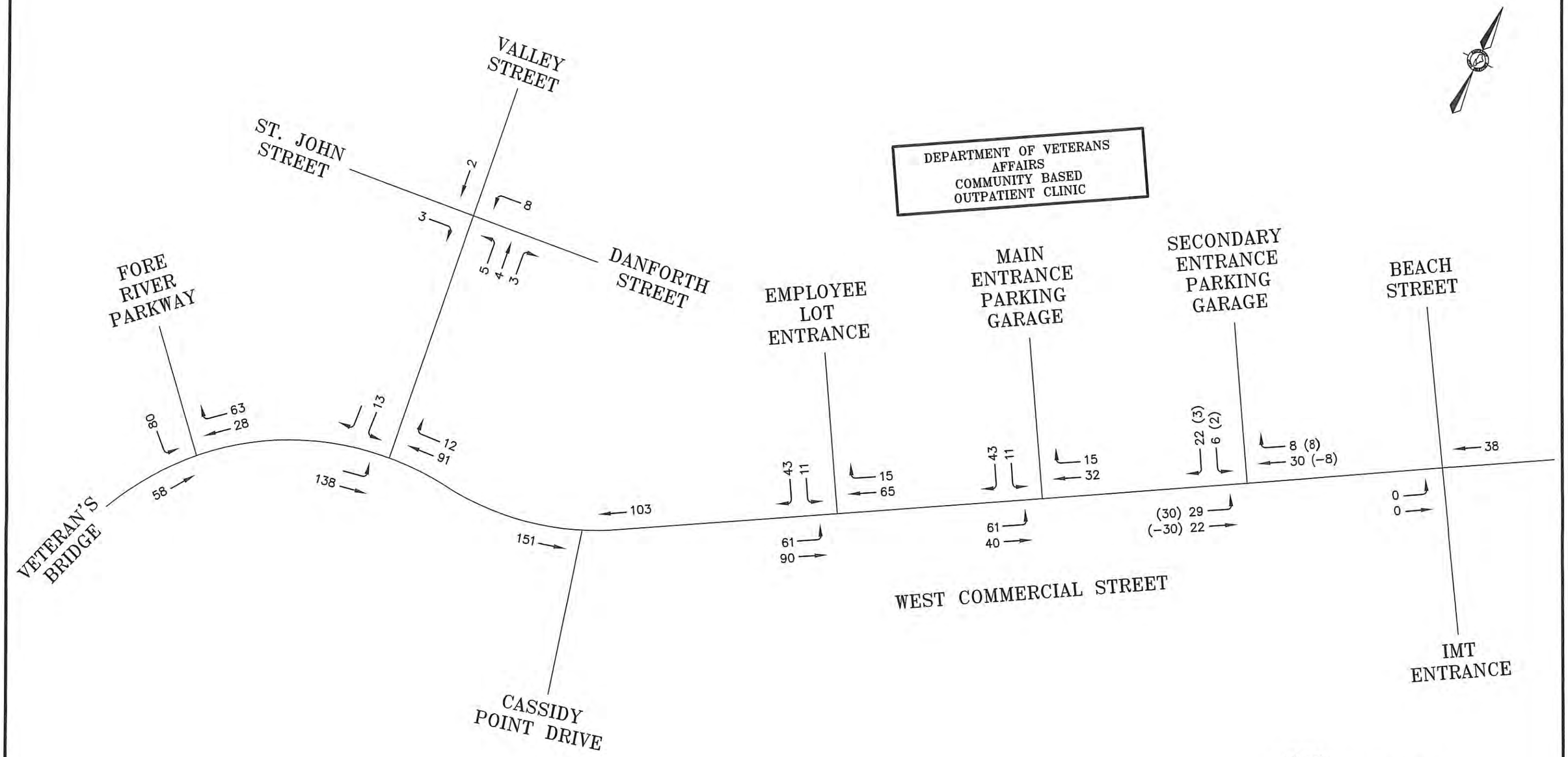
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Project Name and Location:
DEPARTMENT OF VETERANS AFFAIRS
COMMUNITY BASED OUTPATIENT CLINIC

DATE: JANUARY, 2020

FIGURE: 2B

TRAFFIC SOLUTIONS
17 MOUNTVIEW DRIVE, GORHAM, MAINE 04038

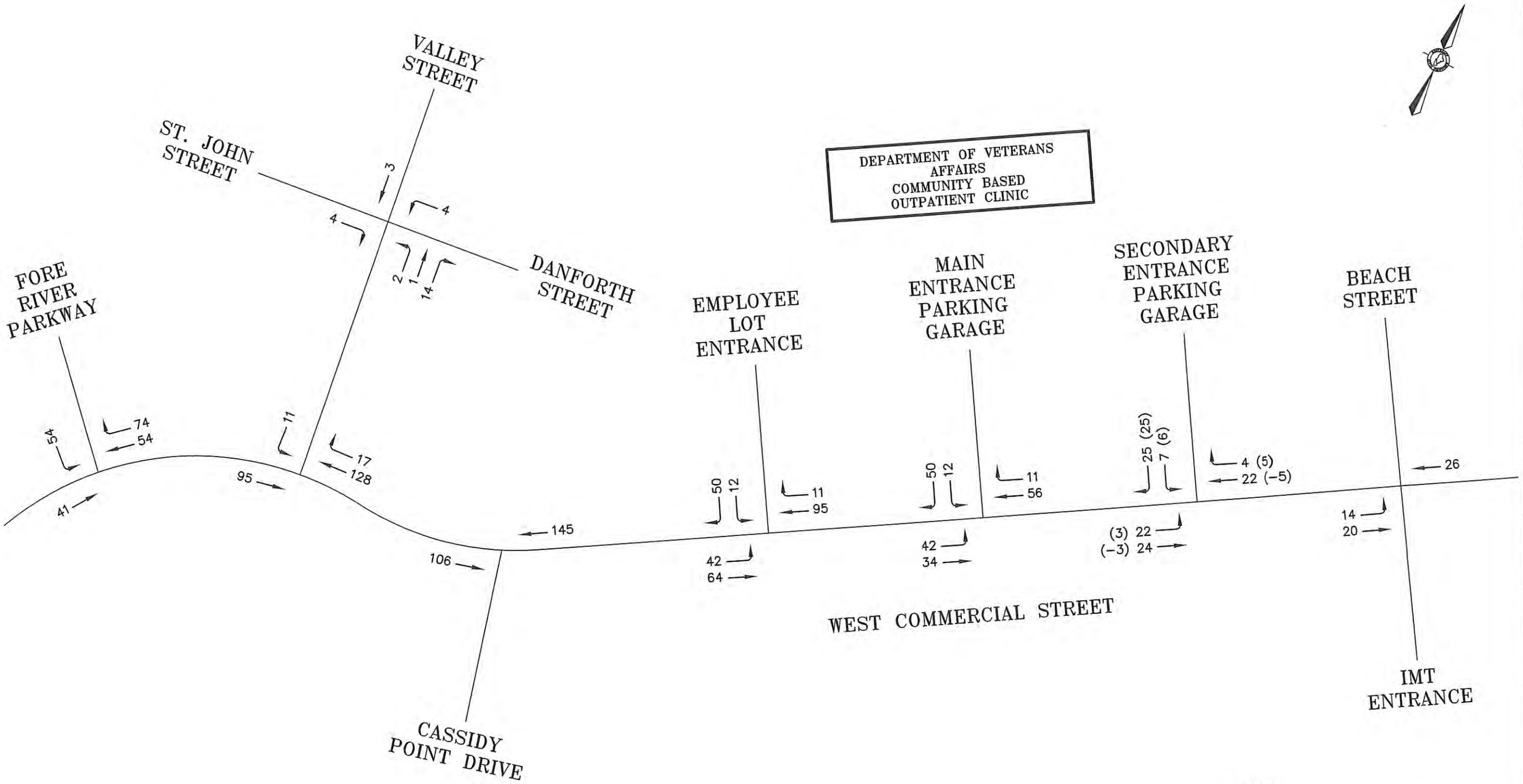


SITE TRAFFIC ASSIGNMENT
AM PEAK HOUR (GENERATOR)
FIGURE 2C

E:\LAND PROJECTS\34000\34399 TRAFFIC SOLUTIONS\DEPARTMENT OF VETERANS AFFAIRS\PLANSET\DEPT VET AFFAIRS FIGS.DWG

Project Name and Location: DEPARTMENT OF VETERANS AFFAIRS COMMUNITY BASED OUTPATIENT CLINIC	
DATE: JANUARY, 2020	FIGURE: 2C

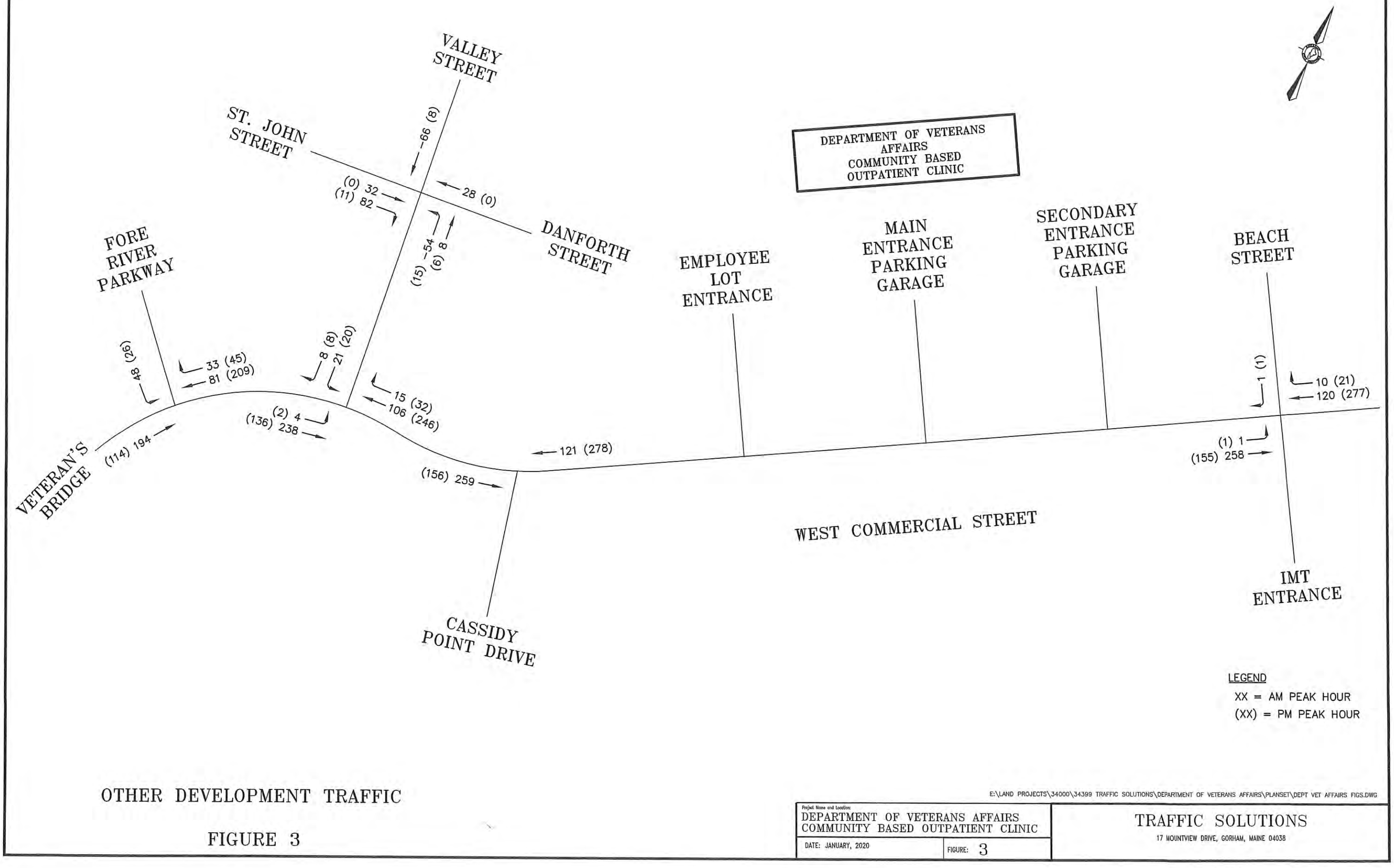
TRAFFIC SOLUTIONS
17 MOUNTVIEW DRIVE, GORHAM, MAINE 04038



SITE TRAFFIC ASSIGNMENT
PM PEAK HOUR (GENERATOR)
FIGURE 2D

E:\LAND PROJECTS\34000\34399 TRAFFIC SOLUTIONS\DEPARTMENT OF VETERANS AFFAIRS\PLANSET\DEPT VET AFFAIRS FIGS.DWG

Project Name and Location: DEPARTMENT OF VETERANS AFFAIRS COMMUNITY BASED OUTPATIENT CLINIC	TRAFFIC SOLUTIONS 17 MOUNTVIEW DRIVE, GORHAM, MAINE 04038
DATE: JANUARY, 2020	FIGURE: 2D



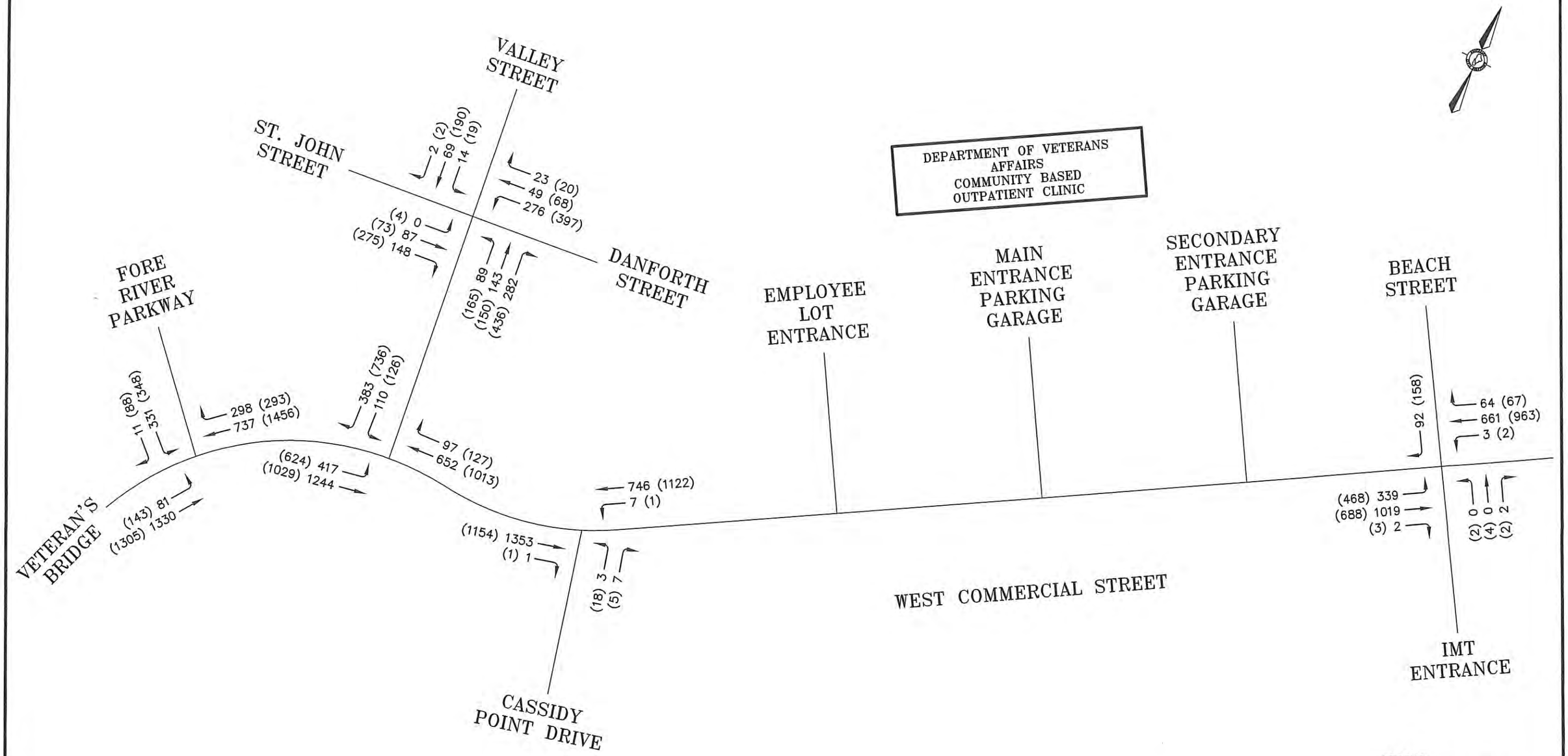
OTHER DEVELOPMENT TRAFFIC

FIGURE 3

E:\LAND PROJECTS\34000\34399 TRAFFIC SOLUTIONS\DEPARTMENT OF VETERANS AFFAIRS\PLANSET\DEPT VET AFFAIRS FIGS.DWG

Project Name and Location: DEPARTMENT OF VETERANS AFFAIRS COMMUNITY BASED OUTPATIENT CLINIC	
DATE: JANUARY, 2020	FIGURE: 3

TRAFFIC SOLUTIONS
17 MOUNTVIEW DRIVE, GORHAM, MAINE 04038

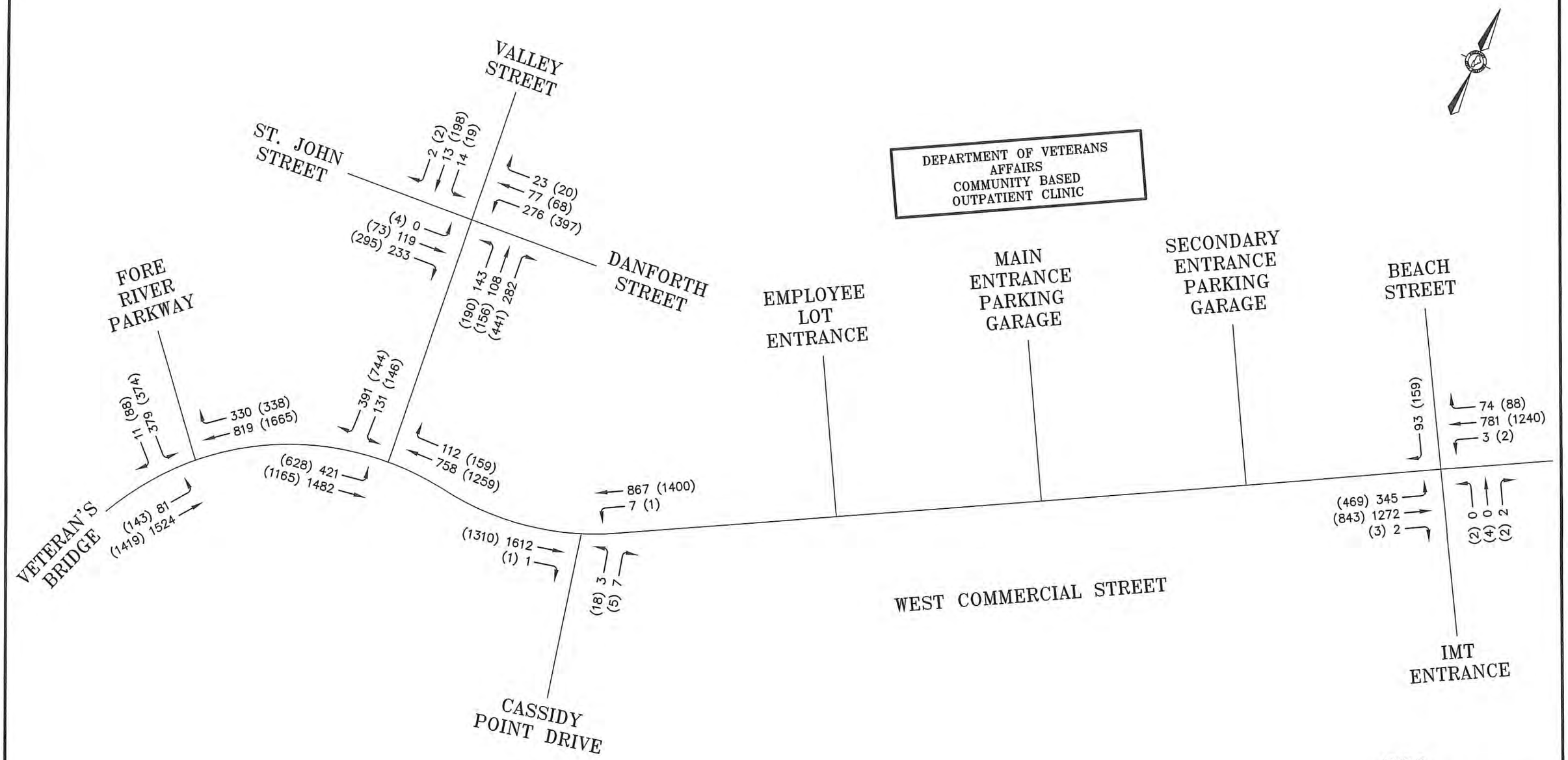


2022 DESIGN HOUR TRAFFIC

FIGURE 4

E:\LAND PROJECTS\34000\34399 TRAFFIC SOLUTIONS\DEPARTMENT OF VETERANS AFFAIRS\PLANSET\DEPT VET AFFAIRS FIGS.DWG

Project Name and Location: DEPARTMENT OF VETERANS AFFAIRS COMMUNITY BASED OUTPATIENT CLINIC	TRAFFIC SOLUTIONS 17 MOUNTVIEW DRIVE, GORHAM, MAINE 04038
DATE: JANUARY, 2020	FIGURE: 4



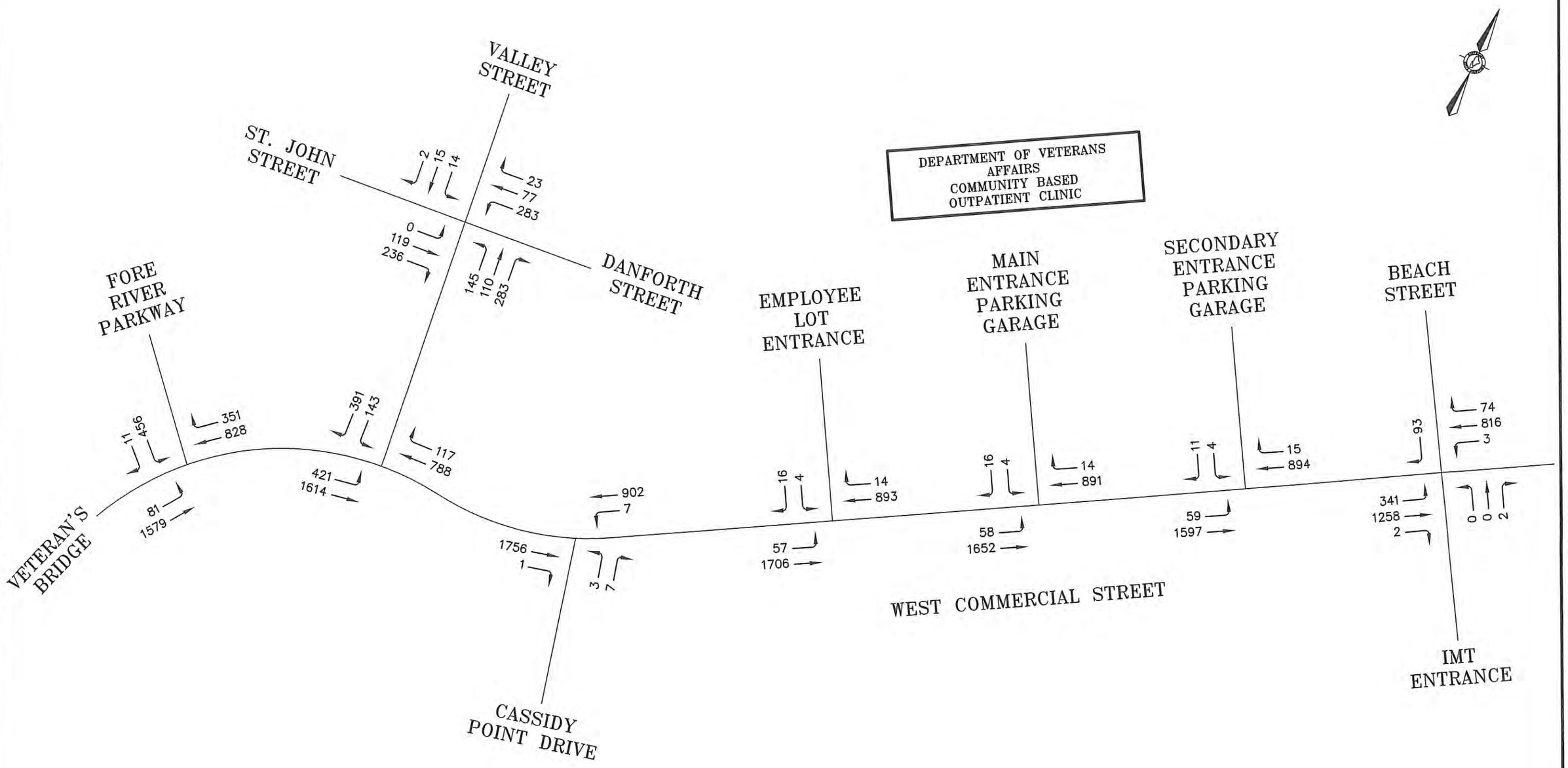
2022 PRE-DEVELOPMENT TRAFFIC

FIGURE 5

E:\LAND PROJECTS\34000\34399 TRAFFIC SOLUTIONS\DEPARTMENT OF VETERANS AFFAIRS\PLANSET\DEPT VET AFFAIRS FIGS.DWG

Project Name and Location: DEPARTMENT OF VETERANS AFFAIRS COMMUNITY BASED OUTPATIENT CLINIC	
DATE: JANUARY, 2020	FIGURE: 5

TRAFFIC SOLUTIONS
17 MOUNTVIEW DRIVE, GORHAM, MAINE 04038



2022 POST-DEVELOPMENT TRAFFIC
AM PEAK HOUR (STREET)
FIGURE 6A

E:\LAND PROJECTS\34000\34399 TRAFFIC SOLUTIONS\DEPARTMENT OF VETERANS AFFAIRS\PLANSET\DEPT VET AFFAIRS FIGS.DWG

Project Name and Location: DEPARTMENT OF VETERANS AFFAIRS COMMUNITY BASED OUTPATIENT CLINIC	
DATE: JANUARY, 2020	FIGURE: 6A

TRAFFIC SOLUTIONS
17 MOUNTVIEW DRIVE, GORHAM, MAINE 04038

DEPARTMENT OF VETERANS
AFFAIRS
COMMUNITY BASED
OUTPATIENT CLINIC

VALLEY STREET

ST. JOHN STREET

DANFORTH STREET

FORE RIVER PARKWAY

VETERAN'S BRIDGE

CASSIDY POINT DRIVE

EMPLOYEE LOT ENTRANCE

MAIN ENTRANCE PARKING GARAGE

SECONDARY ENTRANCE PARKING GARAGE

BEACH STREET

IMT ENTRANCE

WEST COMMERCIAL STREET

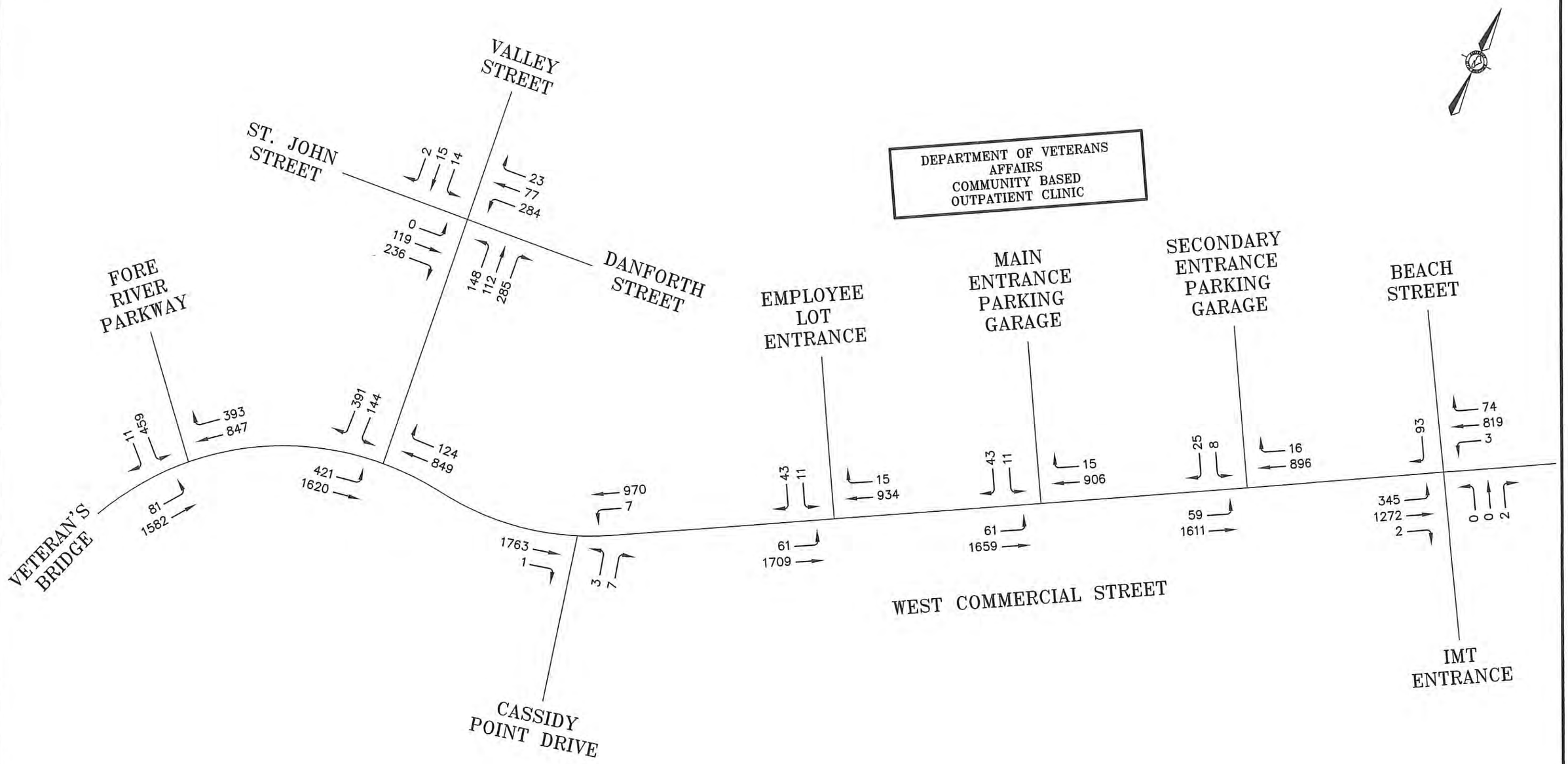
2 199 19
20 68 399
4 73 297
192 157 453
88 398
410 1715
744 151
174 1381
628 1207
143 1437
1537 1
1357 1
18 5
47 11
5 1491
19 1343
47 11
5 1449
19 1335
48 12
7 1406
12 1334
159
88 1252 2
482 861 3
2 4 2

2022 POST-DEVELOPMENT TRAFFIC
PM PEAK HOUR (STREET)
FIGURE 6B

E:\LAND PROJECTS\34000\34399 TRAFFIC SOLUTIONS\DEPARTMENT OF VETERANS AFFAIRS\PLANSET\DEPT VET AFFAIRS FIGS.DWG

Project Name and Location: DEPARTMENT OF VETERANS AFFAIRS COMMUNITY BASED OUTPATIENT CLINIC	
DATE: JANUARY, 2020	FIGURE: 6B

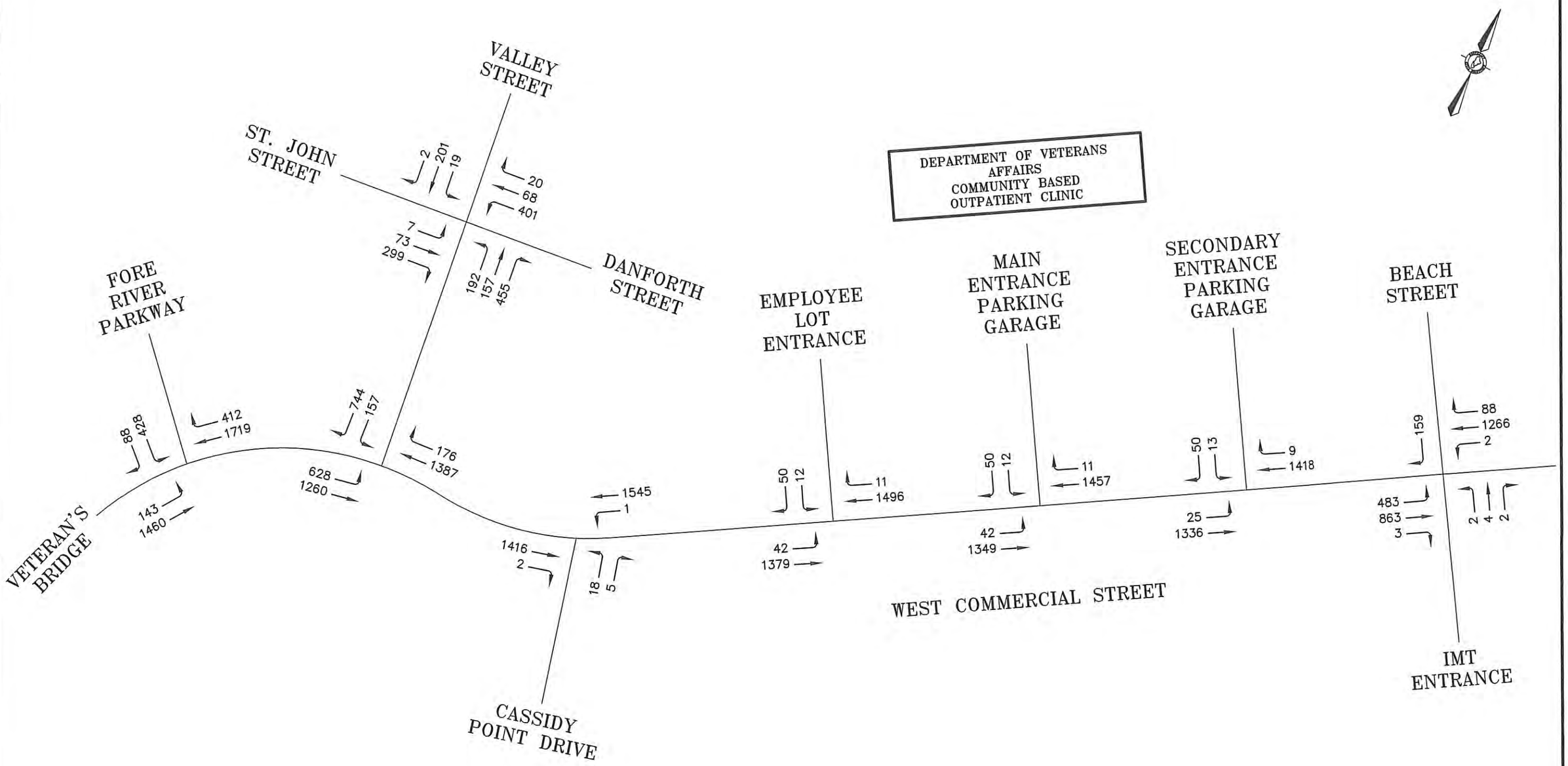
TRAFFIC SOLUTIONS
17 MOUNTVIEW DRIVE, GORHAM, MAINE 04038



2022 POST-DEVELOPMENT TRAFFIC
AM PEAK HOUR (GENERATOR)
FIGURE 7A

E:\LAND PROJECTS\34000\34399 TRAFFIC SOLUTIONS\DEPARTMENT OF VETERANS AFFAIRS\PLANSET\DEPT VET AFFAIRS FIGS.DWG

Project Name and Location: DEPARTMENT OF VETERANS AFFAIRS COMMUNITY BASED OUTPATIENT CLINIC	TRAFFIC SOLUTIONS
DATE: JANUARY, 2020	FIGURE: 7A
	17 MOUNTVIEW DRIVE, GORHAM, MAINE 04038



2022 POST-DEVELOPMENT TRAFFIC
PM PEAK HOUR (GENERATOR)
FIGURE 7B

E:\LAND PROJECTS\34000\34399 TRAFFIC SOLUTIONS\DEPARTMENT OF VETERANS AFFAIRS\PLANSET\DEPT VET AFFAIRS FIGS.DWG

Project Name and Location: DEPARTMENT OF VETERANS AFFAIRS COMMUNITY BASED OUTPATIENT CLINIC	
DATE: JANUARY, 2020	FIGURE: 7B

TRAFFIC SOLUTIONS
17 MOUNTVIEW DRIVE, GORHAM, MAINE 04038

PUBLIC INFRASTRUCTURE AND SAFETY

The following statements are provided in accordance with the submission and Section 14-526 of the ordinance.

(c) Public Infrastructure and Community Safety Standards.

Consistency with City Master Plans (14-526 (c) 1)

- *Identify consistency with master plans*
- *Proposed easements, rights and improvements to connect or continue off-premises public infrastructure, as applicable*

1. *Consistency with City Master Plans:*

    a. The project has been designed to be consistent with the B-5b Zoning and offsite infrastructure plans. The site is uniquely placed along the West Commercial Street corridor and its location in the City along a gateway corridor is considered ideal to visually communicate the VA's brand to the local public and veterans alike, and also while establishing the VA as recognized identity in the Portland Community. The implementation of the West Commercial Street multi-modal pathway into the site planning meets the objectives of previous City Studies and planning.

    b. The development will maintain various infrastructure, including utilities within West Commercial Street corridor and the Emery Street paper right of way. The existing CSO overflow control chamber in the west end of the site will remain unchanged and not impacted by the development.

Public Safety and Fire Prevention (14-526 (c) 2)

- *Address Crime Prevention through Environmental Design (CPTED) (Technical Manual, Section 3)*
- *Emergency vehicle access*
- *Address consistency with public safety standards (Technical Manual, Section 3)*
- *Submit a code summary referring NFPA 1 and all Fire Department standards (Technical Manual, Section 3) – Fire Checklist*

2. *Public Safety and Fire Prevention:*

    a. The site has been designed to promote a safe and welcoming environment. The VA will maintain security on the campus including building entry controls, restricted parking areas, and camera surveillance.

    b. The site provides access from three driveways for emergency vehicles.

    c. Fire hydrants are located along West Commercial Street and will be within 25' of the front corner of the garage. The clinic will be fully sprinklered and the parking garage will contain standpipes for Fire Department use. A summary letter to Division Chief Thompson is included at the end of this section.

Availability and Adequacy of Public Utilities (14-526 (c) 3) (Technical Manual, Sections 2 & 9)

- *Electrical services, including providing underground services*
- *Identify existing and proposed connections for public utilities and required public utility upgrades*
- *Sewer line connections are required, if there is a main within 200 feet*
- *Proposed solid waste management facilities on-site and management for the site*
- *Written evidence of the ability to serve from utility companies, as applicable*

a. The Applicant is securing letters from the applicable utilities stating their ability to serve the site. The project will require new electrical, gas, sewer, and water services to the clinic and power and sewer to the garage.

b. All new electrical services to the site will be underground.

c. All new utility infrastructure will meet the provisions of the Technical Manual. The Clinic will be served by new fire and domestic mains off the PWD 16" water main located in West Commercial Street. The building sewer will connect to the existing Fore River Interceptor sewer located along the front property line. Power will be from the existing overhead primary distribution system that CMP maintains on West Commercial Street.

d. The project will utilize a new service connections to the public sewer system within the Fore River Interceptor located along the site's front property line.

e. All new sewer and stormwater infrastructure will meet City standards. Backflow prevention in accordance with PWD standards will be provided in the buildings.

f. A solid waste collection and storage area will be provided with adequate capacity for the needs of the development. The VA will maintain their solid waste collection equipment at the rear of the clinic where it will be screened from view.

Ability to serve letters will be forwarded to the planning office upon receipt.

Att. M



DEPARTMENT OF VETERAN AFFAIRS

ARCHITECTURAL NARRATIVE

SMITHGROUP

November 15, 2019

ARCHITECTURAL NARRATIVE



Southfacing Exterior Rendering

ARCHITECTURAL NARRATIVE

Architectural Design Objective

SmithGroup is a nationally recognized leader in advocating the importance of architectural and interior design in the healing process. Implementing patient-centered design concepts has allowed the design team to be truly focused on the environmental needs of patients, while recognizing the importance of comfort and satisfaction for visitors and caregivers. To ensure the full understanding of the unique culture of each healthcare facility, the SmithGroup team conducts meetings with Clients, Patient advocates, and Stakeholders to address the most appropriate patient-centered and facility-directed design concepts that will improve patient outcomes and satisfaction.

SmithGroup also places a high value on stewardship of the environment through sustainable design. Our Healthcare projects emphasize the relationship to the environment and appropriate design responses for the climate. In addition, SmithGroup emphasizes the physical wellness of the patient, visitor, and caregiver. SmithGroup's projects include innovative patient and family amenities such as resource libraries, serenity or meditation rooms, natural light with exterior views, direct access to the outdoors, and custom regionally-inspired art.

The FD Stonewater, Landry/French Construction, and SmithGroup team for the Portland, Maine Community-Based Outpatient Clinic will emphasize the integration of these elements throughout the process to create a facility showcasing innovative design ideas within a framework of optimizing the healing environment for the body, mind, and spirit of our veterans. The site has abundant water views and is outside of the FEMA 100-year floodplain.

Location

Our proposed site for the CBOC is located on West Commercial Street in Portland, Maine within the Area of Consideration as shown in the RLP. The site is 10.66 acres in size and is unencumbered by existing structures for preservation, reuse or demolition. The developable portion of the site has approximately 8.3 acres of land and 1,500 linear feet of street frontage on West Commercial. Approximately four acres of the developable site is zoned B-5b, Commercial, which is where the CBOC would be located. The other 4 acres (on the uphill slope) is zoned R-4, Residential. Medical Clinic is a permitted use in the commercial zone and this makes the CBOC a use-by-right without need to seek special permitting on our site.

The proposed CBOC site is near I-295 and I-95 (Maine Turnpike) providing convenient access from the north and south and Route 77 providing access from Cape Elizabeth and points west. The site is also approximately one-half of a mile from the western edge of Portland's historic downtown and central business district. Maine Medical Center, a 637-bed teaching hospital, is less than one-mile away to the north of the CBOC site. A Portland Fire Department station is located 2.7 miles away from the Clinic at 684 Broadway, The topography of the site includes a relatively level area (coinciding with the commercial zone) and a steeper area which is part of the residential zone. The site provides views south to the Fore River and South Portland. West Commercial Street is a main entrance route to Portland and Cape Elizabeth and the CBOC's location and orientation will serve as a gateway to patients and travelers. As a result, the CBOC will visually communicate the VA's brand to the local public, establishing the VA as a recognized identity in the Portland community.

Features:

- Site is within the RLP's Area of Consideration
- Zoned for Medical Clinic use
- Conveniently accessed by major highways and downtown Portland
- Prominent site for VA branding

Site Design

Clarity of site circulation is paramount for the success of the building, mitigating visitor anxiety at arrival and departure. The main public entrance to the CBOC is located on West Commercial Street. The entrance is made prominent by elevated architectural masses on corresponding corners of the Clinic and parking structure. A canopy is provided at the CBOC's entrance with space for three cars to drop-off and pickup. A 10-seat gathering plaza is located adjacent to the entrance to allow family and patients a chance to spend time outside the CBOC in good weather. The entrance to the patient garage is immediately to the east, directly





The Gateway Rendering

off the entrance drive. The garage pedestrian entrance is across from the CBOC's main entrance with a well-marked, raised cross walk between them.

Staff parking is located on the west side of the Center and contains 150 spaces with its own entrance from West Commercial Street. A Staff building entrance is located adjacent to the staff parking. Both the main and staff entrances are separated from drive lanes by site bollards. Service vehicles enter at the east end of the site (behind the garage) and are restricted to the drive lane behind the garage and CBOC. The ambulance dock, mobile imaging station, dumpsters and loading dock are located behind the Clinic, out of site from patients and visitors. The CBOC and garage are located close to the street to limit the need for cutting into the steep hill behind and control site costs. Service vehicles will exit the site onto West Commercial at the west end of the staff parking. Patient and service traffic are designed to avoid crossing each other on the site. To avoid extensive and intrusive cutting into the hill at the back of the site, a short retaining wall has been introduced at the front of the site to raise the ground floor of the development. At its highest, the site wall will stand 6'-0" tall, with a communicating site stair to aid in ease of access. The main entrance will remain ADA compliant from the street, and the staff entry will be ADA compliant from the staff parking area. Covered entries are provided at the mobile imaging pad, ambulance entry and loading dock. The CBOC's main entrance is over 1000' from the nearest main intersection (West Commercial Street and Beach Street).

Features:

- Prominent site entrance with segregated traffic patterns
- Covered patient parking adjacent to the CBOC
- Separate staff parking and entrance
- Discreetly located building service area

Building Design

Portland, Maine, while extremely rich with history and tradition, also celebrates innovation, with a strong commitment to art and design. This modern quality building reimagines traditional material compositions with contemporary design principles, balancing notions of permanence and progress. Having completed many projects with the VA, SmithGroup understands the mission of the VA's Patient Aligned Care Team principles. Not only must the care be patient-centered, but the design of the facility must be patient-centered, as well. SmithGroup prides itself on being at the forefront of healthcare design, and Portland's CBOC will be no exception.

Concept

The primary concept for the buildings aims at creating a gateway through which patients and visitors enter the site, offering a clear means of access from West Commercial Street. This is achieved by raising the public lobbies and vertical circulation in the front corners of the clinic and parking structure as a welcoming beacon. We then extended activated the public-facing facades along West Commercial to take advantage of views to the Fore River and to create a positive environment for patients, family, and passerby. High glazing in the clinic is implemented to bring natural light into public zones, and to reach deep down into clinical corridors to enrich the caregiver experience.

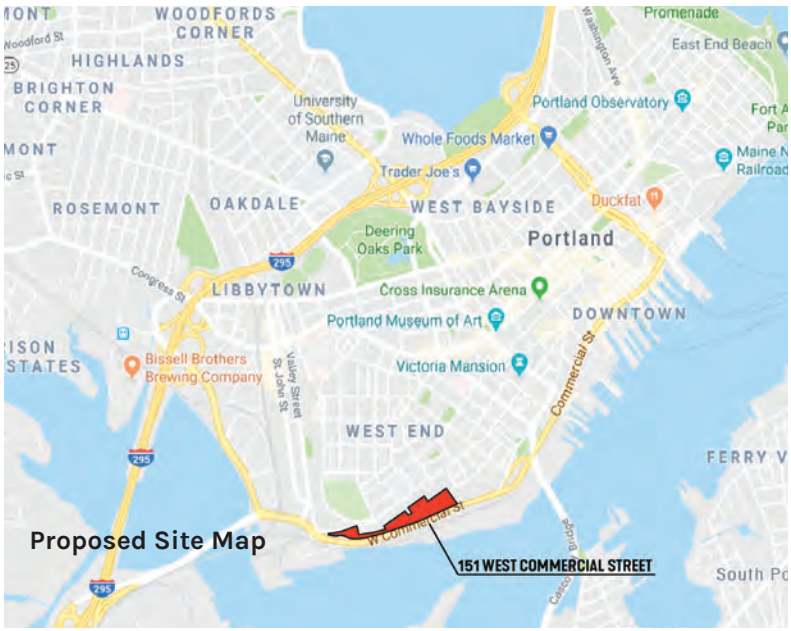
The corners of the gateway are designed with glass, not only to offer intelligibility to the users, but also to honor our veterans through the use of patriotic super-graphics on the backdrop of each space. The building communicates appreciation for the sacrifice of our service members, as well as give them a respectful welcome at the front door. This motif is carried through the materiality of the building with a dual meaning for each material, one which speaks to the character of those for which the building serves, and the other to reference the local vernacular. Corrugated metal represents the unwavering strength of our service members and speaks to industrial military hangars and barracks, as well as referencing Portland's waterfront industry and shipping containers. In the same spirit, a randomized color variation in the brick represents the diverse cultural backgrounds of our veterans, while also nodding to Portland's traditional New England red brick. On the rear elevation, out of public view, a more cost-effective concrete masonry unit veneer is used, with colors selected to match the brick.

Building Components

The Clinic is broken up into two major components: the frontage, which celebrates public and multi-purpose functions, and the clinical box, designed for efficient team-based care. The building design climbs two stories with rooftop mechanical units, screened with a similar corrugated metal as the street-facing façade, only perforated for proper air intake.







Proposed Site Map

MATERIAL PRECEDENT

BRICK

- VA:
  - COLOR VARIATION REPRESENTS THE DIVERSE CULTURAL MAKEUP OF OUR SERVICE MEMBERS
- PORTLAND:
  - TRADITIONAL VERNACULAR

CORRUGATED METAL

- VA:
  - INDUSTRIAL MILITARY BUILDINGS; AIRPLANE, SHIP, & HUMVEE HANGARS
- PORTLAND:
  - WATERFRONT INDUSTRY & SHIPPING CONTAINERS

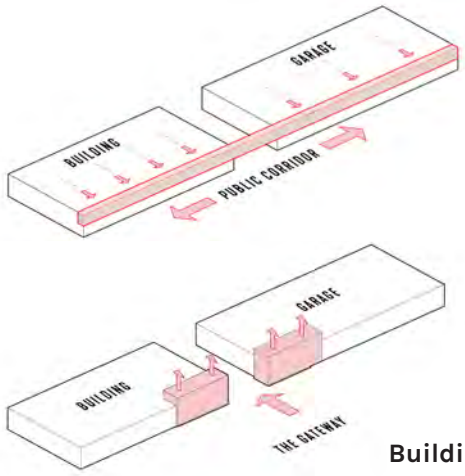

Waterfront View from The Gateway

The building envelope is designed to respond to the challenges of the local climate. Walls are designed to prevent moisture penetration and minimize heat loss and gain throughout the year. Exterior steel and metals are coated or galvanized to prevent corrosion, and the building envelope will minimize air leakage to and from occupied spaces and ensure condensation control with a continuous weather barrier. The brick, composite metal panel, and corrugated metal panel systems will layer onto 3" mineral wool rigid insulation, air vapor barrier, exterior sheathing, and 8" cold-formed metal framing.

All window glazing shall be low-E, insulated glass Storefront doors shall be low-E, insulated and tinted. Window systems shall be double glazed and provided with a continuous thermal break between inner and outer sash. Windows in the clinical areas have been appropriately sized to allow in natural light and afford privacy to patients and staff. Frames shall be thermally broken. Windows in the security exam or holding rooms will be 7/16" thick laminated glass. The laminated glass will be placed on the interior of double-glazed windows.

The roof system will be designed according to the recommendations of the National Roofing Contractors Association (NRCA) Roofing and Waterproofing Manual. Low slope roof systems will be designed per FM global criteria, to local environmental conditions, utilizing sloped structural system. Roofing membrane system will be a layering of black EPDM roofing, coverboard, 4" of rigid insulation, vapor barrier, on metal decking. Roof walkways will be made of prefabricated roof walk pad with nonslip surfaces, on access routes to mechanical equipment that requires recurrent maintenance. Roof ladders, stair and platforms will be provided as necessary to ensure the safety of maintenance workers.

Insulated galvanized metal doors or aluminum storefront doors will be provided, as appropriate. All doors will be a minimum of 3 feet wide in non-patient areas, and 3 feet 6 inches in patient areas. The main entrance doors will be automatic sliding doors of anodized aluminum construction with safety glazing. They will comply with the same energy efficiency requirements as the window systems.



Building Diagrams



Southfacing Exterior Night Rendering

At the main entrance, staff entrance, ambulance entrance, loading dock, and mobile imaging entrance, vestibules will provide an airlock. Other swinging exterior doors will be heavy duty, insulated, full-flush hollow steel construction. All exterior doors will be weather-stripped, self-closing, and outward opening. Latch guards and hinges with non-removable pins will deter tampering or unauthorized entry. Exterior details will be designed to preempt bird roosting. Exterior structures that will be included in the overall campus design scheme include:

- Covered vehicle drop-off area at the main building entrance
- Staff-entry canopy
- Ambulance drop-off and canopy
- Mobile imaging pad and canopy
- Covered loading dock area

All covered walkways and service overhangs will be constructed of non-combustible materials and are integrated into the architectural style of the building. Walkways will be illuminated with integrated fixtures controlled by the site lighting system. Where required by the AHJ, walkways and overhangs will be fully sprinklered.

Any service and equipment yards will be blocked from public view by screen walls that are architecturally compatible with the main building.

The facility is designed to meet Federal and Local requirements for fire safety, physical security, accessibility, seismic, and sustainability standards per the terms of the solicitation for proposals and will be fully compatible with the VA's intended use.

Features:

- Modern quality building with durable exterior materials
- Articulated building elements for pleasing aesthetics and patient way finding
- Covered and protected entrances
- Weather resistant and energy efficient envelope



West Facade Rendering

Planning & Tenant Improvement

The VA space program in the Request for Lease Proposal is located on two floors in the CBOC. The program spaces have been laid-out in the test fit plans with an emphasis on efficient and understandable layouts. Specialty clinics such as dental, eye, audiology and mental health are located on the first level for ease of access, and the larger Patient Aligned Care Team (PACT) spaces are are grouped on the second level, with easy access through elevators and stair. There is a grouping of one freight/stretcher elevator and one passenger elevator, located near the primary check-in and wating spaces on the first floor. Floor plans are designed to be easily understandable, with clear cues to draw the users to key checkpoints. All corridors are 6 feet in width. Security measures, as outlined in Appendix C, will be included. Exterior windows are provided at the end of major circulation corridors for natural light and connection to the exterior. Appropriate finishes and materials will be used in patient, staff, and public spaces to conform with the TI budget and medical office building character of the building. Minimum 9'-0" high ceilings will be provided throughout with 10' ceilings in larger spaces (>500SF).

Features:

- Patient-centered design focused around team-based care
- Efficient layouts for state-of-the-art treatment
- Clear and consistent patient waiting and circulation patterns with abundant natural light
- Separation of open patient and secured staff circulation


ATTACHMENT
n


Portland


Portland
Outpatient Clinic


Portland
Outpatient Clinic


Portland
Outpatient Clinic


Portland


Portland













GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, Maine 04106
207.772.2515

December 4, 2019

Ms. Christine Grimando
Planning and Development Department
City of Portland, Maine
389 Congress Street
Portland, Maine 04101-3509

Subject: Application for Level III Site Plan Application
FDS JBB Portland LLC
Proposed VA Community Based Outpatient Clinic (CBOC)
113 West Commercial Street

Dear Christine:

On behalf of **FDS JBB Portland LLC** (Applicant), our office is pleased to provide the uploaded submission materials for a Level III Site Plan Application. This submission package is intended to meet the City's Level III Site Plan Submission requirements as outlined in the Level III Site Plan Checklist as well as Section 14-526 of the Code of Ordinances.

PROJECT OVERVIEW

The applicant is proposing to develop a 62,300± SF Veterans Administration Clinic and supporting parking garage under a long-term lease agreement with the Department of Veterans Affairs. Site construction is scheduled to begin in early 2020, pending City Site Plan approval with building permits from now through late winter. The front area of the site to be developed is currently in the B-5b Zoning District and the Waterfront TIF District. The site is identified in the City's Assessors Tax Map 060/Block A001/Lot 001. The lot area is 8.4 acres of undeveloped land, although the site did contain a rail yard many years ago.

The current development plan includes the following uses and design elements:

- A new two-story Clinic building with a footprint of approximately 34,155± SF and a total GLA of approximately 62,300 SF. The Clinic will contain on the first floor, patient care services and administration while the second floor will include specialty clinics such as dental, eye, audiology and mental health. The building will contain a single loading dock for truck deliveries as well as outside space for the parking of a mobile imaging trailer. A loading area for ambulances will also be located at the rear of the building. The building will contain a full fire suppression system along with typical utilities for water, sanitary, underground power, and natural gas. Patient/Visitor entry will be focused to the east end of the building and staff entry will be on the west end of the building. The building positioning locates the front entry tower closest to the West Commercial Street right of way line at less than 10', which is consistent with the B-5b dimensional requirements. The proposed building is expected to provide a prominent base as a gateway into the City as well as communicating the VA's brand to the local public and visitors to the city alike. At a two-story height (max at 43'-0"), the building will also fall well within the scale of nearby structures and it will result in insignificant visual impact to the residential neighborhoods to the north (off Danforth Street) that are substantially higher in elevation than the development site.

- A 382-space precast parking garage will be positioned on the east end of the property. Similar to the Clinic building, the garage elevator tower will anchor the building to the street front, as it too, is positioned within the maximum 10' setback from the right of way. The garage will contain 250 dedicated spaces to VA Clinic patients/visitors and 132 spaces for open parking available to the nearby Star Match Building, also owned by J.B. Brown & Sons. The owner will be discussing opportunities with City officials for the use of the garage as a storm event overflow parking facility and related use. Initially, parking in the garage will be reserved specifically for VA use (lower two floors) while the surplus parking on the upper deck will be for ancillary and J.B. Brown use. The owner reserves the right to install gate controls for portions or all of the garage in the future to allow for greater public use (either short term "pay for" parking or long-term business parking leases).

- The main project driveway entrance will be located between the two buildings, thus allowing for patient drop off/pick up and garage parking access from the same driveway. The main driveway will contain a single entering lane and two exiting lanes. Secondary driveways will be provided at the west end of the site for access to the Staff parking lot and on the easterly end of the site for access to the parking garage and for service access around the rear perimeter of the site. All driveways are located to provide separation from the existing driveways on the opposite side of West Commercial Street that serve the Canal Landing site. Currently it is believed that the driveways will not require signalization, however improvements to West Commercial Street to provide left turn lanes into each driveway are likely to be required. A traffic impact study is being completed and the project will require a Traffic Movement Permit thru the City under your delegated authority.

- A 10' wide paved pathway is proposed along the site frontage, which is consistent with the City's *West Commercial Street Multi-Modal Plan*. The pathway will provide connectivity to improvements the City is pursuing both east and west of the site for providing pathway linkage between existing trail systems along the waterfront. The project is located within the Waterfront TIF District and it is understood that TIF funds will be used to support the pathway development. The pathway construction will require improvements to existing utilities including the CMP power pole locations and the existing Fore River Interceptor Sewer appurtenances that are located along the pathway alignment. A retaining wall will also be required along the back side of the pathway, to overcome the topography along the street frontage.

- Accessory uses, including but not limited to, the surface parking facilities, utility services, stormwater management systems, and site amenities are also part of the current proposal. A new staff parking lot containing 150 parking spaces will be provided on the west end of the site. The site design will employ the use of porous pavement in the surface parking lot to address both flood control and water quality treatment compliance.

CLOSURE

As outlined in the Level III Site Plan submission requirements and checklist, we will upload the following materials upon authorization by City staff:

- General Application Documents
    - Project Description
    - Level III Application Checklist
    - Right, Title and Interest
    - Zoning Assessment
    - Existing and/or Proposed Easements
    - Waiver Request and Waiver Table

- Financial Capacity
- Technical Capability

- Transportation
  - Transportation Narrative
  - Traffic Assessment – (under separate cover and part of the Scoping meeting materials by Traffic Solutions)
- Environmental and Landscape Features
  - Narrative to Address Standards
- Environmental and Stormwater
  - Narrative to Address Standards
- Public Infrastructure and Safety
  - Narrative to Address Standards
- Site Design
  - Narrative to Address Standards
- Construction Management Plan – by Landry French Construction
- Site Plans and Architectural Plans

On behalf of **FDS JBB Portland LLC**, we look forward to your continued assistance on the project and we look forward to the next available workshop meeting with the Planning Board. As is required, once we complete the Planning Board workshop, the applicant will be conducting a Neighborhood Meeting. We anticipate this meeting will be conducted prior to the Public Hearing.

If you have any questions regarding the materials being submitted, please contact this office.

Sincerely,

GORRILL-PALMER

Stephen Bushey, PE
Senior Associate
Phone: 207-772-2515 x286
sbushey@gorrillpalmer.com

Attachments

c: FDS – Claiborne Williams
JBB – Vin Veroneau
SmithGroup – Greg Heppner
Landry French – Mason Rowell

CONSTRUCTION MANAGEMENT PLAN

A Construction Management Plan has been prepared by Landry French Construction and is appended to this section.

Construction Management Plan
For 133 West Commercial Street
Landry/French Construction

This document and its subsequent attachments comprise the Construction Management Plan being submitted to the City of Portland for the new Veteran's Affairs Community Based Outpatient Clinic (CBOC) and associated Parking Structure to be constructed at 133 West Commercial Street. This plan is being submitted by Landry/French Construction on behalf of the Owner. The Construction Management plan contains information pertaining to the overall planning and coordination of the project.

A. Construction Management Principles

The impact of this project during construction will be minimized via the following management practices and principals:

- As articulated on the attached plan (Exhibit A), the Construction Zone will be secured with a combination of jersey barriers, fencing and gates along West Commercial Street and tie-in into the natural barrier at the North side of the project site. These barriers will look to prevent any access into the site from public.
- All Construction activities will be performed within the limits of the site fence to ensure public is never exposed to any risks caused by construction activities. Three entrances will be maintained into and out of the site and will correspond with the final permanent entrances that are depicted on the site plan.
- All deliveries will be scheduled and coordinated to ensure there is minimal off-site queuing required.
- All construction activities will occur within the sound ordinance times.

B. Development Review of Construction Management Plan

Landry/French has developed a comprehensive management plan that will be in place for the duration of the construction timeline (or until permanent/final measures are installed and can be utilized). Again these are depicted on Exhibit A.

Note that Landry/French utilizes a site-specific safety policy for all workers on-site. Each member will complete a job specific safety orientation prior to starting work activities. At no point will the public have access to the project site within the fenced limits.

C. Performance Guarantees, Inspection Fees, Preconstruction Meeting, and Permits

All fees, building permit fee and guarantees will be paid/issued prior to the commencement of construction. All street opening permits will be applied for by the selected site contractor upon award and in hand prior to opening the street for work.

There is no blasting anticipated for this project.

D. Construction Administration and Communication

The contact person for all construction activities for the project will be:

Landry/French Construction
(207) 730-5566
gmitchell@landryfrench.com

Signage will be posted onsite with additional emergency contact information for the selected Superintendent that will be the site contact for the project. An Emergency Call Log will be developed and distributed to the project team (to include subcontractors).

E. Construction Schedule

The Project is expected to commence immediately upon permit issuance (Spring 2020) and be completed no more than 18 months post commencement of work.
All construction activities will adhere to the City of Portland's Noise Ordinances and their applicable timeframes. All deliveries for this project are anticipated to occur during normal working hours (7:00A – 3:30P).

F. Security & Public Safety

Please refer to Exhibit A for the site fencing/gates, traffic and pedestrian routing plan, which will be utilized for the duration of the project. If required by the City, Knox Box Pad Locks will be installed at each gate for fire department emergency access, ensuring that access is always maintained to the Fire Hydrant along the property frontage.

The fire safety program on-site will consist of the following:

- Fire Extinguishers placed throughout the construction site for the duration of the project.
- All employees on-site will be orientated to the site-specific plan that will include an emergency evacuation plan.

G. Construction Permitting and Traffic Control Plans

Temporary barriers will encroach into the Commercial Street ROW but will always ensure that current traffic and pedestrian patterns are maintained.

This project includes new utilities; that will require new taps/tie-ins within the public ROW. All street opening permits will be applied for and approved prior to start of utility work in the street.

H. Site Management and Controls

Landry/French will adopt the following site management and maintenance activities through the duration of the project:

- Trash and Debris will be contained within the project fencing and changed out on a regular basis.
- Street cleaning will not be required on a regular basis but reviewed on a daily basis and cleaned as required to remove dirt/debris caused by the construction efforts. A stabilized temporary construction entrance will be installed at the gate locations and maintained by the selected sitework contractor.
- Noise will comply with City Ordinances.
- If needed, water will be used to control dust during the sitework activities of the project. We do not anticipate any other activities that will require dust control measures.
- Onsite snow removal will be handled by Landry/French.

I. Erosion Control and Preservation of Trees

We will comply with the approved erosion and sedimentation control plan.

J. Construction Staging Area

Exhibit A of this document is the site logistics plan for the project.

K. Parking During Construction

On-site parking is expected to be utilized. However, if off-site parking is required, employee parking will be provided by employers utilizing legal parking methods.

L. Special Measures as Necessary

As it is understood currently, no Special Measures will be required.

MATCH LINE - SEE PLAN BELOW

MATCH LINE - SEE INSET ABOVE

NORTH

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 inch = 40 ft.

WEST COMMERCIAL STREET (width varies)

DANFORTH STREET (width varies)

E STREET (unimproved/unaccepted)

K STREET (unimproved/unaccepted)

EMERY ST (unimproved & Ord #1,180)

061 H018
N/F
Stephen Dyro
30108/100

061 H005
N/F
Mark Bessire
Aimee Bessire
27820/339

061 H004
N/F
Thomas R. Robinson
Laura C. Robinson
31889/194

061 H003
N/F
Sonia B. Robertson
22292/241

061 H009
N/F
Michael Bruenjes
Judith Bruenjes
32805/285

061 H010
N/F
George R. Maberg
Elizabeth J. Maberg
2928/1450

061 H011
N/F
Sarah P. Dognault
32746/080

061 H012
N/F
Michael R. Curtis
Margaret T. Curtis
27799/302

Dievens M. Hamien
Sonia Post Jonnait
32451/099

061 H002
N/F

061 H001
N/F
Susan Jane
Noonan
7400/261

061 I004
N/F
Deborah J. Kruk
26933/030

061 I003
N/F
William McFarlane
Constance
Bloomfield JTS
21615/268

061 I002
N/F
Joseph S. Kilmartin
Helen F. Kilmartin
26215/339

061 I001
N/F
Marjorie R.
Shaw
7420/13

058 C001
N/F
JB Brown & Sons

060 F001
N/F
Canal Landing, LLC
32239/148

060 F002
N/F
Maine DOT

060 F003
N/F
Canal Landing, LLC

PROPOSED OUTPATIENT CLINIC
_____SF FOOTPRINT
_____SF TOTAL AREA
(SEE ARCHITECTURAL PLANS BY SMRT GROUP)
F.F.E. 22.50

PARKING GARAGE
_____SF FOOTPRINT
_____LEVELS
TOTAL _____PARKING STALLS
(SEE GARAGE PLAN BY OTHERS)
F.F.E. 21.50

SEE ACCESS DRIVE 1 PROFILE SHEET C-8.0

8' RETAINING WALL OR ROCK CUT FACE, EXACT HEIGHT & LENGTH T.B.D.

CONSTRUCTION ENTRANCE/GATE

SITE SECTION 1

SITE SECTION 2

Temporary Benchmark (TBM)
Spike set in pole CMP #70.
Elevation: 22.09'

Temporary Benchmark (TBM)
Spike set in pole CMP #76.
Elevation: 21.82'

Control Spike
N:2934,153.72
E:2925,577.02
EL=11.35

LEGEND

JERSEY BARRIER W/ FENCE

CONSTRUCTION FENCE

NATURAL SLOPED BARRIER

CONSTRUCTION ENTRANCE

EXISTING 16" WATERLINE

EXISTING UNDERGROUND PRIMARY POWER (CMP)

EXISTING 115KVA PIL-ENCASED UNDERGROUND POWER

EXISTING CANAL LANDING RAILROAD CROSSING

EXISTING GRANITE REVETMENT WALL

FUTURE BOAT RAMP

WAYNFLETE BOAT STORAGE

WPDZ ZONE

WEST COMMERCIAL STREET MAY HAVE AT LEAST 1/3 OF GRANITE COBBLESTONE PAVE BELOW THE EXISTING PAVEMENT – EXACT LOCATION AND LIMITS ARE UNKNOWN

EX. CATCH BASINS EXACT OUTLET CONDITIONS UNKNOWN

Commercial St-Portland, ME\Z - CAD\DWG\3572-GRADING.dwg 11/12/2019 10:49 AM

Drawing Name:	EXHIBIT A - LANDRY/FRENCH CM PLAN - 11.15.19
Project:	**U.S. Department of Veterans Affairs – Community Based Outpatient Clinic** 133 West Commercial Street, Portland, Maine
Client:	**FDS JBB PORTLAND, LLC** 10 Free Street, Portland, Maine 04101

Att. Q

GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, ME 04106
207.772.2515

January 30, 2020

Mr. Andrew Tufts
Planning and Development Department
City of Portland, Maine
389 Congress Street
Portland, Maine 04101-3509

Subject: VA Community Based Outpatient Clinic (CBOC)
Project ID – PL-0000927-2019
113 West Commercial Street
Letter of Response #1

Dear Andrew:

On behalf of **FDS JBB Portland LLC** (Applicant), our office is pleased to provide the following responses to various staff comments you provided on January 3, 2020. For ease of review we have repeated the staff comments and provide our responses as follows:

MIKE TREMBLAY, DPW P.E. SENIOR ENGINEER

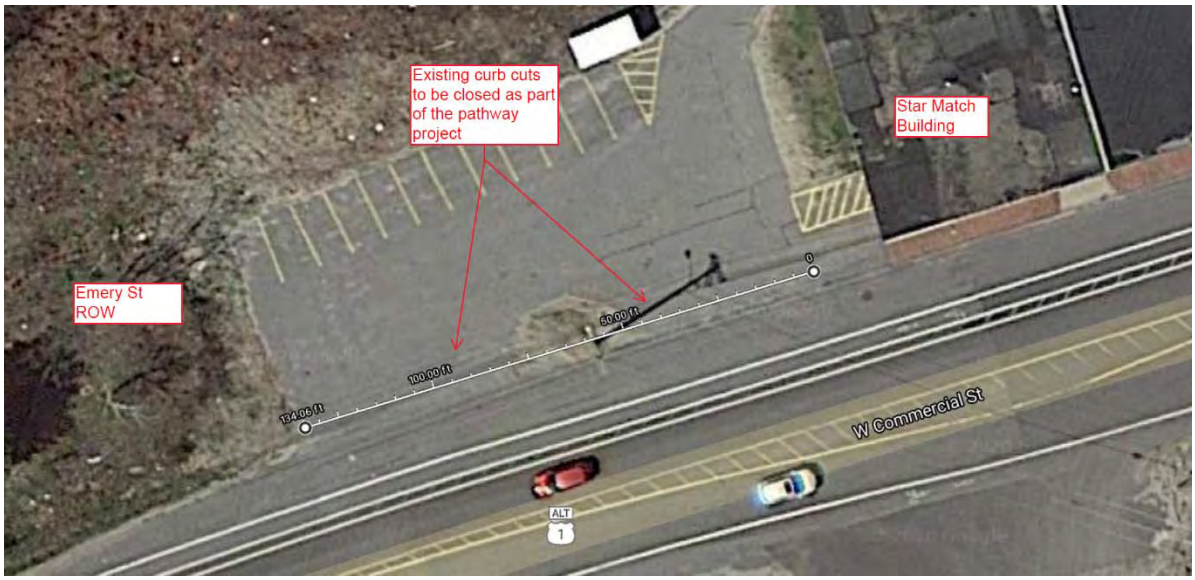
Site Plan

Comment

The project site has three driveways. A maximum of two driveways is permitted per the technical manual (1.7.2.8). A waiver is required for three driveways. DPW does not support a waiver for a third driveway at this time, given the potential issues with the central driveway, discussed below; three driveways also present three new conflict points along a high-volume, high-speed roadway.

Response

The applicant is proposing three driveways; however, we note that the most easterly driveway is positioned within the Emery Street Right-of Way, thus it could be considered as separate from the other two driveways from the site onto West Commercial Street. We also note that J.B. Brown & Sons owns the adjacent property containing the Star Match Building, just east of the Emery Street Right-of Way. J.B. Brown has committed to closing their existing curb opening just to the east of the Emery Street Right of Way as part of the development of the City sponsored 10' wide mixed-use pathway project. This curb cut measures over 135 feet wide. That small paved parking lot will simply be tied into the Emery Street Driveway.



The net result will be only two new driveways along the West Commercial Street frontage, a distance of over 1,500 LF. By basis of comparison, we note that the development site is within the B-5b Zone where there is no minimum lot size or minimum frontage, thereby, an alternative development scenario consisting of multiple lots could arrive at substantially more driveway openings on West Commercial Street. We note that the driveways provide distinct access for the development as follows:

- The westerly driveway will primarily serve Clinic staff for access to their surface parking lot. The westerly driveway will also provide access for heavy vehicles including the solid waste hauler, large truck deliveries exiting the site and ambulance services.
- The central driveway is the primary site entrance for patients/visitors and it provides direct access to the main Clinic patient building entrance as well as to the parking garage.
- The easterly driveway will provide access to the parking garage as well as for a heavy vehicle entering circulation route around the rear of the site, which is particularly necessary for access to the loading dock. The easterly driveway within the Emery Street Right of Way will also serve for a linkage to the Star Match Building parking lot and it will allow two existing curb openings to be closed.

Comment

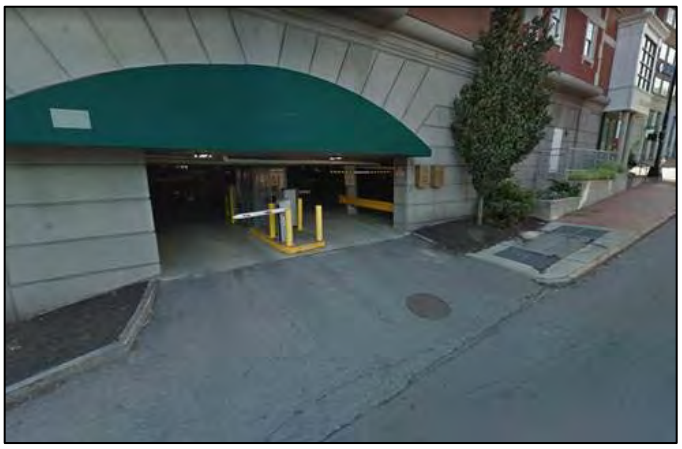
The central driveway, used for pick-up/drop-off and as a garage entrance, is problematic. There appears to be very little stacking space for vehicles if the three pickup/dropoff stalls are occupied, which may cause vehicles to spill into West Commercial Street. Additionally, as all patients and visitors using the garage must walk across this driveway, vehicles turning into the driveway may need to wait for pedestrians to cross at two different locations (the shared path and the crosswalk within the site), which may cause conflicts on West Commercial Street. DPW suggests that the central driveway be closed, and the pick-up/drop-off area made accessible solely from the 24-foot access drive behind the site. This gives vehicles ample space to queue for the pick-up/drop-off area if there is congestion in this area; the driver can then quickly enter the garage or exit via the access drive. The path would be continuous between the garage and clinic, with no vehicle conflicts, and no waiver for an additional driveway would be required. Some of the following comments may be addressed, or become moot, if this comment is incorporated.

Response:

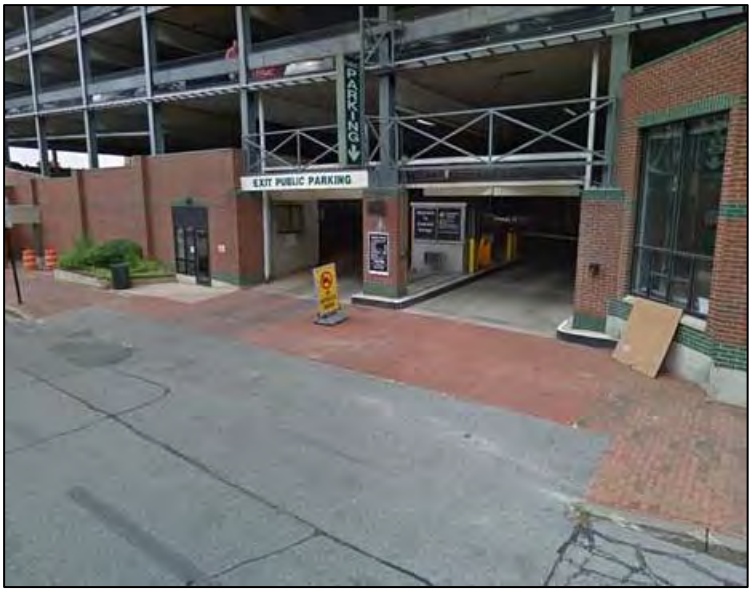
We are not in agreement with the assessment of stacking space as well as the interaction of entering movement traffic and pedestrians crossing between the buildings and/or the mixed-use pathway. Much like many private driveways and urban property access settings there will be the need for entering and exiting vehicles to give way to pedestrians on sidewalks, etc. This is certainly true on the Peninsula, where, for example, at multiple parking garage entrances there is limited queuing capacity at a gate-controlled entrance. Take for example, entrances at the following:



Fore Street



Union Street



High Street Garage

In addition, we note that we are currently evaluating the implementation of either a two-way center left turn lane or dedicated left turn lanes within West Commercial Street, at each of the development driveways. This evaluation is made part of the Traffic Study currently underway by Traffic Solutions and which will be submitted

as part of the Traffic Movement Permit Application to the City. These lanes will provide storage capacity for left turning vehicles into the site, while also minimizing interruption to the thru-traffic movements along the street. Secondly, the available queue of vehicles within the site will be approximately 120' from the crosswalk between the buildings to the first 5-minute drop-off/pick-up parking stall adjacent the clinic. This storage space will provide adequate stacking while also providing an opportunity for vehicles to enter the parking garage, or, if necessary, to circumnavigate the site perimeter via the rear access drive.

Comment

All of the site driveways are wider than permitted by the technical manual (1.7.2.4). Driveways wider than 30 feet, measured at the property line, require a waiver. The western driveway measures about 35 feet at the property line; the central driveway measures about 41 feet, and the easternmost driveway measures about 34 feet wide. At the outer driveways, these widths reflect large curb radii, including a 40 foot curb radius at the western side of the western driveway. At the central driveway, the entering travel lane is 14 feet wide and the exiting right-turn lane is 13 feet wide; both of these widths seem excessive. Vehicle turning templates are requested to confirm that these driveway widths and curb radii are necessary. The Applicant should tighten dimensions where possible, and provide explanation for wider dimensions otherwise.

Response:

The accompanying diagrams show the movement of semitrailer trucks or an emergency vehicle entering/exiting the site. Each of the driveways have been designed to provide adequate maneuvering space for the semi-trailers or a fire truck. The site will be routinely visited by Mobile Imaging trailers (WB-63 equivalent) and also larger tractor trailer deliveries for materials to the Clinic. The latest plans have been updated to reduce the driveway widths as much as possible while also providing adequate curb radii for the assortment of vehicles expected to visit the site, including passenger vehicles up to heavy semitrailer trucks. These are summarized as follows:

- Westerly driveway – 30' wide with 25' radius each side;
- Central Driveway – One 14' wide entering lane; two exiting lanes at 13' for right turns and 11' for left turns. Curb radii will be 20'; and
- Easterly Driveway – 24' wide with 20' exiting radius and 25' entering radius.

Comment

The 24-foot access drive seems excessive for one-way traffic, even for heavy vehicles. Reducing this width would reduce impervious surface and potentially reduce the amount of regrading that is required behind the site. Alternately, this access drive could be utilized by staff and/or patients and visitors in order to be able to remove one of the site driveways, as discussed above.

Response:

The rear access drive behind the garage will be 20' wide to accommodate occasional larger truck access as well as emergency services vehicles. The drive aisle behind the Clinic will be 24' wide as it is a two-way directional drive that must accommodate semitrailer mobile imaging vehicles, emergency vehicles including ambulance service to the rear of the building, and general large trailer truck deliveries to the site.

Comment

The central driveway features a raised crosswalk; however, curb ramps are shown serving this crosswalk. These ramps may not be necessary if the crosswalk is fully raised.

Response:

The design of the raised sidewalk has been updated to reflect the differential height between the raised crosswalk which is 4" high and the sidewalks which are raised 6". There will be a slight ramp condition at the transition from the crosswalk to each sidewalk, but not a full-fledged ramp given the small differential in grade.

Comment:

The alignment of the intersection of the driveway serving the pickup/dropoff area with West Commercial Street is not acceptable. A crosswalk must be shown, the stop bar must be behind the pedestrian crossing area, and the median shall not intrude into the pedestrian crossing area. Additionally, a larger raised table, which begins at a sloped driveway apron at the site entrance, and continuing through the internal crosswalk, should be considered.

Response:

The latest site plans include updates to the pathway crossing at each of the driveways. These include crosswalk pavement markings and stop bars positioned behind the crosswalk markings.

Comment

The surface parking area includes a significant amount of landscaped islands. These islands would appear to potentially cause drainage issues, and will be an obstacle to snow clearance. The allocation of green space within the parking lot should be reconsidered.

Response:

The design includes the use of porous pavement over much of the parking lot area, thus there is not as much concern about drainage patterns and the interruption of sheet flow on the pavement that might be caused by the landscaped islands. We are aware of the impact to winter snow plowing operations caused by the islands; however, the ability to provide screening and shading effects to the parking lot are considered a net positive outcome in this proposed design. The landscape plan for the parking lot includes plantings in the island bump outs as well as a line of trees along the site frontage, all of which are intended to offset the inability to place street trees within the proposed esplanade, due to the underlying utilities in the esplanade. There will be an 8' wide divider island between the two parking bays and that island is intended as a sidewalk condition to allow the employees to walk to/from the building without need of walking in the drive aisles. This condition is improved by the placement of the planted bump out islands, rather than placing trees within the longitudinal divider island, in our opinion.

Comment

One small area for snow storage was identified near the entrance to the surface parking lot. Additional areas should be identified, as the surface parking area is 45,000+ SF.

Response:

Several areas of snow storage have been identified on the site plan around the site perimeter. Removal of snow from the site may be occasionally required and the owner will contract with a local snow hauler to deal with high snowfall conditions, on an as needed basis.

Comment

The location of the dumpsters and dumpster access driveway should be reconsidered. Garbage trucks would appear to have to make awkward turning movements to service these dumpsters, and the dumpster area necessitates a significant amount of regrading on an embankment that may otherwise be untouched by the project. The dumpsters are also located somewhat far from the clinic.

Response:

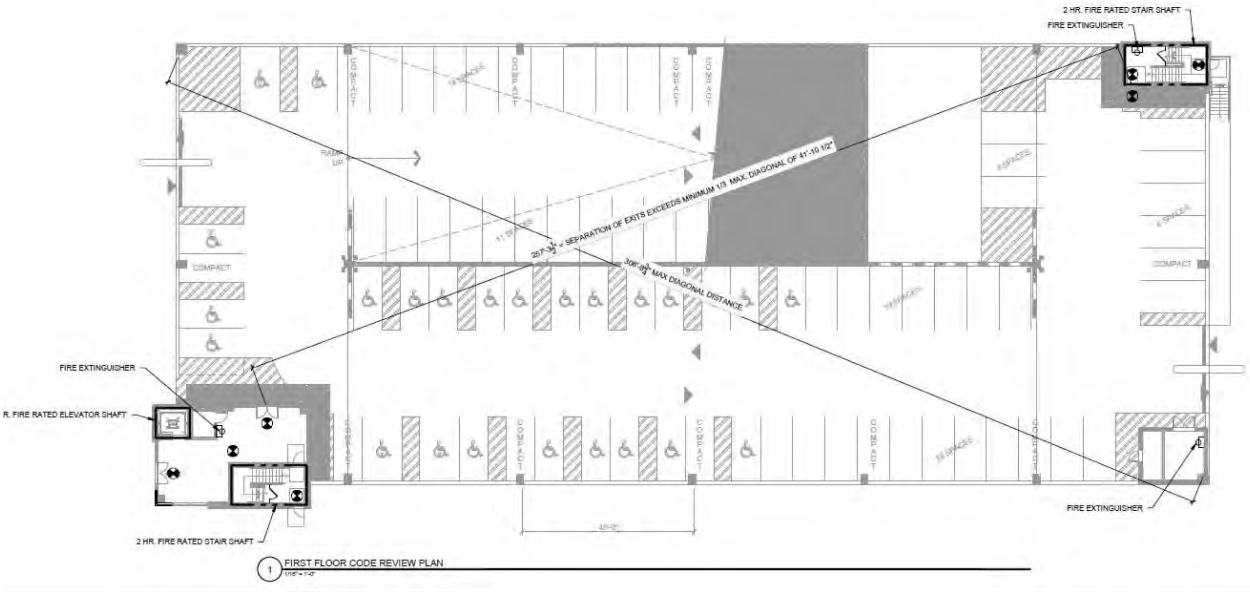
The solid waste enclosure has been shifted to a position closer to the loading dock area at the westerly rear corner of the Clinic. This location will provide improved access for staff as well as the trash removal equipment.

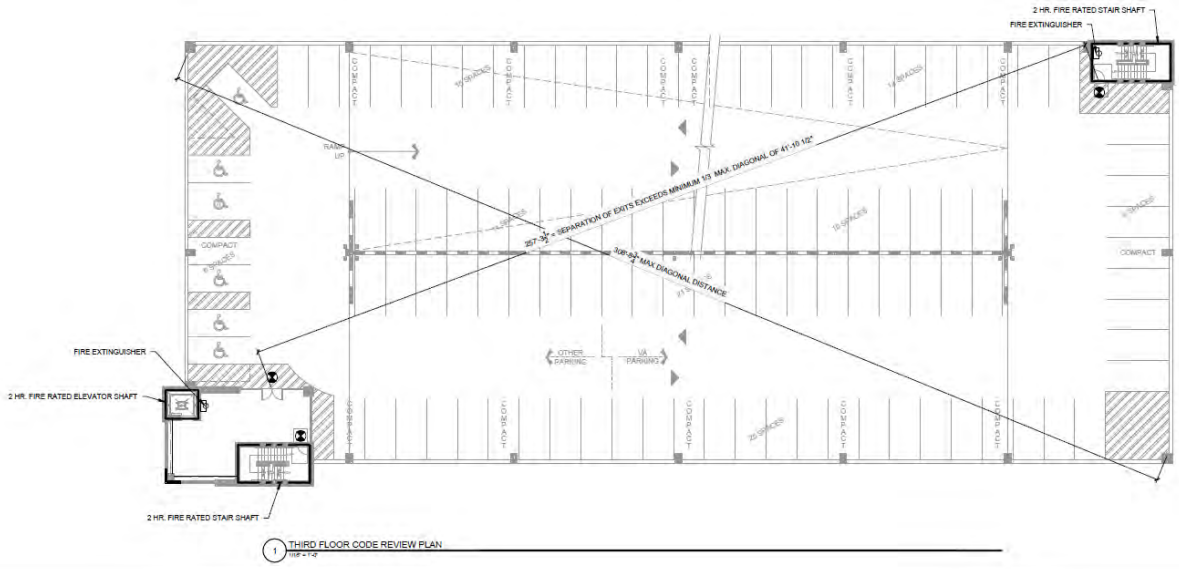
Comment

The parking layout of the parking garage should be provided. Per ADA parking requirements, "Hospital outpatient facilities need 10% of patient/visitor spaces to be accessible." As such, at least 39 accessible parking spaces in the garage are required to be accessible. Of these 39 spaces, 7 are required to be van-accessible.

Response:

The Government has requested 250 parking spaces out of the garage, thus the ADA count for the Clinic in the garage will be 25 spaces. The remaining 132± parking spaces in the garage will include 6 ADA spaces to satisfy the typical requirement for 1 ADA space/25 spaces. There will be a total of 31 ADA spaces in the garage. Updated interior garage layout is under preparation by Ryan Senatore Architecture and will be uploaded to ePlan when completed.





Comment

The 10-foot shared pathway must have a cross-slope of no more than 2.0% constructed. It is suggested that the pathway be designed to 1.5% cross-slope to allow for construction tolerance.

Response:

The pathway is currently depicted with a 1.5% or less cross-slope over its length.

Grading & Drainage

Comment

Spot grades are not provided on any of the grading and drainage plans. Spot grades should be included at critical grade break points, periodically along the front and back of sidewalk, at all grade break points at pedestrian ramps and tipdowns, at entrances and exits to buildings and garages, etc.

Response:

The latest grading and drainage plans include spot grading at critical points in the parking lot and around the site.

Comment

There is very little information on how the site will approach drainage. There is a significant slope at the back of the site which will contribute significant stormwater runoff to the impervious areas of the site. Surface parking lot drainage does not appear to be included. The drainage plan must be included in the site plan package for consideration before DPW will support this application.

Response:

We have completed the grading and drainage plans and stormwater management plans, all of which have been uploaded to eplan for Staff and peer review. Key aspects of the design include:

- Porous Asphalt pavement in the staff parking lot will provide water quality treatment and quantity control storage.
- A subsurface sand filter with R-Tank® storage will be provided for water quality treatment of roof runoff.
- A Focal Point™ water quality treatment filter will be provided for a small area of the parking lot water quality treatment.
- A closed collection and conveyance pipe system will capture runoff from the undeveloped hillside and convey it to the existing street system.

Comment

This application proposes significant regrading at the back of the site. Slope stabilization and erosion control measures must be specified on the grading plan, in the details, and in writing. Slope stabilization shall be appropriate given the makeup of the soil in the embankments.

Response:

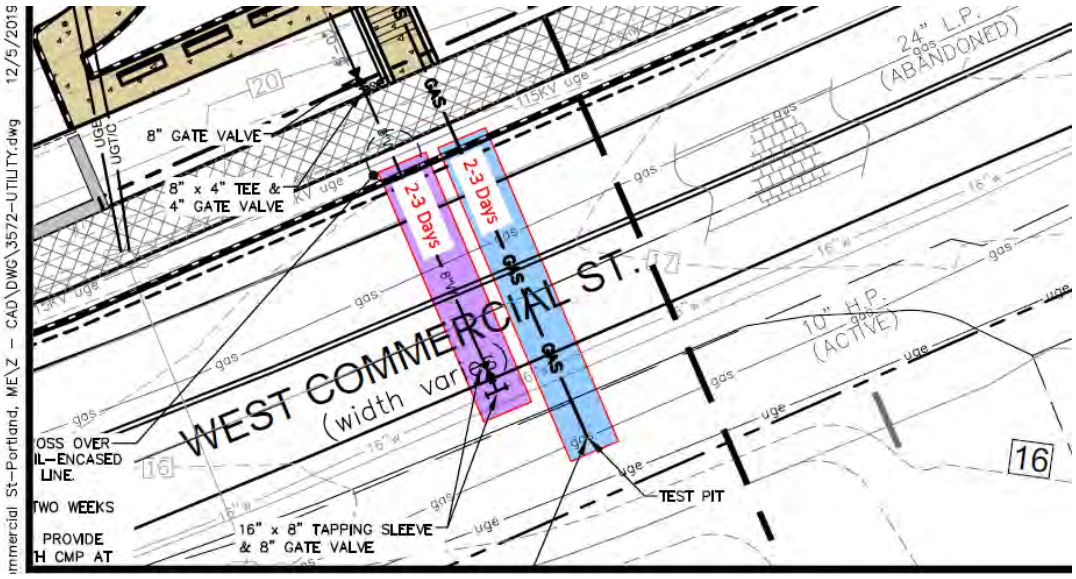
The Erosion and Sediment Control plan, narrative and details are part of the plan documents. Generally, the rear embankment slope will undergo a modest amount of regrading along the rear perimeter of the development. We have attempted to maintain these slope cuts to 2H:1V or shallower where possible although there are several areas at 1:1 for a short height. The Erosion control plans include the use of ArmorMax™ slope reinforcement on all slope steeper than 3:1.



Construction Management Plan

Comment

The locations of utility trenches and duration of work within West Commercial Street must be specified on the CM plan.



Response:

Landry French construction will be updating the CMP and an updated plan will be provided for staff review when completed. Each of the utility trenches in West Commercial Street is expected to require 2-3 days of effort. This includes the water services and the gas service extension. The existing paved road width exceeds 40' so the contractor is planning on maintaining two-way traffic throughout the duration of the work. They may also consider night work to minimize traffic control needs.

Comment

Gas service and water service would appear to require the diversion of West Commercial Street westbound traffic. The Applicant must provide a plan to accommodate traffic during this work.

Response:

The utility work in the street will require temporary traffic controls. Given the existing pavement width on the street at approximately 44', we believe there will be adequate area to allow for the maintenance of two-way traffic during the duration of work for the utility services. Similar circumstances have existed for other projects in the vicinity including the Canal Landing development and satisfactory measures for the maintenance of two-way traffic flow were able to be maintained. As a last resort the completion of the work during nighttime hours may be a possible alternative. The diversion of traffic may involve the use of temporary measures, including barrels, jersey barriers and the use of full-time traffic control personnel.

Comment

The Applicant states that current traffic and pedestrian patterns will be maintained; however, the CM plan shows a construction fence with Jersey barrier that would block the shoulder along West Commercial Street. This shoulder is used by pedestrians and bicyclists. The Applicant should clarify their proposed impact on the roadway, and include a pedestrian management plan if needed. Any construction site that forces pedestrians into vehicle traffic is not acceptable.

Response:

The intent will be not to disrupt pedestrian and bicyclist along West Commercial Street. The placement of any construction barriers will be performed to allow for continuation of two-way travel flow as well as pedestrians movements along the street. The Street has approximately 44' of paved width so we believe that the existing travel conditions should be maintainable while also achieving proper separation of the work zone from the traveling public for safety etc. The contractor will maintain the shoulder at all times except during utility trench work and they will place Jersey Barriers/fencing outside of the shoulder.

Comment

The Applicant should clarify the plan for contractor parking should on-site parking prove insufficient. No on-street parking along West Commercial Street is permitted.

Response:

It is understood that no parking on West Commercial Street will be allowed so the contractor will not use any on-street parking during the course of the work. There will be parking available either onsite or at the nearby Star Match building site.

Lauren Swett - Civil

Comment

In their online application, their numbers indicate that they are creating 3.6 acres of new impervious surface. Per the statute, Site Law applies to "structures" as follows: http://www.mainelegislature.org/legis/statutes/38/title38sec482.html
482. 6. B. "Buildings, parking lots, roads, paved areas, wharves or areas to be stripped or graded and not to be revegetated that cause a total project to occupy a ground area in excess of 3 acres. Stripped or graded areas that are not revegetated within a calendar year are included in calculating the 3-acre threshold." I do believe they will need to do a SLOD application, but it will be Delegated Review with the City.

Response:

We agree that the project requires SLODA approval under the City's delegated authority.

Ben Pearson, P.E. DPW

Comment

It appears that the submitted Construction Management Plan does not include a dewatering plan. Likely used an older template than the current one (https://www.portlandmaine.gov/DocumentCenter/View/18030/General-Construction-Management- Template). If this plan moves forward, a dewatering plan is required. It is likely that they will need to pump groundwater from the site during construction and we want to know what their plans are.

Response:

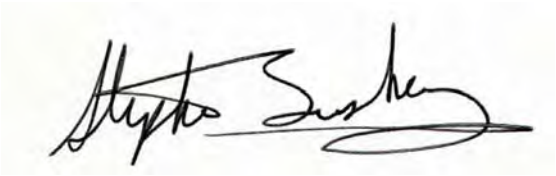
Based on the findings of the geotechnical investigations groundwater is not expected to be encountered during the performance of work. The Erosion Control plan contains a note regarding dewatering, if required, restricting

all dewatering effluent to be managed and discharged onsite or thru the use of a frac tank. No dewatering effluent will be allowed to be discharged to the City systems.

If you have any questions regarding the materials being submitted, please contact this office.

Sincerely,

GORRILL-PALMER

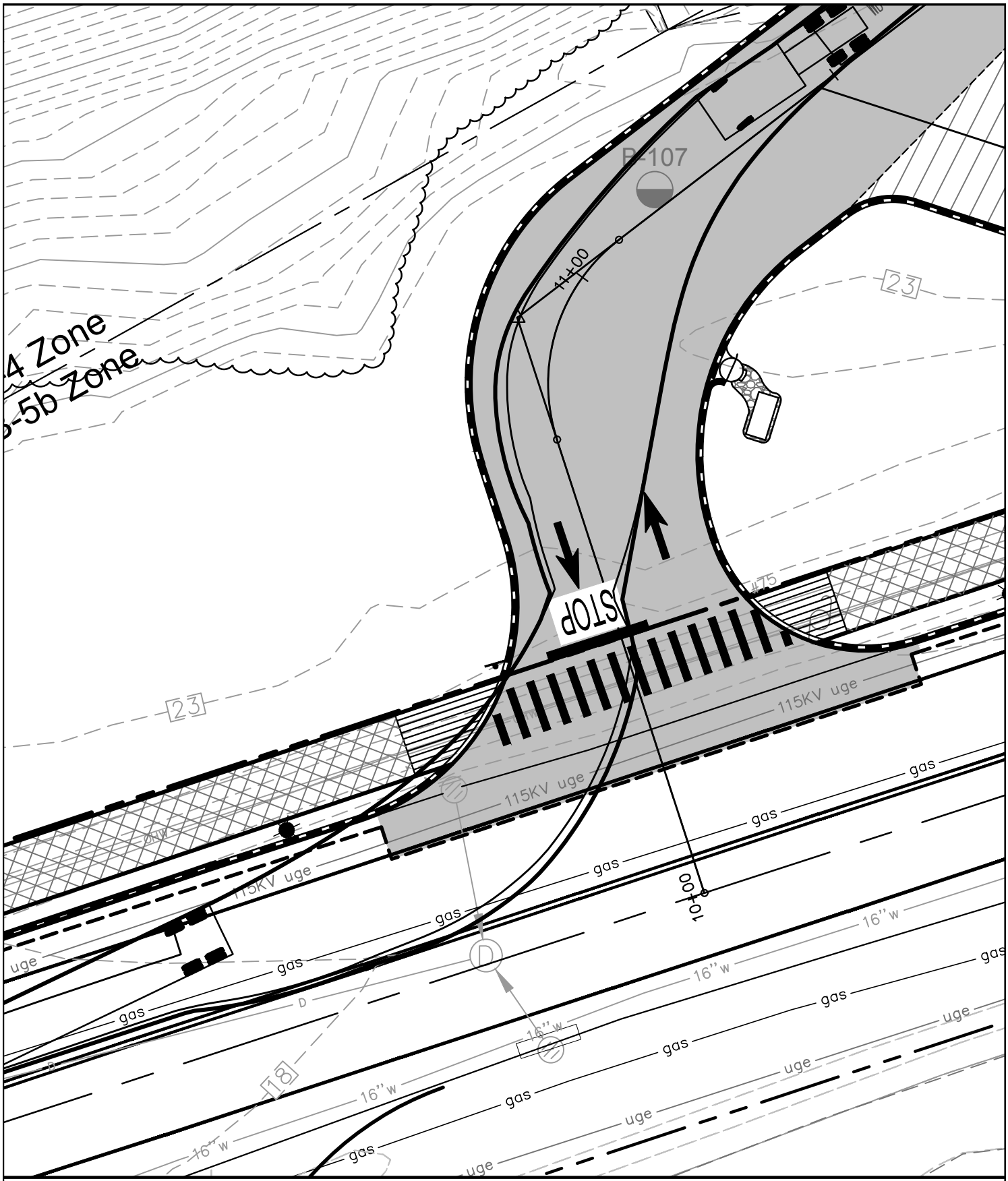


Stephen Bushey, PE
Senior Associate
Phone: 207-772-2515 x286
sbushey@gorrillpalmer.com

Attachments

c: FDS – Claiborne Williams
JBB – Vin Veroneau
SmithGroup – Greg Heppner
Landry French – Mason Rowell

u:\3572_va clinic west commercial st-portland, me\p applications\local\level iii site plan application\lor\lor#1\lor#1_tufts_01.30.2020.docx



VEHICLE TURNING - WB-62 AT WEST DRIVEWAY

VA Clinic, West Commercial Street, Portland, Maine

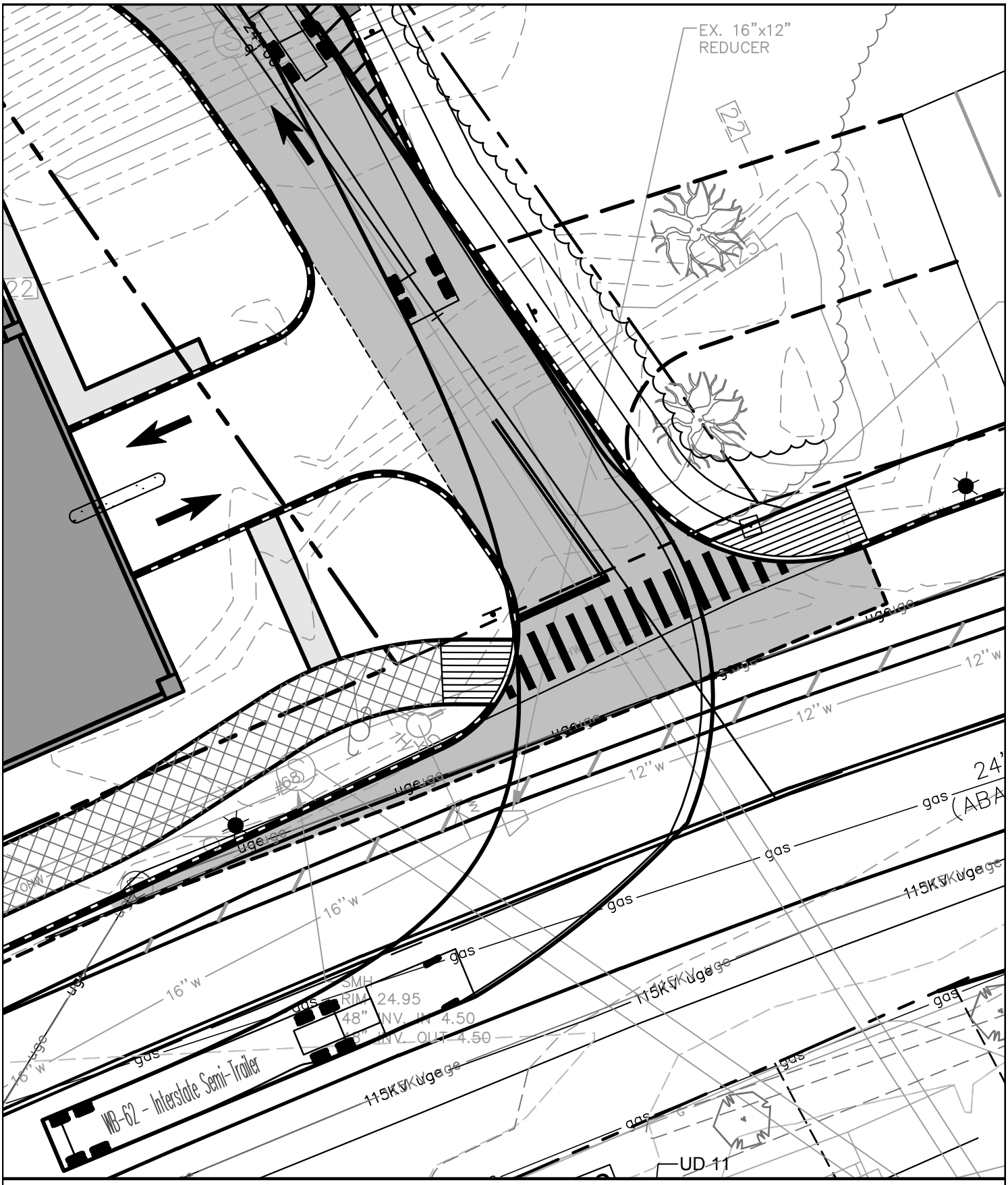
NORTH

Design: KAB	Date: JAN. 2020
Draft: CDD	Job No.: 3572
Checked: SRB	Scale: 1" = 20'
File Name: 3572–PBASE.dwg	

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Figure
1



VEHICLE TURNING - WB-62 AT EAST DRIVEWAY

VA Clinic, West Commercial Street, Portland, Maine

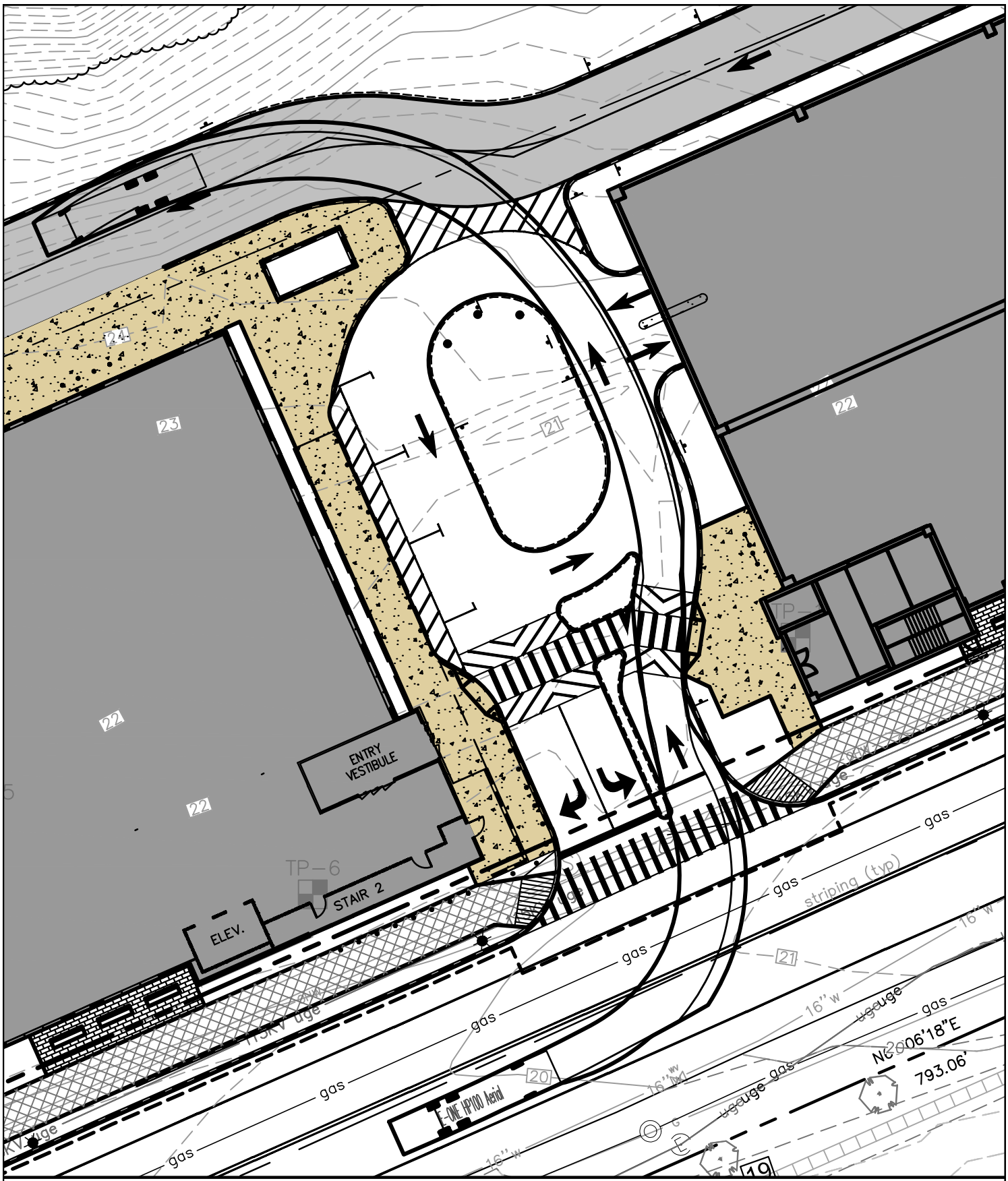
NORTH

Design: KAB	Date: JAN. 2020
Draft: CDD	Job No.: 3572
Checked: SRB	Scale: 1" = 20'
File Name: 3572–PBASE.dwg	

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Figure
2



VEHICLE TURNING - HP-100 AERIAL FIRE TRUCK AT CENTRAL DRIVEWAY

VA Clinic, West Commercial Street, Portland, Maine

NORTH

Design: KAB	Date: JAN. 2020
Draft: CDD	Job No.: 3572
Checked: SRB	Scale: 1" = 30'
File Name: 3572-PBASE.dwg	

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Figure
3

SECTION 12

STORMWATER MANAGEMENT REPORT

VA CLINIC
113 WEST COMMERCIAL STREET
PORTLAND, MAINE

Prepared for

FDS JBB Portland LLC
10 Free Street
Portland, Maine 04101

Prepared by

Gorrill Palmer
707 Sable Oaks Drive – Suite 30
South Portland, Maine 04106
207.772.2515

January 2020

STORMWATER MANAGEMENT REPORT
TABLE OF CONTENTS

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Figures

W-1 Pre development Watershed Map
W-2 Post development Watershed Map

Attachments

A Pre development Runoff Calculations
B Post development Runoff Calculations
C Water Quality Calculations
D FocalPoint® Design Worksheet/Checklist
E Geotechnical Report
F Operation & Maintenance Manual

12.0 Introduction

FDS JBB Portland LLC is proposing to construct a Community Based Outpatient Clinic within a portion of property located at 113 West Commercial Street in Portland, ME. The facility will serve as a VA Outpatient Clinic and will be referred to in this report as the "VA Clinic". The property being developed is approximately 8.40 acres. The development will consist of the following:

- A 34,155 SF footprint, two-story outpatient facility (total GLA = 62,300 SF); and
- A 35,880 SF footprint, multi-level parking structure for 382 spaces, with a 150 space, surface parking lot.

The purpose of this analysis and report is to document what measures will be implemented to provide stormwater management for the project, what is required to control the peak rate of discharge during large storm events, and to provide treatment to stormwater runoff as determined by MaineDEP's Chapter 500 Rules and City of Portland Technical Standards for Stormwater Management. Both the impact on peak rates of runoff and water quality measures are considered in this evaluation.

Erosion and Sedimentation Controls (Basic Standards) will be employed during the construction of this project and are summarized in the Erosion and Sedimentation Control Plans provided on Sheets C-5.3, C-10.5, and C-10.6.

12.1 Existing Site Conditions

The project site is bounded to the south by West Commercial Street/U.S. Route 1A; to the east by the Star Match Building site and undeveloped Emery Street Right of Way; to the north by the West End residential neighborhood on Danforth Street; and to the west by undeveloped land and a currently vacant Restaurant site (formerly Bennie's Clam Shack). The property has approximately 1395'± of frontage on West Commercial Street and is directly across the street from the Portland Yacht Services/Canal Landing property that is on the Fore River. The property was once the site of the rail yard for the historic Portland Star Match Building which was built in 1870[1]. Up to as many as nine rail spurs operated on the site at least to the early 1900's, with continued use of the tracks and yard for the storage of iron and steel occurring thru the late 1960's. Today, one disconnected rail spur is still present and various remnant railroad ties are visible on the ground surface across the site. The site today is mostly characterized by tall grasses and brush on the south side with thinly wooded area and brush on the northern side of the site.

West Commercial Street is a major artery into the Portland peninsula and Old Port District. It also contains major utilities that service the surrounding area. These include a 115 kV underground electric transmission line, 3-phase overhead electric and communications facilities, and the 48" Fore River Interceptor sanitary sewer line that runs along the property frontage. A 10" high-pressure natural gas main and 16" Portland Water District water main are also located in West Commercial Street, but are not located directly along the property frontage. A 36" combined sewer line, that serves the West End neighborhood, flows through the Emery Street Right of Way from North to South and connects to a diversion structure on the south side of West Commercial Street. These utilities are identified on the Existing Conditions and Removals Plan, Sheet C-3.0.

[1] See Phase 1 Environmental Site Assessment by S.W. Cole dated September 3, 2019.

Topography on the site generally slopes from north to south, towards West Commercial Street and, ultimately, the Fore River. The northern portion of the site is characterized by an approximately 75' embankment with naturally vegetated steep slopes (2H:1V) or greater in most areas. At the toe of the existing slope, the site levels off and has shallow slopes ranging from 1% to 2% from north to south. The distance from the toe of slope to the south property line is approximately 150' in most areas and decreases in both the east and west ends of the site. The flatter portions of the site will be the primary area of development. Runoff emanating from the site generally sheet flows from north to south across the old rail yard towards West Commercial Street, as the grade from east to west stays fairly constant.

West Commercial Street has a vertical sag curve in front of the property that is centered approximately 550'± east of the south-west property corner. The low point in the street is at roughly elevation 15' (NGVD29). An existing catch basin that collects runoff from the road and site is located along the north gutter line in the roadway sag. Water flows to this catch basin from the east at a high point in the road near the south-east property corner and from the west starting at a catch basin located in the gutter line approximately 400'± westerly. Although the grade along the road is 1% to 2%, this amounts to a change in grade of approximately 8'± from the sag curve to the high point at the southeast property corner. The grade across the site is relatively flat from the high point at the southeast corner and stays constant across the site at around elevation 21' to 23' (NGVD29) as the road trends downwards. Therefore, the developable site area is approximately 8'± above the grade at the sag in the road at the maximum. There is no curb along this portion of West Commercial Street, but a grassed slope extends from the edge of pavement up to the flatter area of the site. This change in grade transitions from relatively flat to steep (2:1±) in the area of the catch basin and roadway sag.

The USDA NRCS Medium Intensity Soil Survey identifies the site soils to be comprised of the following:

Table 1
USDA Soils

Soil Type	Soil Description	Hydrologic Group
Cut and Fill Land	Silt Loam, 3 to 8 percent slopes	N/A
Hinckley	Loamy Sand, 3 to 8 percent slopes	A
Hinckley	Loamy Sand, 15 to 25 percent slopes	A

The majority of the development is located on cut and fill land, which is considered to have low susceptibility to erosion and is somewhat moderately well drained. According to the Environmental Site Assessment investigation and geotechnical investigation[2] the site consists of uncontrolled fills overlying native deposits of interlayered sandy soils and clay-silt soils, overlying native sands, overlying native sand and gravel. Groundwater was identified at depths of 10 feet below grade to 26 feet below grade, thus it is believed that groundwater will not be a substantive design or construction issue. Construction dewatering is expected to be limited, if needed at all. This is consistent with historical information in which West Commercial Street was created on landfill, including the subject property. The embankment on the north portion of the site is identified as Hinckley which is an "A" soil and is excessively draining. A geotechnical investigation was performed by Summit Geoengineering and their findings are consistent with these soils interpretations.

[2] See Geotechnical Report by Summit Geoengineering Services November 8, 2019.

There are three primary points of interest for this analysis:

1. The first is through the existing catch basin located in the gutter line 400' west of the sag curve in West Commercial Street, identified as Point of Interest #1 on the accompanying watershed maps. This catch basin is part of a small closed drainage system that ties into the nearby CSO line that extends down the Hill from Danforth Street, along an extension of Vaughn Street to West Commercial. There is a regulator structure for the Fore River Interceptor and a CSO outfall to the Fore River. It is believed the Catch basin ties into the CSO line and any water from the catch basin flows to the Fore River outfall.
2. The second Point of Interest is the existing catch basin located in the sag curve, identified as POI #2. The background associated with this catch basin is limited based on correspondence and requests for information Gorrill Palmer has exchanged with the City's DPW archivist. Various historical plans suggest that the two catch basins at the West Commercial Street sag may tie into a remnant drainage pipe that extended across what is now the Canal Landing Boat yard and discharged to the Fore River.[3] Further exploration and coordination with DPW is required to better understand these current street conditions.
3. The third point of analysis is at the gutter line along the frontage of the southeast corner of the site, identified as the Point of Interest #3. POI #3 connects to the 48" Fore River Interceptor Sewer, with flows continuing to the wastewater treatment plant or as overflow thru a number of CSO regulator/overflow structures that discharge to the Fore River. Two CSO's are located in the vicinity of the site; these are believed to be CSO 028 at Emery Street and CSO 029 – Commercial Street.[4]

12.2 Proposed Site Conditions

The proposed project design contemplates the existing soils, topography, local ordinances, and other applicable design standards. The VA Clinic development will consist of a 34,155 SF, two-story outpatient facility and a 35,880 SF, multi-level parking structure placed along the southern property line. The site will have three driveways with access to West Commercial Street. The main entrance/patient drop-off will be placed in between the two structures, approximately 370'± west of the southeast property corner. The other two driveways are placed at the west and east ends of the site and provide access for staff and patients/visitors, respectively. The proposed site conditions will include building rooftop, bituminous pavement including both Standard and Heavy-Duty pavement and areas of porous pavement sections, CIP concrete and landscaped areas.

As part of the City of Portland's sidewalk development program, a 10' wide multi-use sidewalk with a 5' grassed esplanade will be constructed in the right of way along the property frontage. This will also include adding vertical granite curb to the roadway. For this analysis, the associated area in the right of way that would not have otherwise been developed for the VA clinic project was not included in the calculations when determining required water quality treatment percentages. This area is defined in the calculation's summaries, as the sidewalk corridor in the West Commercial Street Right of Way along the property frontage, other than driveways associated with the VA Clinic. It was, however, modeled for flood control purposes, as it will ultimately contribute to the developed peak flow to each point of interest. **Overall, the VA Clinic development will create**

[3] See City DPW archives 00652_001_001 Right of Way Track and Map Portland Terminal, June 30, 1916 V-I-D/2-T

[4] See reports contained in https://www.portlandmaine.gov/1835/Reports-and-Assessments

approximately 3.95 acres of impervious area and 4.72 acres of developed area within the property boundary. The sidewalk development will create an additional 0.327 acres of impervious area and 0.485 acres of developed area within the West Commercial Street Right of Way.

The site will generally be graded to follow the existing topography, high in the north and draining south towards the three points of analysis along the property frontage in West Commercial Street. As part of the VA Clinic development the entire flat area up to the embankment, in the center of the site, will be grubbed and cleared. Excavation activity in this area will be subject to requirements set forth in a Site-Specific Environmental Media Management Plan to be prepared by S.W. Cole Engineering. The expected goals and objectives of the plan will be to retain all onsite soils containing ash, onsite. Clean soils (typically found greater than 2 feet below ground surface) may be exported or reused onsite. Ash containing soils will require a cover system consisting of concrete; asphalt or 12" to 24" of clean borrow/topsoil. The embankment to the north will be partially excavated to make way for the north side of the parking garage and an access drive around the garage. This area will require a retaining wall installed in the northeast corner of the site. A short retaining wall will also be installed on the back of the 10' sidewalk in order to overcome the grade difference between the site and West Commercial Street. The site is graded to have elevations similar to, or just above, existing grade to blend with the site topography and access grades at each of the driveways.

The porous pavement surface parking for 150 parking spaces will be located on the western portion of the property. An access drive/fire lane will be installed that will navigate through the rear of the site and connect the west and east entrances for emergency vehicles, delivery vehicles and other larger vehicles that need to access the rear of the buildings. The main entrance will consist of separated entry and exit lanes. There will be a 14' wide entrance lane and two 11' wide exit lanes for right and left turning exiting movements. The entrance will transition into a roundabout whereupon entering vehicles may enter the parking structure, or continue around to drop-off/pick-up patients. The main entrance will have access to the rear access drive but only for emergency vehicles and for snow removal. Pedestrian access will be provided to the proposed pathway sidewalk in the front of the property on both sides of the VA Clinic and from the parking structure. Seating areas have been provided around the main entrance and staff entrance to the VA Clinic as well.

Stormwater on the site will be collected by utilizing sheet flow and collected flow from catch basins and piped roof drains. The majority of the surface parking area on the west end will benefit from the use of porous asphalt pavement. The porous pavement system consists of porous asphalt placed over a multi-layer section of various aggregates for runoff storage and a filtering course all underlain by a collection layer. We are proposing an unlined system to allow some amount of runoff infiltration below since the existing site soils are very granular in nature and the groundwater is relatively deep across the site. This pavement section will contribute to both water quality treatment and quantity collection and control of stormwater runoff from the parking lot. An underground sand filter system with proprietary below grade storage will also be provided behind the buildings for the treatment and storage of runoff from the building roofs. A closed drainage system will collect runoff from the site and connect into the existing catch basin located in the vertical sag curve in West Commercial Street. A shallow swale will be graded on the toe of the northern embankment to collect runoff from the area to the north and redirect it around the site as the development footprint will interrupt this flow path. Other areas on the perimeter of the site will utilize existing topography to maintain flow to the same three points of analysis as the Pre-Developed condition.

12.3 References

The following reference sources were reviewed during preparation of the stormwater analysis:

1. Hydraulic Engineering Circular No. 22, Second Edition – Urban Drainage Design Manual, U.S. Department of Transportation, August 2001.
2. AASHTO Model Drainage Manual, American Association of State Highway and Transportation, 1991.
3. Hydraulic Engineering Circular No. 14 - Hydraulic Design of Energy Dissipators for Culverts and Channel, U.S. Department of Transportation, September 1983.
4. Maine Erosion and Sedimentation Control Handbook for Construction: Best Management Practices, MaineDEP, current edition.
5. Best Management Practices for Erosion and Sediment Control, U.S. Department of Transportation, June 1995.
6. Municipal Stormwater Management – Second Edition, Thomas N. Debo, Andrew J. Reese, 2003.
7. Handbook of Applied Hydrology, Chow, 1964.
8. Technical Release Number 55 – Urban Hydrology for Small Watersheds, USDA Soil Conservation Service, June 1986.
9. Stormwater Management for Maine, Volume III BMPS Technical Design Manual, MeDEP, January 2006.
10. Technical Release Number 20 – Computer Program for Project Formulation – Hydrology, USDA Soil Conservation Service, May 1983.
11. Section 4 – Hydrology, USDA Soil Conservation Service, March 1985.
12. Technical Release Number 55 – Urban Hydrology for Small Watersheds, USDA Soil Conservation Service, June 1986.

The following sources were used for preparation of the VA Clinic stormwater quality analysis:

1. Stormwater Management for Maine, Volume III BMPS Technical Design Manual, MaineDEP, May 2016
2. A Current Assessment of Urban Best Management Practices, Techniques for Reducing Non-point Source Pollution in the Coastal Zone, U.S.E.P.A. Office of Watersheds, March 1992.
3. MeDEP Chapter 500, Stormwater Management Rules.

Computer programs used to assist in the various components of this analysis include:

1. HydroCAD 10.00, HydroCAD Software Solutions LLC – used for modeling watersheds for pre and post development conditions.
2. Microsoft Excel, Microsoft Corporation – used for spreadsheet computations.
3. AutoCAD Civil 3D 2019, Autodesk - used to determine areas and graphical representation of design.

Data resources used to obtain the hydrologic input data for the stormwater models are identified later in this report.

12.4 Overview of Stormwater Runoff Modeling

The stormwater analysis evaluates the following elements:

- Pre-development and post-development stormwater runoff and peak discharge rates;
- The impacts of the VA Clinic development and subsequent modification to site discharge rates and locations;
- The effect of land cover modifications within the VA Clinic, including some that are expected to increase site runoff rates;
- The requirements for stormwater management including compliance with Chapter 500 flooding standards;
- Storm drainage requirements for parking areas, roof areas and other improvements; and
- Requirements for water quality measures.

12.5 Methods of Analysis

12.5.1. Stormwater Quantity

The hydrologic analyses for predevelopment and post development conditions have been conducted based upon the methodology contained in the USDA Soil Conservation Service's Technical Releases No. 20 and 55 (SCS TR-20 and TR-55) as modified for special site conditions. For this section of Cumberland County, Maine, a 24-hour SCS Type III storm distribution was used for the analysis using the following storm frequencies and rainfall amounts:

Table 2

Storm Event	24-Hour Rainfall
2-Year Storm	3.10
10-Year Storm	4.60
25-Year Storm	5.80

The HydroCAD computer program was used in the analysis. This program determines the critical points of the project watershed and uses SCS TR-20 methodology for evaluation of the anticipated conditions at these points.

Land use, cover, delineation of watershed sub-catchments, hydraulic flow paths, and hydrologic soil types were obtained using the following data:

1. Portland West, Maine USGS 7.5-minute Quadrangle Maps.
2. Cumberland County, USDA Medium Intensity Soils Survey.
3. Onsite Topographic Survey with 1-foot contour intervals prepared by Titcomb Associates, January 2016.

4. Boundary Survey by Titcomb Associates, November 2019.
5. The Class C Medium Intensity Soil Survey for the watershed areas.

12.5.2. Stormwater Quality

Water quality treatment for the development has been designed to meet the Stormwater Management Rules (Chapter 500) General Standard, which requires the treatment of at least 95% of impervious area and at least 80% of developed area generated.

12.6 Description of Site Watershed Models

The watershed models were developed to predict peak discharge rates at three points of analysis for the pre and post development conditions.

12.7 Predevelopment Conditions

The predevelopment conditions for this analysis were considered to be the original condition of the site as described in the Existing Site Conditions section above. We note that the historic use of the property, for perhaps at least a century or more, was as a rail siding with various sets of tracks and developed land area. Our analysis has not specifically accounted for those long-ago land uses on the site, including any levels of imperviousness attributable to the rail yard, including rail ties, yard area or other consolidated/packed surfaces. Point of analysis #3 ultimately connects to the Fore River Interceptor sewer pipe which normally drains to the wastewater treatment plant. During rainfall events, the catch basins at Points of interest #1 and #2 are believed to discharge to the Fore River via the combined sewer overflow to the west and a separate outfall, respectively. Figure W-1 depicts the three predevelopment watersheds and their corresponding hydrologic characteristics. It was determined in the medium intensity soil survey that the site contains cut and fill material[5] which does not have a designated hydrologic soil group. For this analysis, the area of the site that was found to contain cut and fill material was chosen to be associated with soil group B.

Table 12-1 below summarizes the predevelopment hydrologic characteristics for each subarea.

Table 12-1
Predevelopment Watersheds Hydrologic Characteristics

Watershed #	Area(ac)	CN	Hydrologic Time Of Concentration
1S – Area in West of Property	2.590	72	12.9
2S – Area in Center of Property	15.868	70	17.8
3S – Area in East of Property	0.396	63	5.9
Total	**18.854**		

Points of Interest (POI) #1 and #2 are both catch basins in West Commercial Street. POI #1 is approximately 400' west and upgradient from POI #2 but they are separate closed systems according to the records we have obtained from the City records. However, in large storm events, flows that the catch basin at POI #1 cannot handle are likely to bypass the system and continue east down the gutter line and enter the catch basin in the roadway sag at POI #2. POI #3 is a point in the gutter line in front of the southeast property corner that flows east to an existing catch basin in front of

[5] Indicative of the site's historic rail yard land use that involved manmade fill land and grading to accommodate multiple sets of tracks.

the Portland Star Match Building. The most important POI for this analysis is POI #2, which serves as the low point in the overall system and contributing area and will receive stormwater from the majority of the development. Our current understanding of the POI#2 location is unclear as to its discharge as our search thru available City archives has not provided definitive evidence of these site conditions. We are hopeful that City Staff may have a better opportunity to investigate these conditions as we proceed through the review process.

The Pre-Development HydroCAD model has been designed to demonstrate how stormwater flows to the three POI's and, more importantly, how POI #1 and POI #2 interact in large storm events. The catch basin of POI #2 has a 10" pipe outlet according to our survey information and that pipe may cross West Commercial Street and connect to another catch basin positioned on the south side of the street. The outfall of the existing catch basin on the south side of the street is not known. In recent storm events[6], ponding has been observed above the catch basins at POI#1 and #2, mostly likely due to the following:

- High rainfall (>2")
- High tide conditions
- Recent temporary snow pile and construction conditions on the south side of the street within the Canal Landing site
- Inadequate capacity within the outfall pipe from the CB's at POI#2. As this pipe condition is not fully known and identified, we are uncertain as to the capacity.

For the purpose of this analysis, POI #2 was also modeled with a broad crested weir that represents the centerline crown in West Commercial Street that allows ponding in the model and helps gauge possible street surcharge conditions. The consideration of the street sag acting as a control relies on the assumption that water breaching the street is allowed to flow freely onto the property to the south side of the street (Canal Landing)[7]. Using this method, the HydroCAD model predicts street flooding under predevelopment conditions, similar to the anecdotal evidence of recent storm event observations. Table 12-2 below summarizes existing flow rates at POI #2 and the height of water over the crown in the road during the 2, 10, and 25-yr storm events:

Table 12-2
Predevelopment Flow Rate & Ponding At POI #2

Storm Event	Additional Flow From POI#1 (cfs)	Total Flow at POI#2 (cfs)	Depth of Water Overtopping Crown in Road (ft)
2-yr	0.00	0.92	0.00
10-yr	0.06	6.82	0.21
25-yr	0.23	14.90	0.36

As demonstrated in the Pre-Developed HydroCAD model for the 2-yr storm event, the catch basin at POI #1 does not send any additional flow to POI #2 and the catch basin at POI #2 is able to collect the contributing runoff without overtopping the crown in the road. In the 25-yr storm event (5.80" of rain), street ponding occurs and overtops the crown in the road approximately 4.32".

[6] Peak rain event on December 14, 2019.

[7] Historically we believe that the street has likely experienced routine periodic flooding and that water "escapes" the street by breaching onto the former rail yard (now Canal Landing) site and ultimately sheets across that property to the Fore River.

Although this seems unfavorable, we note that flooding similar to this is a common occurrence in areas around the shoreline and the Commercial Street corridor which has been observed in recent storm events. In this scenario the crown in the road overtops, stormwater flows toward the other catch basin or to the south side of the street and simply sheet flows to the Fore River, less than 300 feet away.

12.8 Post-development Conditions

In the developed condition, the VA Clinic will create 3.95 acres of new impervious area (including porous and regular pavement, concrete, and rooftop) and 4.72 acres of new overall developed area. Runoff from the development drains to three primary systems:

- A small portion of the proposed sidewalk will sheet flow to West Commercial Street and into the existing catch basin at POI #1.

- The majority of the onsite developed area will be captured through a new closed collection and pipe network consisting of several stormwater BMP's around the entire site. This system will connect to the existing catch basin and additional runoff from the proposed sidewalk in the street will drain to POI #2.

- A portion of the east driveway entrance and sidewalk will drain toward West Commercial Street and continue east along the gutter line into the existing catch basin downgradient of POI #3. There will be a reduction in the site's contributing area to POI#3 and thus less runoff reaching that POI.

Due to the size, length, and elevation constraints of the site, it was determined that traditional, centralized stormwater management approaches would not be ideal. Instead, several stormwater BMP's have been designed that will treat different portions of the site. These BMP's are utilized in order to provide proper treatment and storage. By providing BMP's throughout the site, overall time of concentrations for the subcatchments are small and have been modelled as direct entry in the Post-Development HydroCAD model.

Test pits and borings were taken in October 2019. The geotechnical report performed by Summit Geoengineering Services has been included in Section 11, Attachment E of this Application.

Figure W-2 depicts the post-development watershed conditions and the corresponding hydraulic properties. The post-development watershed model is similar to the predevelopment model in that the outlet points (POI's) are the same and can be compared directly. Within the model, the first number of the subcatchment ID corresponds to the point of interest that it flows to. The following is a listing of the watersheds associated with the proposed development.

Table 12-3
Post-development Subcatchments Hydrologic Characteristics

Subcatchment #	Area(ac)	CN	Hydrologic Time Of Concentration
1S – West Area	2.59	58	12.9
2S-A – Embankment	10.613	53	16.4
2S-B – West Driveway	0.058	72	5.0

Table 12-3 Post-development Subcatchments Hydrologic Characteristics			
Subcatchment #	**Area(ac)**	**CN**	**Hydrologic Time Of Concentration**
2S-C – West Parking	1.546	94	5.0
2S-D – Loading Dock	0.033	98	5.0
2S-E – Rooftop & East Side	2.466	95	5.0
2S-F – Frontage/ROW	1.396	90	12.3
3S – East Area	0.152	84	5.0
Total	**18.854**		

In the post-developed condition, subcatchment group 1S has stayed the same with the exception of approximately 1,260 SF of impervious area and 1,200 SF of landscaped area associated with the sidewalk development. Subcatchment 2S's overall area increased to 16.112 acres from 15.868 acres. Subcatchment group 3S decreased to 0.152 acres from 0.396 acres due to the development of the east entrance which is being captured and treated in Subcatchment 2S-E.

The design includes specific onsite measures for the retention of stormwater runoff attributable to the development. These include an underground storage system behind the proposed buildings that will serve to store and treat roof runoff and a smaller percentage of yard areas. The proposed parking lot will also consist of a porous asphalt pavement section that will contain a 12" layer of clean crushed stone. Based on a 40% void ratio in the stone, its storage capacity is approximately 4.8" of runoff. These storage volumes have been accounted for in the accompanying post-development analysis.

The following table reflects the pre- and post-development peak rates of runoff at the three points of interest:

Table 12-4 Comparison of Peak Discharge Rates at Points of Interest Pre-Development to Post-Development			
Storm Event & Condition	**POI #1 (cfs)**	**POI #2 (cfs)**	**POI #3 (cfs)**
2-Yr Predevelopment	0.30	0.92	0.15
2-Yr Post Development	0.30	4.69	0.29
Change in 2-Yr Peak Discharge Rate	**0.00**	**+3.37**	**+0.14**
10-Yr Predevelopment	1.71	6.82	0.53
10-Yr Post Development	1.71	13.74	0.52
Change in 10-Yr Peak Discharge Rate	**0.00**	**+6.92**	**-0.01**
25-Yr Predevelopment	3.37	14.90	0.90
25-Yr Post Development	3.37	20.95	0.71
Change in 25-Yr Peak Discharge Rate	**0.00**	**+6.05**	**-0.19**

The summary table shows that peak discharge at POI#2 increases in the post development analysis. This is not solely because of the VA Clinic development. Several other factors lead to the calculated increase in peak flow at the POI #2. The entire site developed area is 4.72 acres but the entire area

for subcatchment group 2S is actually 16.111 acres in the post-developed condition, which is a small increase in overall watershed area to POI#2. This additional land that contributes to POI #2 comes from two main areas; the right of way in the front of the property and the steep northern embankment and residential area to the north of the site, off Danforth Street. By developing the site, the runoff that flows down the embankment from the north has to be collected at the toe of slope and redirected around the site in a closed system. This action theoretically decreases the time of concentration in the post-developed condition and, subsequently, yields a higher peak rate of discharge associated with an area that will remain undeveloped. Simply put, runoff from the hillside and rear yards of the house lots off Danforth Street used to cross the flat lower section of the development site and that increased the travel time and lowered the runoff rate to the point of interest in the predevelopment condition. By eliminating the lower flat portion of the runoff travel path and effectively collecting the runoff in a pipe system, the travel time to the POI is reduced and the resultant model shows increased runoff and peak discharge to the POI.

In order to properly model the post-development condition, the sidewalk development in the right of way was included in the HydroCAD model. This also increases the amount of runoff that reaches all of the Points of Interest. Land cover types for subcatchment 1S in the pre- and post-developed condition stayed the same except for area associated with the sidewalk. However, the small amount of area from the sidewalk compared to the existing subcatchment resulted in no change from pre- to post-developed conditions. Subcatchment 2S contains the largest portion of the sidewalk development; totaling approximately 18,120 SF of developed area. Subcatchment 3S decreases in total area from the pre- to post-developed condition and peak discharges decrease in the 10- and 25-yr storm events but insignificantly increases in the 2-yr event. Without the additional sidewalk area that drains to POI #3, the post-developed 2-yr peak discharge would be less than the pre-developed condition. Alternatives were evaluated to attempt to capture, treat, and store the runoff generated by the sidewalk. This was found to be unfeasible due to the lack of space in the right of way and the presence of several utilities located in the right of way currently that would conflict with any stormwater management BMP's. Most importantly, this includes an underground 115KVA power transmission line.

In the pre-developed condition, it was determined that ponding occurs above the catch basin at POI #2. This has also been observed by GP personnel in the field. Table 12-2, above, demonstrated the relationship between the catch basins at POI #1 and POI #2 and the depth of street flooding for the associated storm events. Table 12-5, below, compares the depth of ponding and difference in peak discharge at POI #2 between the pre- and post-developed conditions:

Table 12-5
Pre- and Post-Development Flow Rate Difference & Ponding At POI #2

Storm Event	Difference in Flow From POI #1 (cfs)	Difference in Total Flow at POI #2 (cfs)	Depth of Water Overtopping Crown in Road (ft)		Difference in Depth of Water Overtopping Crown in Road	
			Pre	Post	in.	ft
2-yr	0.00	+3.37	0.00	0.13	+1.63	+0.13
10-yr	+0.03	+6.92	0.21	0.34	+1.63	+0.13
25-yr	+0.09	+6.05	0.36	0.43	+0.875	+0.07

This is an important comparison to make because, although the peak flow rates increase for all storm events at POI #2, the depth of water that is ponding only increases by 1.63" in the 2- and 10-yr storm event, and 0.875" in the 25-yr storm events. Generally speaking, in both the pre- or post-developed conditions, ponding is occurring at this location. As previously explained, stormwater generated on and off site ultimately discharges to the Fore River. Because of this fact, and the other factors explained above, **we are requesting a waiver from the Flooding Standard.**

12.9 Stormwater Management Summary

Under the General Standards, the project is required to meet the BMP Standards, as the development site is not tributary to a lake watershed. The project contains new construction that will also be required to meet the treatment standards of Chapter 500. The following sections summarize the BMP's that are being employed to meet the water quantity and quality standards for the proposed development.

12.9.1. Porous Pavement

Underdrained porous asphalt pavement will be installed in all of the parking spaces on the west side of the VA Clinic building and a portion of the drive aisles. Direct absorption or sheet flow from adjacent areas will flow down through the porous pavement and through a sand filter section before being collected in underdrain pipes that will connect to the closed collection system that ultimately connects to the existing catch basin at POI #2. The porous pavement filter section was designed in accordance with Section 7.7 of the BMPS Technical Design Manual dated May 2016. We propose to not place a liner under the system, thus allowing some amount of infiltration into the native soils below, principally as these soils are granular in nature, the groundwater depth is greater than 5' below the bottom of the system and there are no specific groundwater resource concerns as the site is so proximate to the Fore River and tidal (saltwater) conditions.

In the HydroCAD model, the porous pavement filter is labeled as Pond 2P – Porous Pavement. The porous pavement filter area is oversized for the tributary area draining to it and exceeds the standard for 20% of the contributing area running onto it. It should be noted that the stone storage section will also be constructed underneath the heavy-duty pavement section for ease of construction and continuity in the drainage section. This, along with the oversized filter area, provides a water quality volume that treats more than the first two inches of runoff which in turn controls additional flow for flood control purposes. The reservoir layer contains 4" overflow pipes that will connect to a storm drain collection line on the south side of the parking lot. An orifice will control the release of stormwater from the porous pavement area such that the area will drain dry between 24-48hrs.

In total, the porous pavement will provide treatment for 1.387 acres of impervious area and 1.546 acres of developed area. Design calculations for the porous pavement filter are included in Attachment C.

12.9.2. Subsurface Sand Filter

A subsurface sand filter with R-Tank® storage above will be installed underneath the rear access drive. It will treat water from both building rooftops, and impervious and landscaped area in the main entrance and rear access drive. Roof drain leaders will pipe directly into the system from the buildings. Additional runoff will sheet flow into catch basins that will

discharge into the system. Initial stormwater flows will enter the pretreatment rows of the system. From there it will flow into the rest of the reservoir layer that is sized for the water quality volume. Stormwater will then flow vertically through a sand filter section before being collected in underdrain pipes that connect to the closed conveyance system that ultimately drains to the catch basin in West Commercial Street at POI #2. The subsurface sand filter section was designed in accordance with Section 7.3 of the BMP's Technical Design Manual dated May 2016 and the DEP approval letter for the R-Tank dated January 11, 2019.[8]

In the Post-developed HydroCAD model, this BMP is labeled as Pond 4P - Subsurface Sand Filter. This specific configuration of subsurface sand filter uses a MaineDEP approved R-Tank® storage system above the sand filter, rather than below. The storage volume provided is equal to the water quality volume, which is the volume associated with 1" of rain contributing from impervious areas and 0.4" of rain from landscaped areas. Outlet control structures at each end of the system will allow water to flow into the pretreatment rows in the system first. The structures at the inlet to the system will also have weirs set at the defined water quality volume elevation, so that excess flow bypasses the system and flows to the closed conveyance system. An orifice will control the release of stormwater from the subsurface sand filter area such that the area will drain dry between 24-48 hrs.

In total, the subsurface sand filter will provide treatment for 2.272 acres of impervious area and 2.466 acres of developed area. Design calculations for the subsurface sand filter are included in Attachment C.

12.9.3. FocalPoint® Modular Biofiltration System

A FocalPoint® system[9] will be employed to provide quality treatment for a small portion of the west driveway entrance and landscaped area. The system consists of a shallow (6-12") depression filled with 18" of a soil filter media and planted with a variety of grasses and shrubs. Runoff entering the cell is detained temporarily before passing through the filter media. The filter media has a high flow rate (100 in/hr) that allows high amounts of runoff to be handled in a smaller footprint. The stormwater is then controlled below the filter section with a chamber storage system before being released downstream to a treatment row. An underdrain pipe then collects and discharges the stormwater from the system and connects to the site's closed conveyance system that discharges to POI#2. An overflow standpipe with a beehive grate is set approximately 6" above the filter bed and captures stormwater that cannot be handled in larger storm events.

The FocalPoint® will provide treatment for 0.018 acres of impervious area and 0.058 acres of developed area. Design calculations for the FocalPoint® Bio-filtration system are provided in Attachment D of this Application.

12.10 Water Quality Summary

The construction of BMP's employed as part of the development will help to treat the stormwater generated from the development as much as practically possible. The porous pavement, subsurface sand filter, and FocalPoint® successfully treat approximately 3.68 acres of impervious area and 4.04

[8] See letter from Mark Bergeron to ACF Environmental, January 11, 2019 available at https://www.maine.gov/dep/land/stormwater/stormwaterbmps/manufactured-systems/R-Tank%20approval%20letter.pdf

[9] See https://www.maine.gov/dep/land/stormwater/stormwaterbmps/manufactured-systems/focalpoint-january2017.pdf

acres of developed area. This equates to overall treatment percentages of 93.16% and 85.59% for impervious and developed area, respectively. Table 12-6, below, demonstrates the treated impervious and developed areas by percentage for each BMP employed:

	Table 12-6 Treatment Percentage by BMP			
	Porous Pavement	**Subsurface Sand Filter**	**FocalPoint**	**Total**
Impervious	35.19%	57.51%	0.46%	93.16%
Developed	32.76%	51.61%	1.22%	85.59%

It was realized that, due to the site being raised above West Commercial Street, approximately 0.234 acres of the driveways and other impervious area along the property frontage would not be treatable due to the slopes and presence of utilities in the right of way. Similarly, the proposed loading dock truck well is not treated by the aforementioned BMP's. These impervious areas represent approximately 5.92% of the total impervious area and, therefore, the overall treatment percentage for impervious areas fall slightly below the 95% treatment standard. The overall developed area treatment is 85.6% which exceeds the required developed area treatment standard of 80%.

In an effort to increase the overall treatment of the impervious areas, two additional measures have been considered. The first is a catch basin filter cartridge[10] insert that would be installed in the loading dock catch basin. This will treat an additional 1,445 SF. Treating the area tributary to the loading dock increases the overall impervious treatment percentage to 93.95%. The second measure to improve overall impervious area treatment was the increase in water quality volume provided in the porous pavement section. In order to offset the small amount of impervious area not treated to meet the standard of 95%, the porous pavement section will contain a water quality volume that will provide storage to treat 2" of runoff from the impervious area and 0.8" of runoff from the landscaped area. By treating twice the amount required for an area approximately 1.55 acres in area, it is our opinion that this will provide satisfactory treatment of the stormwater runoff that is generated by the VA Clinic Development. The proposal to increase the runoff treatment depth is consistent with Chapter 500, Part 4.C (2) (a) (ii).

Water Quality Calculations that demonstrate the compliance with Chapter 500 for the VA Clinic development are provided in Attachment C. A summary of the calculations is provided below:

VA Clinic Treatment Summary

Total Impervious Area =	3.95 acres
Total Developed Area =	4.72 acres
Impervious Area Treated =	3.71 acres
Percent Impervious Area Treated =	93.95%*
Developed Area Treated =	4.07 acres
Percent Developed Area Treated =	86.30%

*(Standard met by increasing treatment depth in the Porous Asphalt zones and employing a catch basin filter cartridge in the loading dock truck well)

[10] Filter cartridge by Fabco Industries Inc. – www.fabco-industries.com

12.11 Maintenance of Facilities

The stormwater management facilities will be maintained by the Applicant or their assigns after construction is completed. The general contractor will be responsible for maintenance during construction. The contract documents will require that the contractor designate a person for maintenance of the facilities during construction as required by this application. Long-term operation/maintenance schedules for the facilities are provided in the O&M Manual included in Attachment F to this report.

12.12 Conclusions

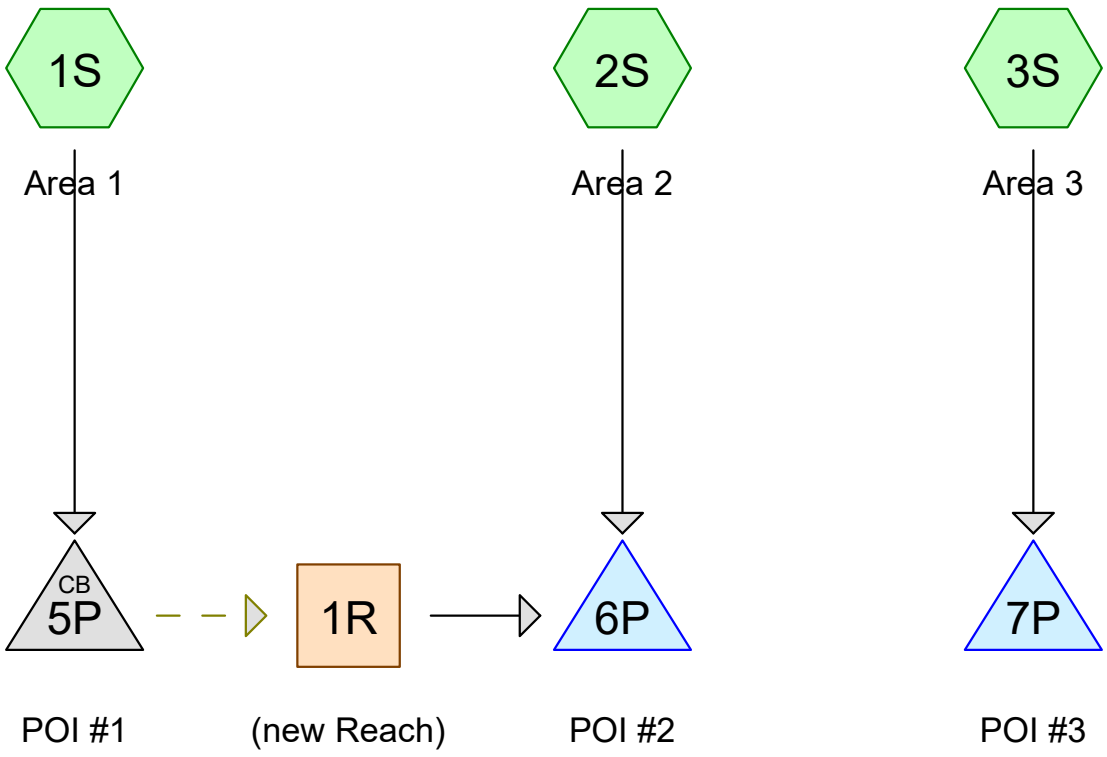
The Stormwater Management Plan for this project outlines the measures proposed to achieve compliance with the Chapter 500 Stormwater Management standards for water quality treatment. The design includes stormwater quantity controls including storage components within the porous pavement cross section and within the roof drainage sand filter system. The site will discharge to a municipal system that outflows to the Fore River which is major river segment that is under tidal influence, thus the applicant is seeking a waiver of the flooding standards. The majority of the proposed development will be tributary to one closed storm drain system with one point of discharge. A minor amount of development area will direct runoff to two other discharge locations within the municipal street system and these impacts are considered insignificant.

Based on the proposed design, the runoff from the proposed development will be captured and conveyed in a manner that will not have an adverse impact to the surrounding stormwater systems or the environment.

WATERSHED MAPS

ATTACHMENT A

Predevelopment Runoff Calculations



Subcat Reach Pond Link

Routing Diagram for 3572_pre-dev
Prepared by {enter your company name here}, Printed 1/13/2020
HydroCAD® 10.00-22 s/n 01265 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
4.139	49	50-75% Grass cover, Fair, HSG A (1S, 2S)
1.553	69	50-75% Grass cover, Fair, HSG B (1S, 2S, 3S)
2.736	56	Brush, Fair, HSG B (2S, 3S)
1.265	98	Paved roads w/curbs & sewers, HSG B (1S, 2S, 3S)
1.656	98	Unconnected roofs, HSG B (1S, 2S)
7.331	43	Woods/grass comb., Fair, HSG A (1S, 2S)
0.174	65	Woods/grass comb., Fair, HSG B (3S)

Summary for Subcatchment 1S: Area 1

Runoff = 0.30 cfs @ 12.41 hrs, Volume= 0.051 af, Depth> 0.23"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Adj	Description
1.220	43		Woods/grass comb., Fair, HSG A
0.277	98		Paved roads w/curbs & sewers, HSG B
0.439	49		50-75% Grass cover, Fair, HSG A
0.142	98		Unconnected roofs, HSG B
0.512	69		50-75% Grass cover, Fair, HSG B
2.590	58	57	Weighted Average, UI Adjusted
2.171			83.82% Pervious Area
0.419			16.18% Impervious Area
0.142			33.89% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	120	0.0300	0.20		**Sheet Flow, Lawn Area** Grass: Short n= 0.150 P2= 3.10"
0.5	110	0.5000	3.54		**Shallow Concentrated Flow, Wooded Embankment** Woodland Kv= 5.0 fps
1.7	70	0.0100	0.70		**Shallow Concentrated Flow, Across Grass/Brush Field** Short Grass Pasture Kv= 7.0 fps
0.9	140	0.0150	2.49		**Shallow Concentrated Flow, west commercial street** Paved Kv= 20.3 fps
12.9	440	Total			

Summary for Subcatchment 2S: Area 2

Runoff = 0.92 cfs @ 12.56 hrs, Volume= 0.212 af, Depth> 0.16"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Adj	Description
6.111	43		Woods/grass comb., Fair, HSG A
0.963	98		Paved roads w/curbs & sewers, HSG B
3.700	49		50-75% Grass cover, Fair, HSG A
1.514	98		Unconnected roofs, HSG B
2.565	56		Brush, Fair, HSG B
1.015	69		50-75% Grass cover, Fair, HSG B
15.868	57	54	Weighted Average, UI Adjusted
13.391			84.39% Pervious Area
2.477			15.61% Impervious Area
1.514			61.12% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	150	0.0300	0.21		**Sheet Flow, Lawn Area** Grass: Short n= 0.150 P2= 3.10"
1.1	230	0.5000	3.54		**Shallow Concentrated Flow, Wooded Embankment** Woodland Kv= 5.0 fps
2.9	150	0.0150	0.86		**Shallow Concentrated Flow, Across Grass/Brush Field** Short Grass Pasture Kv= 7.0 fps
2.1	360	0.0200	2.87		**Shallow Concentrated Flow, west commercial street** Paved Kv= 20.3 fps
17.8	890	Total			

Summary for Subcatchment 3S: Area 3

Runoff = 0.15 cfs @ 12.12 hrs, Volume= 0.014 af, Depth> 0.42"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.174	65	Woods/grass comb., Fair, HSG B
0.025	98	Paved roads w/curbs & sewers, HSG B
0.171	56	Brush, Fair, HSG B
0.026	69	50-75% Grass cover, Fair, HSG B
0.396	63	Weighted Average
0.371		93.69% Pervious Area
0.025		6.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.5000	0.24		**Sheet Flow, Wooded Embankment** Woods: Light underbrush n= 0.400 P2= 3.10"
2.1	150	0.0300	1.21		**Shallow Concentrated Flow, Across Grass/Brush Field** Short Grass Pasture Kv= 7.0 fps
0.3	50	0.0200	2.87		**Shallow Concentrated Flow, west commercial street** Paved Kv= 20.3 fps
5.9	250	Total			

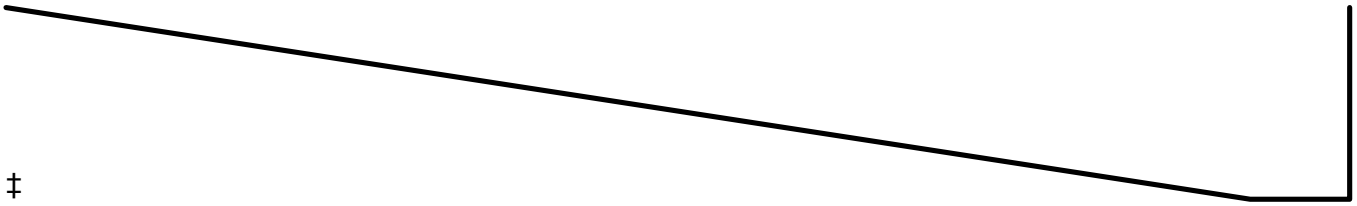
Summary for Reach 1R: (new Reach)

Inflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 29.0 sf, Capacity= 134.15 cfs

4.00' x 1.00' deep channel, n= 0.016 Asphalt, rough
Side Slope Z-value= 50.0 0.0 '/' Top Width= 54.00'
Length= 400.0' Slope= 0.0058 '/'
Inlet Invert= 17.17', Outlet Invert= 14.84'



‡

Summary for Pond 5P: POI #1

Inflow Area = 2.590 ac, 16.18% Impervious, Inflow Depth > 0.23" for 2 Year event
Inflow = 0.30 cfs @ 12.41 hrs, Volume= 0.051 af
Outflow = 0.30 cfs @ 12.41 hrs, Volume= 0.051 af, Atten= 0%, Lag= 0.0 min
Primary = 0.30 cfs @ 12.41 hrs, Volume= 0.051 af
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 17.22' @ 12.41 hrs

Device	Routing	Invert	Outlet Devices
#1	Device 3	17.17'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Tertiary	17.25'	**2.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Primary	14.00'	**12.0" Round Culvert** L= 160.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.00' / 10.70' S= 0.0206 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf

Primary OutFlow Max=0.30 cfs @ 12.41 hrs HW=17.22' (Free Discharge)
└**3=Culvert** (Passes 0.30 cfs of 4.92 cfs potential flow)
└**1=Orifice/Grate** (Weir Controls 0.30 cfs @ 0.74 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: POI #2

Inflow Area = 15.868 ac, 15.61% Impervious, Inflow Depth > 0.16" for 2 Year event
Inflow = 0.92 cfs @ 12.56 hrs, Volume= 0.212 af
Outflow = 0.92 cfs @ 12.56 hrs, Volume= 0.212 af, Atten= 0%, Lag= 0.1 min
Primary = 0.92 cfs @ 12.56 hrs, Volume= 0.212 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 14.95' @ 12.56 hrs Surf.Area= 60 sf Storage= 3 cf

Plug-Flow detention time= 0.0 min calculated for 0.212 af (100% of inflow)
Center-of-Mass det. time= 0.0 min (906.9 - 906.8)

Volume	Invert	Avail.Storage	Storage Description
#1	14.84'	2,089 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.84	4	0	0
14.94	50	3	3
15.04	185	12	14
15.14	450	32	46
15.24	870	66	112
15.34	1,430	115	227
15.44	2,285	186	413
15.54	3,157	272	685
15.64	4,217	369	1,054
15.74	5,118	467	1,521
15.84	6,256	569	2,089

Device	Routing	Invert	Outlet Devices
#1	Device 3	14.84'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	15.24'	**178.0 deg x 0.1' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)
#3	Primary	11.50'	**10.0" Round Culvert** L= 44.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 11.50' / 11.10' S= 0.0091 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=0.92 cfs @ 12.56 hrs HW=14.95' (Free Discharge)
- **2=Sharp-Crested Vee/Trap Weir** (Controls 0.00 cfs)
- **3=Culvert** (Passes 0.92 cfs of 3.61 cfs potential flow)
  - **1=Orifice/Grate** (Weir Controls 0.92 cfs @ 1.07 fps)

Summary for Pond 7P: POI #3

Inflow Area = 0.396 ac, 6.31% Impervious, Inflow Depth > 0.42" for 2 Year event
Inflow = 0.15 cfs @ 12.12 hrs, Volume= 0.014 af
Primary = 0.15 cfs @ 12.12 hrs, Volume= 0.014 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 1S: Area 1

Runoff = 1.71 cfs @ 12.22 hrs, Volume= 0.172 af, Depth> 0.80"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.60"

Area (ac)	CN	Adj	Description
1.220	43		Woods/grass comb., Fair, HSG A
0.277	98		Paved roads w/curbs & sewers, HSG B
0.439	49		50-75% Grass cover, Fair, HSG A
0.142	98		Unconnected roofs, HSG B
0.512	69		50-75% Grass cover, Fair, HSG B
2.590	58	57	Weighted Average, UI Adjusted
2.171			83.82% Pervious Area
0.419			16.18% Impervious Area
0.142			33.89% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	120	0.0300	0.20		**Sheet Flow, Lawn Area** Grass: Short n= 0.150 P2= 3.10"
0.5	110	0.5000	3.54		**Shallow Concentrated Flow, Wooded Embankment** Woodland Kv= 5.0 fps
1.7	70	0.0100	0.70		**Shallow Concentrated Flow, Across Grass/Brush Field** Short Grass Pasture Kv= 7.0 fps
0.9	140	0.0150	2.49		**Shallow Concentrated Flow, west commercial street** Paved Kv= 20.3 fps
12.9	440	Total			

Summary for Subcatchment 2S: Area 2

Runoff = 6.82 cfs @ 12.33 hrs, Volume= 0.850 af, Depth> 0.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.60"

Area (ac)	CN	Adj	Description
6.111	43		Woods/grass comb., Fair, HSG A
0.963	98		Paved roads w/curbs & sewers, HSG B
3.700	49		50-75% Grass cover, Fair, HSG A
1.514	98		Unconnected roofs, HSG B
2.565	56		Brush, Fair, HSG B
1.015	69		50-75% Grass cover, Fair, HSG B
15.868	57	54	Weighted Average, UI Adjusted
13.391			84.39% Pervious Area
2.477			15.61% Impervious Area
1.514			61.12% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	150	0.0300	0.21		**Sheet Flow, Lawn Area** Grass: Short n= 0.150 P2= 3.10"
1.1	230	0.5000	3.54		**Shallow Concentrated Flow, Wooded Embankment** Woodland Kv= 5.0 fps
2.9	150	0.0150	0.86		**Shallow Concentrated Flow, Across Grass/Brush Field** Short Grass Pasture Kv= 7.0 fps
2.1	360	0.0200	2.87		**Shallow Concentrated Flow, west commercial street** Paved Kv= 20.3 fps
17.8	890	Total			

Summary for Subcatchment 3S: Area 3

Runoff = 0.53 cfs @ 12.10 hrs, Volume= 0.038 af, Depth> 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.60"

Area (ac)	CN	Description
0.174	65	Woods/grass comb., Fair, HSG B
0.025	98	Paved roads w/curbs & sewers, HSG B
0.171	56	Brush, Fair, HSG B
0.026	69	50-75% Grass cover, Fair, HSG B
0.396	63	Weighted Average
0.371		93.69% Pervious Area
0.025		6.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.5000	0.24		**Sheet Flow, Wooded Embankment** Woods: Light underbrush n= 0.400 P2= 3.10"
2.1	150	0.0300	1.21		**Shallow Concentrated Flow, Across Grass/Brush Field** Short Grass Pasture Kv= 7.0 fps
0.3	50	0.0200	2.87		**Shallow Concentrated Flow, west commercial street** Paved Kv= 20.3 fps
5.9	250	Total			

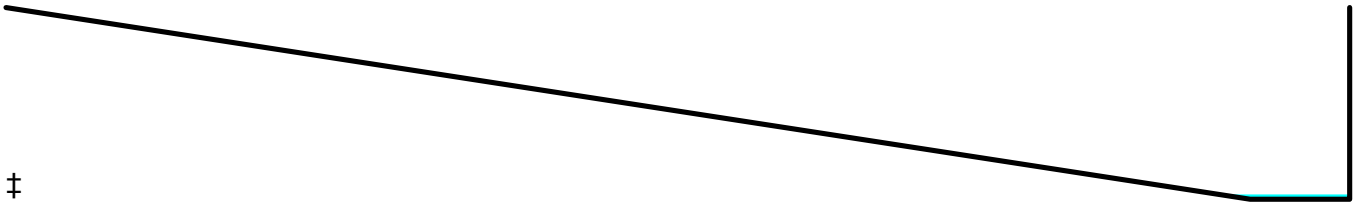
Summary for Reach 1R: (new Reach)

Inflow = 0.10 cfs @ 12.22 hrs, Volume= 0.003 af
Outflow = 0.06 cfs @ 12.58 hrs, Volume= 0.003 af, Atten= 37%, Lag= 21.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.56 fps, Min. Travel Time= 11.9 min
Avg. Velocity = 0.35 fps, Avg. Travel Time= 19.0 min

Peak Storage= 45 cf @ 12.38 hrs
Average Depth at Peak Storage= 0.02'
Bank-Full Depth= 1.00' Flow Area= 29.0 sf, Capacity= 134.15 cfs

4.00' x 1.00' deep channel, n= 0.016 Asphalt, rough
Side Slope Z-value= 50.0 0.0 '/' Top Width= 54.00'
Length= 400.0' Slope= 0.0058 '/'
Inlet Invert= 17.17', Outlet Invert= 14.84'



‡

Summary for Pond 5P: POI #1

Inflow Area = 2.590 ac, 16.18% Impervious, Inflow Depth > 0.80" for 10 Year event
Inflow = 1.71 cfs @ 12.22 hrs, Volume= 0.172 af
Outflow = 1.71 cfs @ 12.22 hrs, Volume= 0.172 af, Atten= 0%, Lag= 0.0 min
Primary = 1.61 cfs @ 12.22 hrs, Volume= 0.169 af
Tertiary = 0.10 cfs @ 12.22 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 17.33' @ 12.22 hrs

Device	Routing	Invert	Outlet Devices
#1	Device 3	17.17'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Tertiary	17.25'	**2.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Primary	14.00'	**12.0" Round Culvert** L= 160.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.00' / 10.70' S= 0.0206 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf

Primary OutFlow Max=1.58 cfs @ 12.22 hrs HW=17.32' (Free Discharge)
└**3=Culvert** (Passes 1.58 cfs of 5.02 cfs potential flow)
└**1=Orifice/Grate** (Weir Controls 1.58 cfs @ 1.28 fps)

Tertiary OutFlow Max=0.10 cfs @ 12.22 hrs HW=17.32' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 0.10 cfs @ 0.65 fps)

Summary for Pond 6P: POI #2

Inflow Area = 15.868 ac, 15.61% Impervious, Inflow Depth > 0.64" for 10 Year event
Inflow = 6.82 cfs @ 12.33 hrs, Volume= 0.853 af
Outflow = 6.82 cfs @ 12.36 hrs, Volume= 0.853 af, Atten= 0%, Lag= 1.4 min
Primary = 6.82 cfs @ 12.36 hrs, Volume= 0.853 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 15.45' @ 12.36 hrs Surf.Area= 2,382 sf Storage= 439 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.4 min (858.6 - 858.3)

Volume	Invert	Avail.Storage	Storage Description
#1	14.84'	2,089 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.84	4	0	0
14.94	50	3	3
15.04	185	12	14
15.14	450	32	46
15.24	870	66	112
15.34	1,430	115	227
15.44	2,285	186	413
15.54	3,157	272	685
15.64	4,217	369	1,054
15.74	5,118	467	1,521
15.84	6,256	569	2,089

Device	Routing	Invert	Outlet Devices
#1	Device 3	14.84'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	15.24'	**178.0 deg x 0.1' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)
#3	Primary	11.50'	**10.0" Round Culvert** L= 44.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 11.50' / 11.10' S= 0.0091 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=6.80 cfs @ 12.36 hrs HW=15.45' (Free Discharge)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 2.90 cfs @ 1.13 fps)
- **3=Culvert** (Inlet Controls 3.90 cfs @ 7.15 fps)
  - **1=Orifice/Grate** (Passes 3.90 cfs of 12.48 cfs potential flow)

Summary for Pond 7P: POI #3

Inflow Area = 0.396 ac, 6.31% Impervious, Inflow Depth > 1.14" for 10 Year event
Inflow = 0.53 cfs @ 12.10 hrs, Volume= 0.038 af
Primary = 0.53 cfs @ 12.10 hrs, Volume= 0.038 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

Summary for Subcatchment 1S: Area 1

Runoff = 3.37 cfs @ 12.20 hrs, Volume= 0.303 af, Depth> 1.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (ac)	CN	Adj	Description
1.220	43		Woods/grass comb., Fair, HSG A
0.277	98		Paved roads w/curbs & sewers, HSG B
0.439	49		50-75% Grass cover, Fair, HSG A
0.142	98		Unconnected roofs, HSG B
0.512	69		50-75% Grass cover, Fair, HSG B
2.590	58	57	Weighted Average, UI Adjusted
2.171			83.82% Pervious Area
0.419			16.18% Impervious Area
0.142			33.89% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	120	0.0300	0.20		**Sheet Flow, Lawn Area** Grass: Short n= 0.150 P2= 3.10"
0.5	110	0.5000	3.54		**Shallow Concentrated Flow, Wooded Embankment** Woodland Kv= 5.0 fps
1.7	70	0.0100	0.70		**Shallow Concentrated Flow, Across Grass/Brush Field** Short Grass Pasture Kv= 7.0 fps
0.9	140	0.0150	2.49		**Shallow Concentrated Flow, west commercial street** Paved Kv= 20.3 fps
12.9	440	Total			

Summary for Subcatchment 2S: Area 2

Runoff = 14.79 cfs @ 12.29 hrs, Volume= 1.569 af, Depth> 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (ac)	CN	Adj	Description
6.111	43		Woods/grass comb., Fair, HSG A
0.963	98		Paved roads w/curbs & sewers, HSG B
3.700	49		50-75% Grass cover, Fair, HSG A
1.514	98		Unconnected roofs, HSG B
2.565	56		Brush, Fair, HSG B
1.015	69		50-75% Grass cover, Fair, HSG B
15.868	57	54	Weighted Average, UI Adjusted
13.391			84.39% Pervious Area
2.477			15.61% Impervious Area
1.514			61.12% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	150	0.0300	0.21		**Sheet Flow, Lawn Area** Grass: Short n= 0.150 P2= 3.10"
1.1	230	0.5000	3.54		**Shallow Concentrated Flow, Wooded Embankment** Woodland Kv= 5.0 fps
2.9	150	0.0150	0.86		**Shallow Concentrated Flow, Across Grass/Brush Field** Short Grass Pasture Kv= 7.0 fps
2.1	360	0.0200	2.87		**Shallow Concentrated Flow, west commercial street** Paved Kv= 20.3 fps
17.8	890	Total			

Summary for Subcatchment 3S: Area 3

Runoff = 0.90 cfs @ 12.10 hrs, Volume= 0.062 af, Depth> 1.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (ac)	CN	Description
0.174	65	Woods/grass comb., Fair, HSG B
0.025	98	Paved roads w/curbs & sewers, HSG B
0.171	56	Brush, Fair, HSG B
0.026	69	50-75% Grass cover, Fair, HSG B
0.396	63	Weighted Average
0.371		93.69% Pervious Area
0.025		6.31% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
3.5	50	0.5000	0.24		**Sheet Flow, Wooded Embankment** Woods: Light underbrush n= 0.400 P2= 3.10"
2.1	150	0.0300	1.21		**Shallow Concentrated Flow, Across Grass/Brush Field** Short Grass Pasture Kv= 7.0 fps
0.3	50	0.0200	2.87		**Shallow Concentrated Flow, west commercial street** Paved Kv= 20.3 fps
5.9	250	Total			

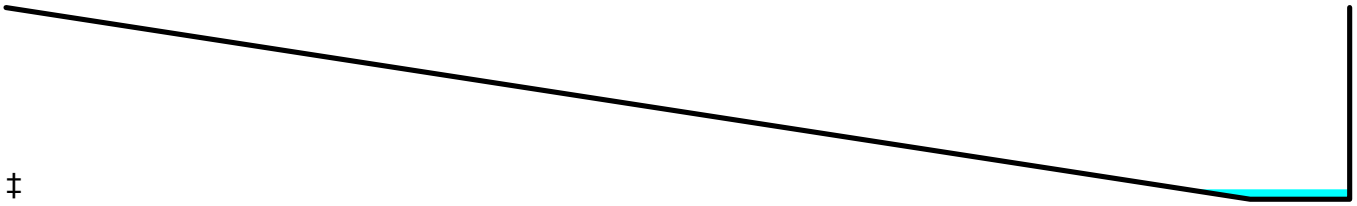
Summary for Reach 1R: (new Reach)

Inflow = 0.30 cfs @ 12.20 hrs, Volume= 0.009 af
Outflow = 0.23 cfs @ 12.44 hrs, Volume= 0.009 af, Atten= 23%, Lag= 14.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.85 fps, Min. Travel Time= 7.8 min
Avg. Velocity = 0.41 fps, Avg. Travel Time= 16.3 min

Peak Storage= 111 cf @ 12.31 hrs
Average Depth at Peak Storage= 0.05'
Bank-Full Depth= 1.00' Flow Area= 29.0 sf, Capacity= 134.15 cfs

4.00' x 1.00' deep channel, n= 0.016 Asphalt, rough
Side Slope Z-value= 50.0 0.0 '/' Top Width= 54.00'
Length= 400.0' Slope= 0.0058 '/'
Inlet Invert= 17.17', Outlet Invert= 14.84'



‡

Summary for Pond 5P: POI #1

Inflow Area = 2.590 ac, 16.18% Impervious, Inflow Depth > 1.40" for 25 Year event
Inflow = 3.37 cfs @ 12.20 hrs, Volume= 0.303 af
Outflow = 3.37 cfs @ 12.20 hrs, Volume= 0.303 af, Atten= 0%, Lag= 0.0 min
Primary = 3.06 cfs @ 12.20 hrs, Volume= 0.293 af
Tertiary = 0.30 cfs @ 12.20 hrs, Volume= 0.009 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 17.41' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Device 3	17.17'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Tertiary	17.25'	**2.0' long x 6.0' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 3.00 3.50 4.00 4.50 5.00 5.50 Coef. (English) 2.37 2.51 2.70 2.68 2.68 2.67 2.65 2.65 2.65 2.65 2.66 2.66 2.67 2.69 2.72 2.76 2.83
#3	Primary	14.00'	**12.0" Round Culvert** L= 160.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.00' / 10.70' S= 0.0206 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf

Primary OutFlow Max=3.05 cfs @ 12.20 hrs HW=17.41' (Free Discharge)
└**3=Culvert** (Passes 3.05 cfs of 5.09 cfs potential flow)
└**1=Orifice/Grate** (Weir Controls 3.05 cfs @ 1.60 fps)

Tertiary OutFlow Max=0.30 cfs @ 12.20 hrs HW=17.41' (Free Discharge)
└**2=Broad-Crested Rectangular Weir** (Weir Controls 0.30 cfs @ 0.94 fps)

Summary for Pond 6P: POI #2

Inflow Area = 15.868 ac, 15.61% Impervious, Inflow Depth > 1.19" for 25 Year event
Inflow = 14.91 cfs @ 12.29 hrs, Volume= 1.579 af
Outflow = 14.90 cfs @ 12.31 hrs, Volume= 1.579 af, Atten= 0%, Lag= 0.9 min
Primary = 14.90 cfs @ 12.31 hrs, Volume= 1.579 af

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs
Peak Elev= 15.60' @ 12.31 hrs Surf.Area= 3,779 sf Storage= 888 cf

Plug-Flow detention time= 0.5 min calculated for 1.579 af (100% of inflow)
Center-of-Mass det. time= 0.5 min (842.4 - 841.9)

Volume	Invert	Avail.Storage	Storage Description
#1	14.84'	2,089 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.84	4	0	0
14.94	50	3	3
15.04	185	12	14
15.14	450	32	46
15.24	870	66	112
15.34	1,430	115	227
15.44	2,285	186	413
15.54	3,157	272	685
15.64	4,217	369	1,054
15.74	5,118	467	1,521
15.84	6,256	569	2,089

Device	Routing	Invert	Outlet Devices
#1	Device 3	14.84'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	15.24'	**178.0 deg x 0.1' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)
#3	Primary	11.50'	**10.0" Round Culvert** L= 44.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 11.50' / 11.10' S= 0.0091 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=14.83 cfs @ 12.31 hrs HW=15.60' (Free Discharge)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 10.85 cfs @ 1.47 fps)
- **3=Culvert** (Inlet Controls 3.98 cfs @ 7.29 fps)
  - **1=Orifice/Grate** (Passes 3.98 cfs of 16.77 cfs potential flow)

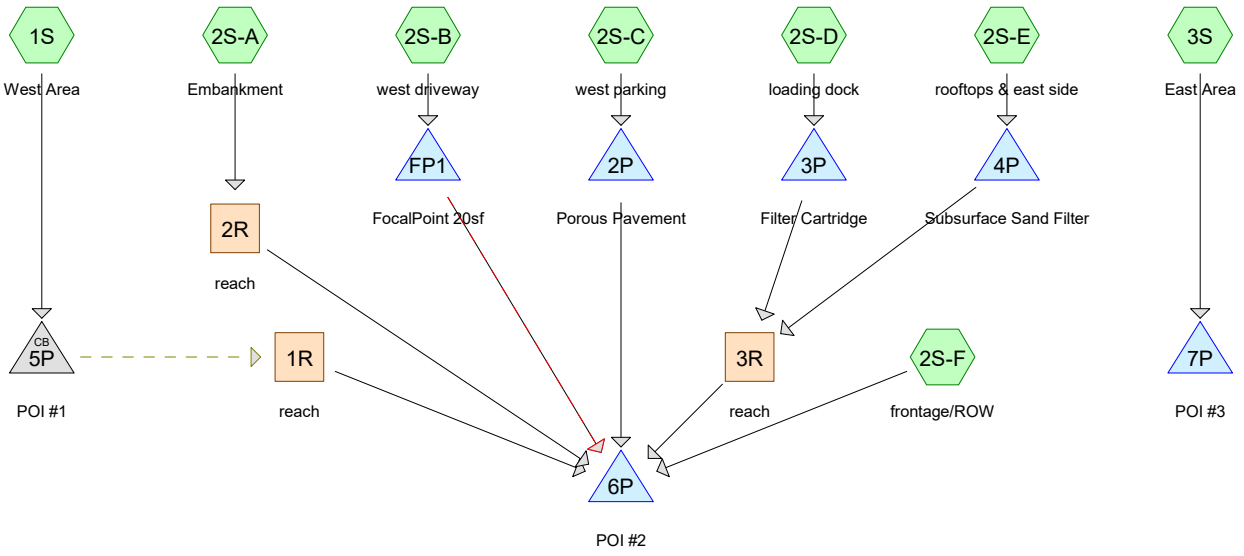
Summary for Pond 7P: POI #3

Inflow Area = 0.396 ac, 6.31% Impervious, Inflow Depth > 1.87" for 25 Year event
Inflow = 0.90 cfs @ 12.10 hrs, Volume= 0.062 af
Primary = 0.90 cfs @ 12.10 hrs, Volume= 0.062 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-20.00 hrs, dt= 0.05 hrs

ATTACHMENT B

Postdevelopment Runoff Calculations



Subcat Reach Pond Link

Routing Diagram for 3572_post-dev_new
Prepared by {enter your company name here}, Printed 1/17/2020
HydroCAD® 10.00-22 s/n 01265 © 2018 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
4.139	49	50-75% Grass cover, Fair, HSG A (1S, 2S-A)
0.483	69	50-75% Grass cover, Fair, HSG B (1S)
0.902	61	>75% Grass cover, Good, HSG B (2S-A, 2S-B, 2S-C, 2S-E, 2S-F, 3S)
1.273	98	Paved parking, HSG B (1S, 2S-B, 2S-D, 2S-E, 2S-F, 3S)
1.387	98	Paved parking, HSG C (2S-C)
0.927	98	Paved roads w/curbs & sewers, HSG B (1S, 2S-F, 3S)
1.608	98	Roofs, HSG B (2S-E)
0.008	98	Unconnected pavement, HSG B (2S-A)
1.656	98	Unconnected roofs, HSG B (1S, 2S-A)
6.429	43	Woods/grass comb., Fair, HSG A (1S, 2S-A)
0.042	65	Woods/grass comb., Fair, HSG B (2S-E, 3S)

Summary for Subcatchment 1S: West Area

Runoff = 0.30 cfs @ 12.41 hrs, Volume= 0.060 af, Depth> 0.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Adj	Description
1.220	43		Woods/grass comb., Fair, HSG A
0.277	98		Paved roads w/curbs & sewers, HSG B
0.439	49		50-75% Grass cover, Fair, HSG A
0.142	98		Unconnected roofs, HSG B
0.483	69		50-75% Grass cover, Fair, HSG B
0.029	98		Paved parking, HSG B
2.590	58	57	Weighted Average, UI Adjusted
2.142			82.70% Pervious Area
0.448			17.30% Impervious Area
0.142			31.70% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	120	0.0300	0.20		**Sheet Flow, Lawn Area** Grass: Short n= 0.150 P2= 3.10"
0.5	110	0.5000	3.54		**Shallow Concentrated Flow, Wooded Embankment** Woodland Kv= 5.0 fps
1.7	70	0.0100	0.70		**Shallow Concentrated Flow, Across Grass/Brush Field** Short Grass Pasture Kv= 7.0 fps
0.9	140	0.0150	2.49		**Shallow Concentrated Flow, west commercial street** Paved Kv= 20.3 fps
12.9	440	Total			

Summary for Subcatchment 2S-A: Embankment

Runoff = 0.16 cfs @ 13.80 hrs, Volume= 0.095 af, Depth> 0.11"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Adj	Description
5.209	43		Woods/grass comb., Fair, HSG A
3.700	49		50-75% Grass cover, Fair, HSG A
1.514	98		Unconnected roofs, HSG B
0.182	61		>75% Grass cover, Good, HSG B
0.008	98		Unconnected pavement, HSG B
10.613	53	50	Weighted Average, UI Adjusted
9.091			85.66% Pervious Area
1.522			14.34% Impervious Area
1.522			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	150	0.0300	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.1	230	0.5000	3.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.6	150	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.4	530	Total			

Summary for Subcatchment 2S-B: west driveway

Runoff = 0.05 cfs @ 12.10 hrs, Volume= 0.004 af, Depth> 0.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.018	98	Paved parking, HSG B
0.040	61	>75% Grass cover, Good, HSG B
0.058	72	Weighted Average
0.040		68.97% Pervious Area
0.018		31.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 2S-C: west parking

Runoff = 4.28 cfs @ 12.07 hrs, Volume= 0.315 af, Depth> 2.45"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
1.387	98	Paved parking, HSG C
0.159	61	>75% Grass cover, Good, HSG B
1.546	94	Weighted Average
0.159		10.28% Pervious Area
1.387		89.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 2S-D: loading dock

Runoff = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af, Depth> 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.033	98	Paved parking, HSG B
0.033		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 2S-E: rooftops & east side

Runoff = 7.02 cfs @ 12.07 hrs, Volume= 0.523 af, Depth> 2.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.784	98	Roofs, HSG B
0.824	98	Roofs, HSG B
0.664	98	Paved parking, HSG B
0.164	61	>75% Grass cover, Good, HSG B
0.030	65	Woods/grass comb., Fair, HSG B
2.466	95	Weighted Average
0.194		7.87% Pervious Area
2.272		92.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 2S-F: frontage/ROW

Runoff = 2.73 cfs @ 12.17 hrs, Volume= 0.241 af, Depth> 2.07"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.281	98	Paved parking, HSG B
0.130	61	>75% Grass cover, Good, HSG B
0.613	98	Paved roads w/curbs & sewers, HSG B
0.192	98	Paved parking, HSG B
0.180	61	>75% Grass cover, Good, HSG B
1.396	90	Weighted Average
0.310		22.21% Pervious Area
1.086		77.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	75	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
4.4	750	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.3	825	Total			

Summary for Subcatchment 3S: East Area

Runoff = 0.29 cfs @ 12.08 hrs, Volume= 0.020 af, Depth> 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 2 Year Rainfall=3.10"

Area (ac)	CN	Description
0.039	98	Paved parking, HSG B
0.045	61	>75% Grass cover, Good, HSG B
0.037	98	Paved roads w/curbs & sewers, HSG B
0.012	65	Woods/grass comb., Fair, HSG B
0.017	98	Paved parking, HSG B
0.002	61	>75% Grass cover, Good, HSG B
0.152	84	Weighted Average
0.059		38.82% Pervious Area
0.093		61.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

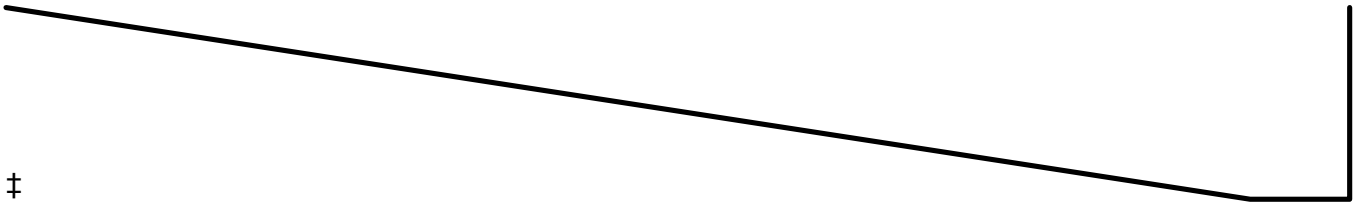
Summary for Reach 1R: reach

Inflow	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af
Outflow	=	0.00 cfs @	0.00 hrs,	Volume=	0.000 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.00 fps, Min. Travel Time= 0.0 min
Avg. Velocity = 0.00 fps, Avg. Travel Time= 0.0 min

Peak Storage= 0 cf @ 0.00 hrs
Average Depth at Peak Storage= 0.00'
Bank-Full Depth= 1.00' Flow Area= 29.0 sf, Capacity= 134.15 cfs

4.00' x 1.00' deep channel, n= 0.016 Asphalt, rough
Side Slope Z-value= 50.0 0.0 '/' Top Width= 54.00'
Length= 400.0' Slope= 0.0058 '/'
Inlet Invert= 17.17', Outlet Invert= 14.84'



‡

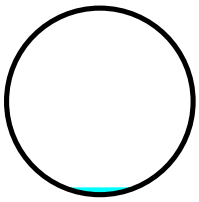
Summary for Reach 2R: reach

Inflow Area = 10.613 ac, 14.34% Impervious, Inflow Depth > 0.11" for 2 Year event
Inflow = 0.16 cfs @ 13.80 hrs, Volume= 0.095 af
Outflow = 0.16 cfs @ 13.91 hrs, Volume= 0.095 af, Atten= 0%, Lag= 6.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 2.56 fps, Min. Travel Time= 3.9 min
Avg. Velocity = 2.18 fps, Avg. Travel Time= 4.6 min

Peak Storage= 38 cf @ 13.84 hrs
Average Depth at Peak Storage= 0.10'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 57.37 cfs

30.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 600.0' Slope= 0.0167 '/'
Inlet Invert= 22.00', Outlet Invert= 12.00'



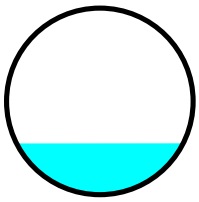
Summary for Reach 3R: reach

Inflow Area = 2.499 ac, 92.24% Impervious, Inflow Depth > 1.38" for 2 Year event
Inflow = 3.33 cfs @ 12.16 hrs, Volume= 0.288 af
Outflow = 2.53 cfs @ 12.22 hrs, Volume= 0.287 af, Atten= 24%, Lag= 3.5 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 4.08 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 1.46 fps, Avg. Travel Time= 3.7 min

Peak Storage= 225 cf @ 12.20 hrs
Average Depth at Peak Storage= 0.55'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 17.33 cfs

24.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 320.0' Slope= 0.0050 '/'
Inlet Invert= 14.00', Outlet Invert= 12.40'



Summary for Pond 2P: Porous Pavement

Inflow Area = 1.546 ac, 89.72% Impervious, Inflow Depth > 2.45" for 2 Year event
Inflow = 4.28 cfs @ 12.07 hrs, Volume= 0.315 af
Outflow = 0.09 cfs @ 17.47 hrs, Volume= 0.119 af, Atten= 98%, Lag= 324.0 min
Primary = 0.09 cfs @ 17.47 hrs, Volume= 0.119 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 20.43' @ 17.47 hrs Surf.Area= 44,844 sf Storage= 9,223 cf

Plug-Flow detention time= 284.0 min calculated for 0.119 af (38% of inflow)
Center-of-Mass det. time= 153.2 min (940.1 - 786.9)

Volume	Invert	Avail.Storage	Storage Description
#1	18.17'	17,938 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.17	44,844	0.0	0	0
19.92	44,844	0.0	0	0
20.92	44,844	40.0	17,938	17,938
21.50	44,844	0.0	0	17,938

Device	Routing	Invert	Outlet Devices
#1	Device 2	18.17'	**2.500 in/hr Exfiltration over Surface area**
#2	Primary	18.17'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	20.42'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.09 cfs @ 17.47 hrs HW=20.43' (Free Discharge)
- **2=Orifice/Grate** (Orifice Controls 0.09 cfs @ 7.14 fps)
  - **1=Exfiltration** (Passes 0.09 cfs of 2.60 cfs potential flow)
- **3=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.41 fps)

Summary for Pond 3P: Filter Cartridge

Inflow Area = 0.033 ac,100.00% Impervious, Inflow Depth > 2.87" for 2 Year event
Inflow = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af
Primary = 0.10 cfs @ 12.07 hrs, Volume= 0.008 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond 4P: Subsurface Sand Filter

Inflow Area = 2.466 ac, 92.13% Impervious, Inflow Depth > 2.55" for 2 Year event
Inflow = 7.02 cfs @ 12.07 hrs, Volume= 0.523 af
Outflow = 3.27 cfs @ 12.16 hrs, Volume= 0.280 af, Atten= 53%, Lag= 5.4 min
Primary = 3.27 cfs @ 12.16 hrs, Volume= 0.280 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 18.94' @ 12.16 hrs Surf.Area= 0.118 ac Storage= 0.204 af

Plug-Flow detention time= 195.5 min calculated for 0.280 af (53% of inflow)
Center-of-Mass det. time= 86.2 min (866.9 - 780.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.83'	0.091 af	**13.19'W x 386.37'L x 2.94'H Field A** 0.344 af Overall - 0.116 af Embedded = 0.228 af x 40.0% Voids
#2A	16.33'	0.111 af	**ACF R-Tank HD 1** x 1141 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 7 Rows of 163 Chambers
#3	15.00'	0.002 af	**4.00'D x 6.70'H Vertical Cone/Cylinder**
#4	15.00'	0.002 af	**4.00'D x 6.70'H Vertical Cone/Cylinder**
		0.206 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	15.00'	**2.500 in/hr Exfiltration over Surface area**
#2	Primary	14.00'	**1.2" Vert. Orifice/Grate** C= 0.600
#3	Device 4	18.66'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Primary	18.20'	**18.0" Round Culvert** L= 200.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 18.20' / 16.00' S= 0.0110 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#5	Device 6	18.66'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#6	Primary	18.20'	**12.0" Round Culvert** L= 200.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 18.20' / 16.00' S= 0.0110 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=2.86 cfs @ 12.16 hrs HW=18.91' (Free Discharge)
- **2=Orifice/Grate** (Orifice Controls 0.08 cfs @ 10.61 fps)
  - **1=Exfiltration** (Passes 0.08 cfs of 0.30 cfs potential flow)
- **4=Culvert** (Passes 1.39 cfs of 2.34 cfs potential flow)
  - **3=Broad-Crested Rectangular Weir** (Weir Controls 1.39 cfs @ 1.41 fps)
- **6=Culvert** (Passes 1.39 cfs of 1.70 cfs potential flow)
  - **5=Broad-Crested Rectangular Weir** (Weir Controls 1.39 cfs @ 1.41 fps)

Summary for Pond 5P: POI #1

Inflow Area = 2.590 ac, 17.30% Impervious, Inflow Depth > 0.28" for 2 Year event
Inflow = 0.30 cfs @ 12.41 hrs, Volume= 0.060 af
Outflow = 0.30 cfs @ 12.41 hrs, Volume= 0.060 af, Atten= 0%, Lag= 0.0 min
Primary = 0.30 cfs @ 12.41 hrs, Volume= 0.060 af
Tertiary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 17.22' @ 12.41 hrs

Device	Routing	Invert	Outlet Devices
#1	Device 3	17.17'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Tertiary	17.25'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Primary	14.00'	**12.0" Round Culvert** L= 160.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.00' / 10.70' S= 0.0206 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf

Primary OutFlow Max=0.30 cfs @ 12.41 hrs HW=17.22' (Free Discharge)
└**3=Culvert** (Passes 0.30 cfs of 4.92 cfs potential flow)
└**1=Orifice/Grate** (Weir Controls 0.30 cfs @ 0.74 fps)

Tertiary OutFlow Max=0.00 cfs @ 0.00 hrs HW=14.00' (Free Discharge)
└**2=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond 6P: POI #2

Inflow Area = 16.112 ac, 39.21% Impervious, Inflow Depth > 0.56" for 2 Year event
Inflow = 5.23 cfs @ 12.21 hrs, Volume= 0.746 af
Outflow = 4.69 cfs @ 12.26 hrs, Volume= 0.747 af, Atten= 10%, Lag= 2.7 min
Primary = 4.69 cfs @ 12.26 hrs, Volume= 0.747 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 15.37' @ 12.26 hrs Surf.Area= 1,674 sf Storage= 272 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.1 min (882.0 - 882.0)

Volume	Invert	Avail.Storage	Storage Description
#1	14.84'	2,089 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.84	4	0	0
14.94	50	3	3
15.04	185	12	14
15.14	450	32	46
15.24	870	66	112
15.34	1,430	115	227
15.44	2,285	186	413
15.54	3,157	272	685
15.64	4,217	369	1,054
15.74	5,118	467	1,521
15.84	6,256	569	2,089

Device	Routing	Invert	Outlet Devices
#1	Device 3	14.84'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	15.24'	**178.0 deg x 0.1' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)
#3	Primary	11.50'	**10.0" Round Culvert** L= 44.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 11.50' / 11.10' S= 0.0091 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=4.62 cfs @ 12.26 hrs HW=15.36' (Free Discharge)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 0.77 cfs @ 0.87 fps)
- **3=Culvert** (Inlet Controls 3.85 cfs @ 7.06 fps)
  - **1=Orifice/Grate** (Passes 3.85 cfs of 9.91 cfs potential flow)

Summary for Pond 7P: POI #3

Inflow Area = 0.152 ac, 61.18% Impervious, Inflow Depth > 1.60" for 2 Year event
Inflow = 0.29 cfs @ 12.08 hrs, Volume= 0.020 af
Primary = 0.29 cfs @ 12.08 hrs, Volume= 0.020 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond FP1: FocalPoint 20sf

Inflow Area = 0.058 ac, 31.03% Impervious, Inflow Depth > 0.87" for 2 Year event
Inflow = 0.05 cfs @ 12.10 hrs, Volume= 0.004 af
Outflow = 0.05 cfs @ 12.10 hrs, Volume= 0.004 af, Atten= 13%, Lag= 0.0 min
Primary = 0.05 cfs @ 12.10 hrs, Volume= 0.004 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 16.84' @ 12.14 hrs Surf.Area= 20 sf Storage= 2 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= (not calculated: outflow precedes inflow)

Volume	Invert	Avail.Storage	Storage Description
#1	16.45'	9 cf	**3.00'W x 6.67'L x 2.25'H FocalPoint** 45 cf Overall x 20.0% Voids
#2	18.70'	49 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		58 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.70	32	0	0
19.00	60	14	14
19.50	80	35	49

Device	Routing	Invert	Outlet Devices	
#1	Primary	16.45'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	19.20'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.05 cfs @ 12.10 hrs HW=16.69' (Free Discharge)
└**1=Exfiltration** (Exfiltration Controls 0.05 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=16.45' (Free Discharge)
└**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Subcatchment 1S: West Area

Runoff = 1.71 cfs @ 12.22 hrs, Volume= 0.193 af, Depth> 0.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.60"

Area (ac)	CN	Adj	Description
1.220	43		Woods/grass comb., Fair, HSG A
0.277	98		Paved roads w/curbs & sewers, HSG B
0.439	49		50-75% Grass cover, Fair, HSG A
0.142	98		Unconnected roofs, HSG B
0.483	69		50-75% Grass cover, Fair, HSG B
0.029	98		Paved parking, HSG B
2.590	58	57	Weighted Average, UI Adjusted
2.142			82.70% Pervious Area
0.448			17.30% Impervious Area
0.142			31.70% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	120	0.0300	0.20		**Sheet Flow, Lawn Area** Grass: Short n= 0.150 P2= 3.10"
0.5	110	0.5000	3.54		**Shallow Concentrated Flow, Wooded Embankment** Woodland Kv= 5.0 fps
1.7	70	0.0100	0.70		**Shallow Concentrated Flow, Across Grass/Brush Field** Short Grass Pasture Kv= 7.0 fps
0.9	140	0.0150	2.49		**Shallow Concentrated Flow, west commercial street** Paved Kv= 20.3 fps
12.9	440	Total			

Summary for Subcatchment 2S-A: Embankment

Runoff = 2.76 cfs @ 12.39 hrs, Volume= 0.472 af, Depth> 0.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.60"

Area (ac)	CN	Adj	Description
5.209	43		Woods/grass comb., Fair, HSG A
3.700	49		50-75% Grass cover, Fair, HSG A
1.514	98		Unconnected roofs, HSG B
0.182	61		>75% Grass cover, Good, HSG B
0.008	98		Unconnected pavement, HSG B
10.613	53	50	Weighted Average, UI Adjusted
9.091			85.66% Pervious Area
1.522			14.34% Impervious Area
1.522			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	150	0.0300	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.1	230	0.5000	3.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.6	150	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.4	530	Total			

Summary for Subcatchment 2S-B: west driveway

Runoff = 0.12 cfs @ 12.10 hrs, Volume= 0.009 af, Depth> 1.89"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.60"

Area (ac)	CN	Description
0.018	98	Paved parking, HSG B
0.040	61	>75% Grass cover, Good, HSG B
0.058	72	Weighted Average
0.040		68.97% Pervious Area
0.018		31.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 2S-C: west parking

Runoff = 6.67 cfs @ 12.07 hrs, Volume= 0.504 af, Depth> 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.60"

Area (ac)	CN	Description
1.387	98	Paved parking, HSG C
0.159	61	>75% Grass cover, Good, HSG B
1.546	94	Weighted Average
0.159		10.28% Pervious Area
1.387		89.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 2S-D: loading dock

Runoff = 0.15 cfs @ 12.07 hrs, Volume= 0.012 af, Depth> 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.60"

Area (ac)	CN	Description
0.033	98	Paved parking, HSG B
0.033		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 2S-E: rooftops & east side

Runoff = 10.81 cfs @ 12.07 hrs, Volume= 0.826 af, Depth> 4.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.60"

Area (ac)	CN	Description
0.784	98	Roofs, HSG B
0.824	98	Roofs, HSG B
0.664	98	Paved parking, HSG B
0.164	61	>75% Grass cover, Good, HSG B
0.030	65	Woods/grass comb., Fair, HSG B
2.466	95	Weighted Average
0.194		7.87% Pervious Area
2.272		92.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 2S-F: frontage/ROW

Runoff = 4.50 cfs @ 12.17 hrs, Volume= 0.405 af, Depth> 3.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.60"

Area (ac)	CN	Description
0.281	98	Paved parking, HSG B
0.130	61	>75% Grass cover, Good, HSG B
0.613	98	Paved roads w/curbs & sewers, HSG B
0.192	98	Paved parking, HSG B
0.180	61	>75% Grass cover, Good, HSG B
1.396	90	Weighted Average
0.310		22.21% Pervious Area
1.086		77.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	75	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
4.4	750	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.3	825	Total			

Summary for Subcatchment 3S: East Area

Runoff = 0.52 cfs @ 12.08 hrs, Volume= 0.037 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 10 Year Rainfall=4.60"

Area (ac)	CN	Description
0.039	98	Paved parking, HSG B
0.045	61	>75% Grass cover, Good, HSG B
0.037	98	Paved roads w/curbs & sewers, HSG B
0.012	65	Woods/grass comb., Fair, HSG B
0.017	98	Paved parking, HSG B
0.002	61	>75% Grass cover, Good, HSG B
0.152	84	Weighted Average
0.059		38.82% Pervious Area
0.093		61.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

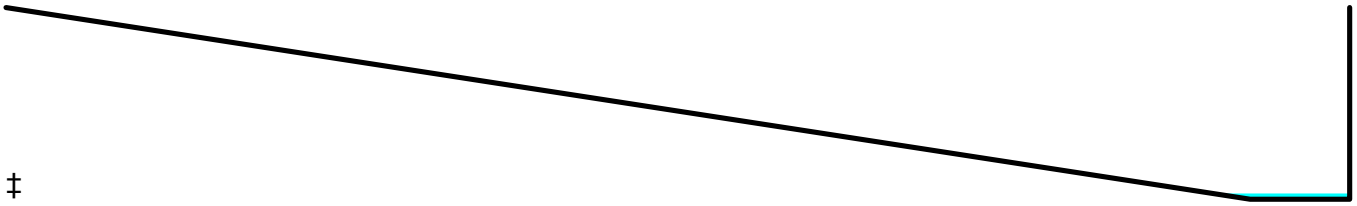
Summary for Reach 1R: reach

Inflow = 0.13 cfs @ 12.22 hrs, Volume= 0.003 af
Outflow = 0.09 cfs @ 12.55 hrs, Volume= 0.003 af, Atten= 35%, Lag= 20.1 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.61 fps, Min. Travel Time= 10.8 min
Avg. Velocity = 0.36 fps, Avg. Travel Time= 18.5 min

Peak Storage= 56 cf @ 12.37 hrs
Average Depth at Peak Storage= 0.03'
Bank-Full Depth= 1.00' Flow Area= 29.0 sf, Capacity= 134.15 cfs

4.00' x 1.00' deep channel, n= 0.016 Asphalt, rough
Side Slope Z-value= 50.0 0.0 '/' Top Width= 54.00'
Length= 400.0' Slope= 0.0058 '/'
Inlet Invert= 17.17', Outlet Invert= 14.84'



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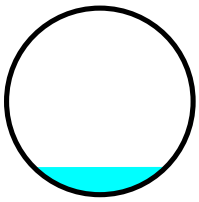
Summary for Reach 2R: reach

Inflow Area = 10.613 ac, 14.34% Impervious, Inflow Depth > 0.53" for 10 Year event
Inflow = 2.76 cfs @ 12.39 hrs, Volume= 0.472 af
Outflow = 2.75 cfs @ 12.44 hrs, Volume= 0.470 af, Atten= 0%, Lag= 3.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.02 fps, Min. Travel Time= 1.7 min
Avg. Velocity = 3.32 fps, Avg. Travel Time= 3.0 min

Peak Storage= 275 cf @ 12.41 hrs
Average Depth at Peak Storage= 0.37'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 57.37 cfs

30.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 600.0' Slope= 0.0167 '/'
Inlet Invert= 22.00', Outlet Invert= 12.00'



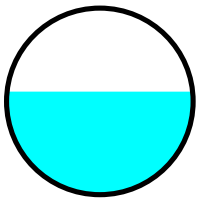
Summary for Reach 3R: reach

Inflow Area = 2.499 ac, 92.24% Impervious, Inflow Depth > 2.91" for 10 Year event
Inflow = 10.34 cfs @ 12.07 hrs, Volume= 0.607 af
Outflow = 9.89 cfs @ 12.10 hrs, Volume= 0.606 af, Atten= 4%, Lag= 1.8 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 5.74 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.66 fps, Avg. Travel Time= 3.2 min

Peak Storage= 571 cf @ 12.09 hrs
Average Depth at Peak Storage= 1.11'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 17.33 cfs

24.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 320.0' Slope= 0.0050 '/'
Inlet Invert= 14.00', Outlet Invert= 12.40'



Summary for Pond 2P: Porous Pavement

Inflow Area = 1.546 ac, 89.72% Impervious, Inflow Depth > 3.91" for 10 Year event
Inflow = 6.67 cfs @ 12.07 hrs, Volume= 0.504 af
Outflow = 0.34 cfs @ 14.13 hrs, Volume= 0.264 af, Atten= 95%, Lag= 123.3 min
Primary = 0.34 cfs @ 14.13 hrs, Volume= 0.264 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 20.66' @ 14.13 hrs Surf.Area= 44,844 sf Storage= 13,326 cf

Plug-Flow detention time= 280.6 min calculated for 0.264 af (52% of inflow)
Center-of-Mass det. time= 167.3 min (941.9 - 774.6)

Volume	Invert	Avail.Storage	Storage Description
#1	18.17'	17,938 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.17	44,844	0.0	0	0
19.92	44,844	0.0	0	0
20.92	44,844	40.0	17,938	17,938
21.50	44,844	0.0	0	17,938

Device	Routing	Invert	Outlet Devices
#1	Device 2	18.17'	**2.500 in/hr Exfiltration over Surface area**
#2	Primary	18.17'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	20.42'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.34 cfs @ 14.13 hrs HW=20.66' (Free Discharge)
- **2=Orifice/Grate** (Orifice Controls 0.09 cfs @ 7.51 fps)
  - **1=Exfiltration** (Passes 0.09 cfs of 2.60 cfs potential flow)
- **3=Orifice/Grate** (Orifice Controls 0.25 cfs @ 1.68 fps)

Summary for Pond 3P: Filter Cartridge

Inflow Area = 0.033 ac,100.00% Impervious, Inflow Depth > 4.36" for 10 Year event
Inflow = 0.15 cfs @ 12.07 hrs, Volume= 0.012 af
Primary = 0.15 cfs @ 12.07 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond 4P: Subsurface Sand Filter

Inflow Area = 2.466 ac, 92.13% Impervious, Inflow Depth > 4.02" for 10 Year event
Inflow = 10.81 cfs @ 12.07 hrs, Volume= 0.826 af
Outflow = 10.19 cfs @ 12.07 hrs, Volume= 0.595 af, Atten= 6%, Lag= 0.2 min
Primary = 10.19 cfs @ 12.07 hrs, Volume= 0.595 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 19.54' @ 12.07 hrs Surf.Area= 0.118 ac Storage= 0.204 af

Plug-Flow detention time= 141.6 min calculated for 0.594 af (72% of inflow)
Center-of-Mass det. time= 53.4 min (822.5 - 769.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.83'	0.091 af	**13.19'W x 386.37'L x 2.94'H Field A** 0.344 af Overall - 0.116 af Embedded = 0.228 af x 40.0% Voids
#2A	16.33'	0.111 af	**ACF R-Tank HD 1** x 1141 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 7 Rows of 163 Chambers
#3	15.00'	0.002 af	**4.00'D x 6.70'H Vertical Cone/Cylinder**
#4	15.00'	0.002 af	**4.00'D x 6.70'H Vertical Cone/Cylinder**
		0.206 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	15.00'	**2.500 in/hr Exfiltration over Surface area**
#2	Primary	14.00'	**1.2" Vert. Orifice/Grate** C= 0.600
#3	Device 4	18.66'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Primary	18.20'	**18.0" Round Culvert** L= 200.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 18.20' / 16.00' S= 0.0110 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#5	Device 6	18.66'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#6	Primary	18.20'	**12.0" Round Culvert** L= 200.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 18.20' / 16.00' S= 0.0110 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=9.78 cfs @ 12.07 hrs HW=19.50' (Free Discharge)
- **2=Orifice/Grate** (Orifice Controls 0.09 cfs @ 11.24 fps)
  - **1=Exfiltration** (Passes 0.09 cfs of 0.30 cfs potential flow)
- **4=Culvert** (Inlet Controls 6.31 cfs @ 3.88 fps)
  - **3=Broad-Crested Rectangular Weir** (Passes 6.31 cfs of 10.17 cfs potential flow)
- **6=Culvert** (Inlet Controls 3.38 cfs @ 4.31 fps)
  - **5=Broad-Crested Rectangular Weir** (Passes 3.38 cfs of 10.17 cfs potential flow)

Summary for Pond 5P: POI #1

Inflow Area = 2.590 ac, 17.30% Impervious, Inflow Depth > 0.90" for 10 Year event
Inflow = 1.71 cfs @ 12.22 hrs, Volume= 0.193 af
Outflow = 1.71 cfs @ 12.22 hrs, Volume= 0.193 af, Atten= 0%, Lag= 0.0 min
Primary = 1.58 cfs @ 12.22 hrs, Volume= 0.190 af
Tertiary = 0.13 cfs @ 12.22 hrs, Volume= 0.003 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 17.32' @ 12.22 hrs

Device	Routing	Invert	Outlet Devices
#1	Device 3	17.17'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Tertiary	17.25'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Primary	14.00'	**12.0" Round Culvert** L= 160.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.00' / 10.70' S= 0.0206 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf

Primary OutFlow Max=1.55 cfs @ 12.22 hrs HW=17.32' (Free Discharge)
└**3=Culvert** (Passes 1.55 cfs of 5.02 cfs potential flow)
└**1=Orifice/Grate** (Weir Controls 1.55 cfs @ 1.28 fps)

Tertiary OutFlow Max=0.13 cfs @ 12.22 hrs HW=17.32' (Free Discharge)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.13 cfs @ 0.88 fps)

Summary for Pond 6P: POI #2

Inflow Area = 16.112 ac, 39.21% Impervious, Inflow Depth > 1.31" for 10 Year event
Inflow = 14.19 cfs @ 12.12 hrs, Volume= 1.758 af
Outflow = 13.74 cfs @ 12.14 hrs, Volume= 1.758 af, Atten= 3%, Lag= 1.2 min
Primary = 13.74 cfs @ 12.14 hrs, Volume= 1.758 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 15.58' @ 12.14 hrs Surf.Area= 3,613 sf Storage= 831 cf

Plug-Flow detention time= 0.5 min calculated for 1.758 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (865.9 - 865.4)

Volume	Invert	Avail.Storage	Storage Description
#1	14.84'	2,089 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.84	4	0	0
14.94	50	3	3
15.04	185	12	14
15.14	450	32	46
15.24	870	66	112
15.34	1,430	115	227
15.44	2,285	186	413
15.54	3,157	272	685
15.64	4,217	369	1,054
15.74	5,118	467	1,521
15.84	6,256	569	2,089

Device	Routing	Invert	Outlet Devices
#1	Device 3	14.84'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	15.24'	**178.0 deg x 0.1' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)
#3	Primary	11.50'	**10.0" Round Culvert** L= 44.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 11.50' / 11.10' S= 0.0091 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=13.58 cfs @ 12.14 hrs HW=15.58' (Free Discharge)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 9.61 cfs @ 1.44 fps)
- **3=Culvert** (Inlet Controls 3.97 cfs @ 7.28 fps)
  - **1=Orifice/Grate** (Passes 3.97 cfs of 16.58 cfs potential flow)

Summary for Pond 7P: POI #3

Inflow Area = 0.152 ac, 61.18% Impervious, Inflow Depth > 2.90" for 10 Year event
Inflow = 0.52 cfs @ 12.08 hrs, Volume= 0.037 af
Primary = 0.52 cfs @ 12.08 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond FP1: FocalPoint 20sf

Inflow Area = 0.058 ac, 31.03% Impervious, Inflow Depth > 1.89" for 10 Year event
Inflow = 0.12 cfs @ 12.10 hrs, Volume= 0.009 af
Outflow = 0.09 cfs @ 12.21 hrs, Volume= 0.009 af, Atten= 31%, Lag= 6.9 min
Primary = 0.05 cfs @ 12.00 hrs, Volume= 0.009 af
Secondary = 0.04 cfs @ 12.21 hrs, Volume= 0.000 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 19.22' @ 12.21 hrs Surf.Area= 20 sf Storage= 37 cf

Plug-Flow detention time= 4.7 min calculated for 0.009 af (100% of inflow)
Center-of-Mass det. time= 3.7 min (850.0 - 846.3)

Volume	Invert	Avail.Storage	Storage Description
#1	16.45'	9 cf	**3.00'W x 6.67'L x 2.25'H FocalPoint** 45 cf Overall x 20.0% Voids
#2	18.70'	49 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		58 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.70	32	0	0
19.00	60	14	14
19.50	80	35	49

Device	Routing	Invert	Outlet Devices	
#1	Primary	16.45'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	19.20'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.05 cfs @ 12.00 hrs HW=17.10' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.05 cfs)

Secondary OutFlow Max=0.03 cfs @ 12.21 hrs HW=19.22' (Free Discharge)
2=Orifice/Grate (Weir Controls 0.03 cfs @ 0.47 fps)

Summary for Subcatchment 1S: West Area

Runoff = 3.37 cfs @ 12.20 hrs, Volume= 0.335 af, Depth> 1.55"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (ac)	CN	Adj	Description
1.220	43		Woods/grass comb., Fair, HSG A
0.277	98		Paved roads w/curbs & sewers, HSG B
0.439	49		50-75% Grass cover, Fair, HSG A
0.142	98		Unconnected roofs, HSG B
0.483	69		50-75% Grass cover, Fair, HSG B
0.029	98		Paved parking, HSG B
2.590	58	57	Weighted Average, UI Adjusted
2.142			82.70% Pervious Area
0.448			17.30% Impervious Area
0.142			31.70% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
9.8	120	0.0300	0.20		**Sheet Flow, Lawn Area** Grass: Short n= 0.150 P2= 3.10"
0.5	110	0.5000	3.54		**Shallow Concentrated Flow, Wooded Embankment** Woodland Kv= 5.0 fps
1.7	70	0.0100	0.70		**Shallow Concentrated Flow, Across Grass/Brush Field** Short Grass Pasture Kv= 7.0 fps
0.9	140	0.0150	2.49		**Shallow Concentrated Flow, west commercial street** Paved Kv= 20.3 fps
12.9	440	Total			

Summary for Subcatchment 2S-A: Embankment

Runoff = 7.16 cfs @ 12.29 hrs, Volume= 0.921 af, Depth> 1.04"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (ac)	CN	Adj	Description
5.209	43		Woods/grass comb., Fair, HSG A
3.700	49		50-75% Grass cover, Fair, HSG A
1.514	98		Unconnected roofs, HSG B
0.182	61		>75% Grass cover, Good, HSG B
0.008	98		Unconnected pavement, HSG B
10.613	53	50	Weighted Average, UI Adjusted
9.091			85.66% Pervious Area
1.522			14.34% Impervious Area
1.522			100.00% Unconnected

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
11.7	150	0.0300	0.21		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
1.1	230	0.5000	3.54		**Shallow Concentrated Flow,** Woodland Kv= 5.0 fps
3.6	150	0.0100	0.70		**Shallow Concentrated Flow,** Short Grass Pasture Kv= 7.0 fps
16.4	530	Total			

Summary for Subcatchment 2S-B: west driveway

Runoff = 0.19 cfs @ 12.09 hrs, Volume= 0.014 af, Depth> 2.83"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (ac)	CN	Description
0.018	98	Paved parking, HSG B
0.040	61	>75% Grass cover, Good, HSG B
0.058	72	Weighted Average
0.040		68.97% Pervious Area
0.018		31.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 2S-C: west parking

Runoff = 8.56 cfs @ 12.07 hrs, Volume= 0.657 af, Depth> 5.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (ac)	CN	Description
1.387	98	Paved parking, HSG C
0.159	61	>75% Grass cover, Good, HSG B
1.546	94	Weighted Average
0.159		10.28% Pervious Area
1.387		89.72% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 2S-D: loading dock

Runoff = 0.19 cfs @ 12.07 hrs, Volume= 0.015 af, Depth> 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (ac)	CN	Description
0.033	98	Paved parking, HSG B
0.033		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 2S-E: rooftops & east side

Runoff = 13.80 cfs @ 12.07 hrs, Volume= 1.071 af, Depth> 5.21"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (ac)	CN	Description
0.784	98	Roofs, HSG B
0.824	98	Roofs, HSG B
0.664	98	Paved parking, HSG B
0.164	61	>75% Grass cover, Good, HSG B
0.030	65	Woods/grass comb., Fair, HSG B
2.466	95	Weighted Average
0.194		7.87% Pervious Area
2.272		92.13% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

Summary for Subcatchment 2S-F: frontage/ROW

Runoff = 5.91 cfs @ 12.17 hrs, Volume= 0.540 af, Depth> 4.64"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (ac)	CN	Description
0.281	98	Paved parking, HSG B
0.130	61	>75% Grass cover, Good, HSG B
0.613	98	Paved roads w/curbs & sewers, HSG B
0.192	98	Paved parking, HSG B
0.180	61	>75% Grass cover, Good, HSG B
1.396	90	Weighted Average
0.310		22.21% Pervious Area
1.086		77.79% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
7.9	75	0.0200	0.16		**Sheet Flow,** Grass: Short n= 0.150 P2= 3.10"
4.4	750	0.0200	2.87		**Shallow Concentrated Flow,** Paved Kv= 20.3 fps
12.3	825	Total			

Summary for Subcatchment 3S: East Area

Runoff = 0.71 cfs @ 12.07 hrs, Volume= 0.051 af, Depth> 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Type III 24-hr 25 Year Rainfall=5.80"

Area (ac)	CN	Description
0.039	98	Paved parking, HSG B
0.045	61	>75% Grass cover, Good, HSG B
0.037	98	Paved roads w/curbs & sewers, HSG B
0.012	65	Woods/grass comb., Fair, HSG B
0.017	98	Paved parking, HSG B
0.002	61	>75% Grass cover, Good, HSG B
0.152	84	Weighted Average
0.059		38.82% Pervious Area
0.093		61.18% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**

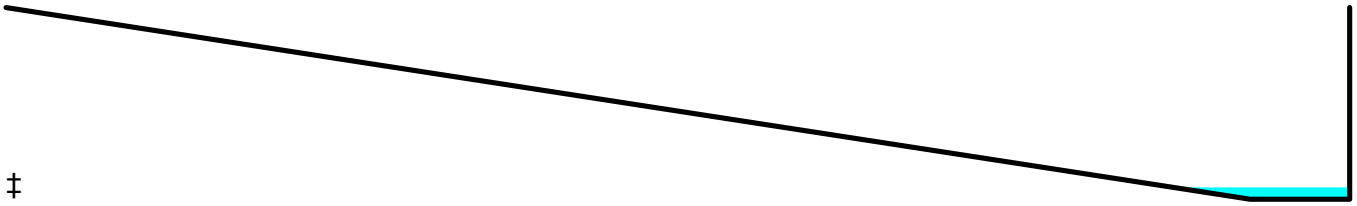
Summary for Reach 1R: reach

Inflow = 0.39 cfs @ 12.20 hrs, Volume= 0.012 af
Outflow = 0.31 cfs @ 12.42 hrs, Volume= 0.012 af, Atten= 20%, Lag= 13.2 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 0.93 fps, Min. Travel Time= 7.2 min
Avg. Velocity = 0.43 fps, Avg. Travel Time= 15.7 min

Peak Storage= 135 cf @ 12.30 hrs
Average Depth at Peak Storage= 0.06'
Bank-Full Depth= 1.00' Flow Area= 29.0 sf, Capacity= 134.15 cfs

4.00' x 1.00' deep channel, n= 0.016 Asphalt, rough
Side Slope Z-value= 50.0 0.0 '/' Top Width= 54.00'
Length= 400.0' Slope= 0.0058 '/'
Inlet Invert= 17.17', Outlet Invert= 14.84'



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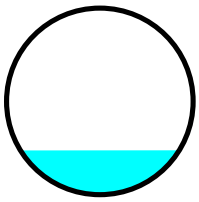
Summary for Reach 2R: reach

Inflow Area = 10.613 ac, 14.34% Impervious, Inflow Depth > 1.04" for 25 Year event
Inflow = 7.16 cfs @ 12.29 hrs, Volume= 0.921 af
Outflow = 7.08 cfs @ 12.33 hrs, Volume= 0.919 af, Atten= 1%, Lag= 2.4 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 7.97 fps, Min. Travel Time= 1.3 min
Avg. Velocity = 3.92 fps, Avg. Travel Time= 2.5 min

Peak Storage= 539 cf @ 12.31 hrs
Average Depth at Peak Storage= 0.60'
Bank-Full Depth= 2.50' Flow Area= 4.9 sf, Capacity= 57.37 cfs

30.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 600.0' Slope= 0.0167 '/'
Inlet Invert= 22.00', Outlet Invert= 12.00'



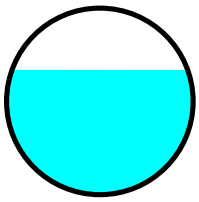
Summary for Reach 3R: reach

Inflow Area = 2.499 ac, 92.24% Impervious, Inflow Depth > 4.18" for 25 Year event
Inflow = 13.83 cfs @ 12.07 hrs, Volume= 0.871 af
Outflow = 13.27 cfs @ 12.10 hrs, Volume= 0.870 af, Atten= 4%, Lag= 1.7 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Max. Velocity= 6.10 fps, Min. Travel Time= 0.9 min
Avg. Velocity = 1.80 fps, Avg. Travel Time= 3.0 min

Peak Storage= 717 cf @ 12.09 hrs
Average Depth at Peak Storage= 1.34'
Bank-Full Depth= 2.00' Flow Area= 3.1 sf, Capacity= 17.33 cfs

24.0" Round Pipe
n= 0.012 Corrugated PP, smooth interior
Length= 320.0' Slope= 0.0050 '/'
Inlet Invert= 14.00', Outlet Invert= 12.40'



Summary for Pond 2P: Porous Pavement

Inflow Area = 1.546 ac, 89.72% Impervious, Inflow Depth > 5.10" for 25 Year event
Inflow = 8.56 cfs @ 12.07 hrs, Volume= 0.657 af
Outflow = 0.74 cfs @ 12.97 hrs, Volume= 0.406 af, Atten= 91%, Lag= 53.7 min
Primary = 0.74 cfs @ 12.97 hrs, Volume= 0.406 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 20.82' @ 12.97 hrs Surf.Area= 44,844 sf Storage= 16,221 cf

Plug-Flow detention time= 253.3 min calculated for 0.405 af (62% of inflow)
Center-of-Mass det. time= 151.7 min (919.9 - 768.1)

Volume	Invert	Avail.Storage	Storage Description
#1	18.17'	17,938 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Voids (%)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.17	44,844	0.0	0	0
19.92	44,844	0.0	0	0
20.92	44,844	40.0	17,938	17,938
21.50	44,844	0.0	0	17,938

Device	Routing	Invert	Outlet Devices
#1	Device 2	18.17'	**2.500 in/hr Exfiltration over Surface area**
#2	Primary	18.17'	**1.5" Vert. Orifice/Grate** C= 0.600
#3	Primary	20.42'	**12.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.74 cfs @ 12.97 hrs HW=20.82' (Free Discharge)
- **2=Orifice/Grate** (Orifice Controls 0.10 cfs @ 7.75 fps)
  - **1=Exfiltration** (Passes 0.10 cfs of 2.60 cfs potential flow)
- **3=Orifice/Grate** (Orifice Controls 0.64 cfs @ 2.16 fps)

Summary for Pond 3P: Filter Cartridge

Inflow Area = 0.033 ac,100.00% Impervious, Inflow Depth > 5.56" for 25 Year event
Inflow = 0.19 cfs @ 12.07 hrs, Volume= 0.015 af
Primary = 0.19 cfs @ 12.07 hrs, Volume= 0.015 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond 4P: Subsurface Sand Filter

Inflow Area = 2.466 ac, 92.13% Impervious, Inflow Depth > 5.21" for 25 Year event
Inflow = 13.80 cfs @ 12.07 hrs, Volume= 1.071 af
Outflow = 13.64 cfs @ 12.07 hrs, Volume= 0.856 af, Atten= 1%, Lag= 0.0 min
Primary = 13.64 cfs @ 12.07 hrs, Volume= 0.856 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 2
Peak Elev= 20.11' @ 12.07 hrs Surf.Area= 0.118 ac Storage= 0.205 af

Plug-Flow detention time= 122.0 min calculated for 0.856 af (80% of inflow)
Center-of-Mass det. time= 46.3 min (809.5 - 763.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	15.83'	0.091 af	**13.19'W x 386.37'L x 2.94'H Field A** 0.344 af Overall - 0.116 af Embedded = 0.228 af x 40.0% Voids
#2A	16.33'	0.111 af	**ACF R-Tank HD 1** x 1141 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 7 Rows of 163 Chambers
#3	15.00'	0.002 af	**4.00'D x 6.70'H Vertical Cone/Cylinder**
#4	15.00'	0.002 af	**4.00'D x 6.70'H Vertical Cone/Cylinder**
		0.206 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Device 2	15.00'	**2.500 in/hr Exfiltration over Surface area**
#2	Primary	14.00'	**1.2" Vert. Orifice/Grate** C= 0.600
#3	Device 4	18.66'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#4	Primary	18.20'	**18.0" Round Culvert** L= 200.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 18.20' / 16.00' S= 0.0110 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 1.77 sf
#5	Device 6	18.66'	**4.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32
#6	Primary	18.20'	**12.0" Round Culvert** L= 200.0' CMP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 18.20' / 16.00' S= 0.0110 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.79 sf

Primary OutFlow Max=13.14 cfs @ 12.07 hrs HW=20.03' (Free Discharge)
- **2=Orifice/Grate** (Orifice Controls 0.09 cfs @ 11.78 fps)
  - **1=Exfiltration** (Passes 0.09 cfs of 0.30 cfs potential flow)
- **4=Culvert** (Inlet Controls 8.86 cfs @ 5.01 fps)
  - **3=Broad-Crested Rectangular Weir** (Passes 8.86 cfs of 21.37 cfs potential flow)
- **6=Culvert** (Barrel Controls 4.19 cfs @ 5.34 fps)
  - **5=Broad-Crested Rectangular Weir** (Passes 4.19 cfs of 21.37 cfs potential flow)

Summary for Pond 5P: POI #1

Inflow Area = 2.590 ac, 17.30% Impervious, Inflow Depth > 1.55" for 25 Year event
Inflow = 3.37 cfs @ 12.20 hrs, Volume= 0.335 af
Outflow = 3.37 cfs @ 12.20 hrs, Volume= 0.335 af, Atten= 0%, Lag= 0.0 min
Primary = 2.97 cfs @ 12.20 hrs, Volume= 0.322 af
Tertiary = 0.39 cfs @ 12.20 hrs, Volume= 0.012 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs
Peak Elev= 17.40' @ 12.20 hrs

Device	Routing	Invert	Outlet Devices
#1	Device 3	17.17'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Tertiary	17.25'	**2.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)
#3	Primary	14.00'	**12.0" Round Culvert** L= 160.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 14.00' / 10.70' S= 0.0206 '/' Cc= 0.900 n= 0.013 Concrete pipe, bends & connections, Flow Area= 0.79 sf

Primary OutFlow Max=2.96 cfs @ 12.20 hrs HW=17.40' (Free Discharge)
└**3=Culvert** (Passes 2.96 cfs of 5.09 cfs potential flow)
└**1=Orifice/Grate** (Weir Controls 2.96 cfs @ 1.58 fps)

Tertiary OutFlow Max=0.39 cfs @ 12.20 hrs HW=17.40' (Free Discharge)
└**2=Sharp-Crested Rectangular Weir** (Weir Controls 0.39 cfs @ 1.28 fps)

Summary for Pond 6P: POI #2

Inflow Area = 16.112 ac, 39.21% Impervious, Inflow Depth > 2.06" for 25 Year event
Inflow = 21.12 cfs @ 12.14 hrs, Volume= 2.761 af
Outflow = 20.95 cfs @ 12.16 hrs, Volume= 2.761 af, Atten= 1%, Lag= 1.0 min
Primary = 20.95 cfs @ 12.16 hrs, Volume= 2.761 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 15.67' @ 12.16 hrs Surf.Area= 4,466 sf Storage= 1,173 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 0.5 min (855.1 - 854.6)

Volume	Invert	Avail.Storage	Storage Description
#1	14.84'	2,089 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
14.84	4	0	0
14.94	50	3	3
15.04	185	12	14
15.14	450	32	46
15.24	870	66	112
15.34	1,430	115	227
15.44	2,285	186	413
15.54	3,157	272	685
15.64	4,217	369	1,054
15.74	5,118	467	1,521
15.84	6,256	569	2,089

Device	Routing	Invert	Outlet Devices
#1	Device 3	14.84'	**24.0" x 24.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads
#2	Primary	15.24'	**178.0 deg x 0.1' long Sharp-Crested Vee/Trap Weir** Cv= 2.46 (C= 3.08)
#3	Primary	11.50'	**10.0" Round Culvert** L= 44.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 11.50' / 11.10' S= 0.0091 '/' Cc= 0.900 n= 0.012 Corrugated PP, smooth interior, Flow Area= 0.55 sf

Primary OutFlow Max=20.81 cfs @ 12.16 hrs HW=15.67' (Free Discharge)
- **2=Sharp-Crested Vee/Trap Weir** (Weir Controls 16.80 cfs @ 1.61 fps)
- **3=Culvert** (Inlet Controls 4.01 cfs @ 7.36 fps)
  - **1=Orifice/Grate** (Passes 4.01 cfs of 17.51 cfs potential flow)

Summary for Pond 7P: POI #3

Inflow Area = 0.152 ac, 61.18% Impervious, Inflow Depth > 4.01" for 25 Year event
Inflow = 0.71 cfs @ 12.07 hrs, Volume= 0.051 af
Primary = 0.71 cfs @ 12.07 hrs, Volume= 0.051 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs

Summary for Pond FP1: FocalPoint 20sf

Inflow Area = 0.058 ac, 31.03% Impervious, Inflow Depth > 2.83" for 25 Year event
Inflow = 0.19 cfs @ 12.09 hrs, Volume= 0.014 af
Outflow = 0.19 cfs @ 12.12 hrs, Volume= 0.014 af, Atten= 0%, Lag= 1.4 min
Primary = 0.05 cfs @ 11.85 hrs, Volume= 0.012 af
Secondary = 0.15 cfs @ 12.12 hrs, Volume= 0.002 af

Routing by Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.05 hrs / 3
Peak Elev= 19.26' @ 12.10 hrs Surf.Area= 20 sf Storage= 39 cf

Plug-Flow detention time= 5.2 min calculated for 0.014 af (100% of inflow)
Center-of-Mass det. time= 3.5 min (838.1 - 834.6)

Volume	Invert	Avail.Storage	Storage Description
#1	16.45'	9 cf	**3.00'W x 6.67'L x 2.25'H FocalPoint** 45 cf Overall x 20.0% Voids
#2	18.70'	49 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		58 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
18.70	32	0	0
19.00	60	14	14
19.50	80	35	49

Device	Routing	Invert	Outlet Devices	
#1	Primary	16.45'	**100.000 in/hr Exfiltration over Surface area**	Phase-In= 0.10'
#2	Secondary	19.20'	**12.0" Horiz. Orifice/Grate** C= 0.600 Limited to weir flow at low heads	

Primary OutFlow Max=0.05 cfs @ 11.85 hrs HW=16.64' (Free Discharge)
1=Exfiltration (Exfiltration Controls 0.05 cfs)

Secondary OutFlow Max=0.13 cfs @ 12.12 hrs HW=19.25' (Free Discharge)
2=Orifice/Grate (Weir Controls 0.13 cfs @ 0.76 fps)

ATTACHMENT C

Water Quality Calculations

VA Clinic - Stormwater Management Summary

01.10.20
Designed By: KAB
Checked By: SRB

Subarea ID	New Development			Treated New Impervious Area (sf)	Treated New Landscaped Area (sf)
	Impervious Area (sf)	Landscaped Area (sf)	Total Developed Area (sf)		
1S	0	0	0	0	0
2S-A	331	7,960	8,291	0	0
2S-B	766	1,740	2,506	766	1,740
2S-C	60,422	6,925	67,347	60,422	6,925
2S-D	1,445	0	1,445	1,445	0
2S-E	98,962	7,143	106,105	98,962	7,143
2S-F*	8,364	7,849	16,213	0	0
3S	1,705	1,962	3,667	0	0
Total (sf)	**171,995**	**25,730**	**205,574**	**161,595**	**15,808**
Total (ac)	**3.95**	**0.59**	**4.72**	**3.71**	**0.36**

Treatment Summary

Subarea ID	Treatment Method	Water Quality Volume Required (cf)	Water Quality Volume Provided (cf)	BMP Surface Area Required (sf)	BMP Surface Area Provided (sf)
1S	N/A	0	0	0	0
2S-A	N/A	0	0	0	0
2S-B	FocalPoint (3'x6.67')	N/A	N/A	N/A	N/A
2S-C	Porous Pavement	5,266	12,314	13,469	37,728
2S-D	Filter Cartridge Insert	N/A	N/A	N/A	N/A
2S-E	Subsurface Sand Filter	8,485	8,788	5,091	5,096
2S-F	N/A	0	0	0	0
3S	N/A	0	0	0	0

Treatment Summary

	Required	Provided
Treated New Impervious (%)	95%	93.95%
Treated New Developed (%)	80%	86.30%

Rational Method Stormwater Conveyance Sizing Computation
25-Year Storm Event

01.07.2020
Designed By: KAB
Checked By: SRB

Structure ID	**Outlet Pipe ID**	Tributary Impervious Area (sf)	Tributary Pervious Area (sf)	Total Area, A (ac)	Weighted C	25 Year Flow, Q (cfs)	**Total Flow to Outlet (cfs)**	**Outlet Pipe Diameter (in)**	Slope (ft/ft)	Flow Velocity (ft/s)	**Maximum Flowing Full Capactiy (cfs)**
DMH1	**SD1**	0	0	0.00	0.00	0.00	**32.29**	**30**	0.0067	7.43	**36.47**
DMH2	**SD2**	0	0	0.00	0.00	0.00	**22.79**	**30**	0.005	6.42	**31.51**
DMH3	**SD3**	0	0	0.00	0.00	0.00	**17.89**	**30**	0.005	6.42	**31.51**
CB1	**SD4**	500	20,500	0.48	0.22	0.61	**17.71**	**30**	0.005	6.42	**31.51**
CB2	**SD5**	4,000	78,800	1.90	0.24	2.60	**17.10**	**24**	0.0067	6.40	**20.11**
DMH6	**SD6**	0	0	0.00	0.00	0.00	**14.50**	**24**	0.01	7.82	**24.57**
CB3	**SD7**	3,000	52,200	1.27	0.24	1.77	**14.50**	**24**	0.01	7.82	**24.57**
CB4	**SD8**	30,000	78,000	2.48	0.41	5.87	**12.16**	**24**	0.01	7.82	**24.57**
OCS2	**SD9**	0	0	0.00	0.00	0.00	**6.29**	**18**	0.01	6.46	**11.41**
CB5	**SD10**	39,455	925	0.93	0.93	5.02	**6.29**	**18**	0.01	6.46	**11.41**
DMH5	**SD11**	0	0	0.00	0.00	0.00	**0.71**	**12**	0.005	3.48	**2.74**
CB6	**SD12**	3,925	3,500	0.17	0.60	0.59	**0.71**	**12**	0.005	3.48	**2.74**
CB7	**SD13**	980	0	0.02	0.95	0.12	**0.12**	**12**	0.01	4.93	**3.87**
DMH6	**SD14**	34,350	3,590	0.87	0.88	4.44	**6.92**	**18**	0.01	6.46	**11.41**
CB9	**SD15**	6,000	39,000	1.03	0.30	1.80	**1.80**	**12**	0.02	6.97	**5.47**
CB11	**SD17**	6,000	47,250	1.22	0.28	2.02	**2.02**	**12**	0.03	8.53	**6.70**
CB8	**SD18**	0	25,500	0.59	0.20	0.68	**0.68**	**12**	0.01	4.93	**3.87**
DMH7	**SD19**	20,200	1,100	0.49	0.91	2.58	**2.58**	**12**	0.02	6.97	**5.47**
CB12	**SD20**	6,000	54,500	1.39	0.27	2.21	**4.90**	**15**	0.01	5.72	**7.02**
OCS1	**SD21**	0	0	0.00	0.00	0.00	**2.88**	**12**	0.05	11.02	**8.65**
DMH8	**SD22**	0	0	0.00	0.00	0.00	**2.88**	**12**	0.01	4.93	**3.87**
DMH9	**SD23**	0	0	0.00	0.00	0.00	**1.44**	**10**	0.01	4.36	**2.38**
BLDG	**SD24**	11,385	0	0.26	0.95	1.44	**1.44**	**8**	0.0208	5.42	**1.89**
CB13	**SD25**	1,445	0	0.03	0.95	0.18	**0.18**	**8**	0.01	3.76	**1.31**
DMH10	**SD26**	0	0	0.00	0.00	0.00	**3.66**	**12**	0.05	11.02	**8.65**
CB15	**SD27**	6,150	2,350	0.20	0.74	0.84	**1.06**	**12**	0.01	4.93	**3.87**
CB16	**SD28**	1,600	587	0.05	0.75	0.22	**0.22**	**12**	0.01	4.93	**3.87**
CB17	**SD29**	9,215	0	0.21	0.95	1.17	**2.61**	**12**	0.01	4.93	**3.87**
BLDG	**SD30**	11,385	0	0.26	0.95	1.44	**1.44**	**8**	0.0208	5.42	**1.89**
OCS2	**SD31**	0	0	0.00	0.00	0.00	**6.29**	**12**	0.01	4.93	**3.87**
CB14	**SD32**	4,282	820	0.12	0.83	0.56	**0.56**	**12**	0.01	4.93	**3.87**
BLDG	**SD33**	11,385	0	0.26	0.95	1.44	**1.44**	**8**	0.0208	5.42	**1.89**
OCS1	**SD34**	0	0	0.00	0.00	0.00	**2.88**	**12**	0.01	4.93	**3.87**

VA Clinic - Drawdown Calcs

01.17.2020

Designed By: KAB

Checked By: SRB

Drawdown Calculation - Subsurface Sand Filter

Orifice Diameter =1.25 in

Elev. (ft)	Depth (ft)	Surface Area (sq.ft)	Ave. End Area (sq.ft)	End Area Depth (ft)	Incremental Volume (cf)	Head, h (ft)	Orifice Flow (cfs)	Drawdown Time (secs)	Drawdown Time (hours)
18.66	2.83	5,096	5096.00	2.83	8787.50	3.83	0.0803	109471.17	30.409
15.83	0.00	5,096	0.00	0.00	0.00	2.33	0.0626	0.00	0.000
								TOTAL	***30.409***

Orifice Formula	**$CA\ (2gh)^{1/2}$**	
Orifice Diameter:	**1.25**	inch
A:	0.008522	sq.ft
Filter Thickness:	2.33	feet
g:	32.174	ft/s^2
C:	0.6	Orifice/Grate

VA Clinic
Pretreatment Calcs

01.07.2020

Designed By: KAB

Checked By: SRB

Subsurface Sand Filter	
Total Impervious Area (sf)	60422
Total Landscape Area (sf)	6,925
Total Developed Area (ac)	1.55
1-yr 24-hr Storm Event Peak Flow (cfS)	3.52
Pretreatment R-Tank Modules Required	177

1-yr 24-hr rain	2.61"
C (impervious)	0.95
C (pervious)	0.2

ATTACHMENT D

FocalPoint® Design Worksheet/Checklist

FOCALPOINT

HIGH PERFORMANCE MODULAR BIOFILTRATION SYSTEM

US DEPT OF VETS AFFAIRS – COMMUNITY OUTPATIENT – PORTLAND, MAINE

MAINE – CHAPTER 500 DESIGN WORKSHEET/CHECKLIST

1. FocalPoint Bed Area (min 174 square feet per acre of impervious area (e.g. 0.2 acres = 35 sf))

- Tributary Impervious area = 0.030 ac. (A)
- Tributary Pervious area = 0.103 ac. (B)
- Min FocalPoint bed area req'd = (((A) x 1.0) + ((B) x 0.4)) * 174 = 12.4 sf.
- FocalPoint Bed Area provided * = 20 sf.
- Dimensions of Proposed FocalPoint = 3 ft x 6.67 ft

* see criteria 2. to determine if minimum size is appropriate.

2. A 0.95 inch Type III 24hr rainfall event shall be modelled to demonstrate the entire storm volume is treated prior to activation of the overflow (typically set at 6-12" above the mulch)

- Temporary storage depth provided = 6 inches (typ 6" to 12")
- Temporary storage volume provided at above depth = 25 cubic feet.
- Peak ponding depth from 0.95" 24hr storm event = 0 inches

3. Ratio of the surface area of the filter media (sf) to the temporary ponding volume (cf) shall be no less that 1:5

- Ratio of FocalPoint Bed Area : Temporary Storage Vol = 1 : 1.25

4. Subsurface R-Tank or Chamber Treatment Row must be sized to treat the peak flow from a 1 yr-24hr storm event.

- 1yr 24hr Peak Flowrate = 0.05 cfs
- Chamber model selected
  - Cultec 330 XLHD (1 chamber per 0.227 cfs) ☐
  - Cultec 150XLHD (1 chamber per 0.185 cfs) ☐
  - R-Tank modules (1 module per 0.02 cfs) ☒
- Number of Chambers/modules required = 3

5. Controlled release of the Channel Protection over 24-48 hrs

- Controlled release of the channel protection volume is being achieved by:
  - Expanded subsurface storage basin with OCS ☐
  - Surface detention basin with OCS ☐

6. A landscape plan for the FocalPoint bed area has been prepared ☐

7. The Design shall be reviewed by the manufacturer's representative prior to submission and installation will be overseen by the manufacturer's representative.

- The Design has been reviewed by ACF Environmental ☐
- Engineer will coordinate installation inspection with ACF ☐

Contact ACF Environmental at 1800 448 3636 with any questions
or contact Rob Woodman – Senior Stormwater Engineer at rwoodman@acfenv.com

ATTACHMENT E

Geotechnical Report
Prepared by Summit GeoEngineering

From:	Bill Peterlein
To:	Griffin Hornyak; Michael Cartoski; Claiborne Williams; greg.heppner@smithgroup.com; christine.rancourt@smithgroup.com; Reaz Haque; Kevin French; Mason Rowell; Michael Parma; Jeff Griffin; Steve Bushey; Ben Dineen; Vin Veroneau; Rich Burke; Celina Daniell; bob.vallee@jbbrown.com; kane@jbbrown.com; Adriane Cody; michael.coppola@smithgroup.com; paul.taylor@smithgroup.com; denge.agola@smithgroup.com; syoung@ljbinc.com; AJ Hodge; Sasha Velic; Ethan Grossman; jlutz@ljbinc.com; Timothy LeGage
Subject:	RE: VA Portland - Weekly Team Meeting
Date:	Monday, October 28, 2019 1:53:16 PM

Based on the subsurface conditions encountered at the parking garage area and my analyses I will be recommending the following for the proposed garage in my supplemental geotechnical report. Note that these recommendations are similar to the recommendations I forwarded on October 7, 2019.

Foundation Type: Conventional spread footing foundations.

Allowable Bearing Pressure = 3,000 psf. Maximum settlement 1.1 inch. Settlement range 0.4 to 1.1 inches. Total and differential settlements acceptable for steel framed structure.

Required frost protection depth = 4 ft

Subgrade preparation for interior and exterior isolated column footings

1. Excavate the building footprint to 12 inches below the base of the proposed slab.
2. Proofroll entire building footprint using a vibrator compactor having a minimum weight of 10 tons and making a minimum of 4 passes in each of two perpendicular directions. This is intended to densify the existing fill soil.
3. Excavate to 12 inches below the base of the footings. Proofroll the exposed subgrade by making a minimum of 4 passes using a vibratory plate compactor with a minimum weight of 2 tons.
4. Install a layer of woven geotextile such as Mirafi RS280i on the proof-rolled subgrade soil. Extend the geotextile at least 2 feet beyond the edge of the footing all around.
5. Place a minimum of 12 inches of ¾ inch crushed stone directly on the geotextile. Compact the stone with a vibratory plate compactor.
6. Construct the footing directly on the compacted crushed stone. For exterior column footings the crushed stone can be included in the frost protection depth if desired, reducing the minimum depth from the bottom of the footing to the exterior finished grade to 3 feet.

Subgrade preparation for perimeter footings (assume 2 kips/ft linear load):

1. Excavate to the base of the footing (minimum 4 feet frost protection depth).
2. Proofroll the exposed soil by making a minimum of 4 passes using a vibratory plate compactor with a minimum weight of 2 tons.
3. Construct the footings directly on the proofrolled soil. The use of crushed stone and geotextile is optional.

Other recommendations:

- Perimeter underdrains are not necessary.
- Seismic Site Class D (based on limited SW Cole soil boring data – no borings were carried to refusal so the depth of bedrock is unknown).
- Slab constructed on a minimum of 12 inches of ¾ inch crushed stone placed directly on the proofrolled subgrade soil (no geotextile necessary).
- Base friction coefficient between CIP concrete and crushed stone = 0.60
- Based friction coefficient between CIP concrete and existing soil = 0.40

Hopefully the above info will keep the project moving forward until I can prepare the supplemental report.

Please contact me with any questions or if any additional information is needed.

Bill

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From: Griffin Hornyak <ghornyak@fdstonewater.com>
Sent: Wednesday, October 23, 2019 3:33 PM
To: Michael Cartoski <mcartoski@fdstonewater.com>; Claiborne Williams <cwilliams@fdstonewater.com>; greg.heppner@smithgroup.com; christine.rancourt@smithgroup.com; Reaz Haque <Reaz.Haque@smithgroup.com>; Kevin French <kfrench@landryfrenchconstruction.com>; Mason Rowell <mrowell@landryfrenchconstruction.com>; Michael Parma <Michael.Parma@smithgroup.com>; Jeff Griffin <jgriffin@ljbinc.com>; sbushey@gorrillpalmer.com; Ben Dineen <bdineen@fdstonewater.com>; Vin Veroneau <veroneau@jbbrown.com>; Rich Burke <rburke@landryfrenchconstruction.com>; Celina Daniell <cdaniell@gorrillpalmer.com>; bob.vallee@jbbrown.com; kane@jbbrown.com; Adriane Cody <adriane.cody@smithgroup.com>; michael.coppola@smithgroup.com; paul.taylor@smithgroup.com; denge.agola@smithgroup.com; syoung@ljbinc.com; AJ Hodge <AJ.Hodge@smithgroup.com>; Sasha Velic <Sasha.Velic@smithgroup.com>; Ethan Grossman <Ethan.Grossman@smithgroup.com>; jlutz@ljbinc.com; Bill Peterlein <bpeterlein@summitgeoeng.com>; Timothy LeGage <timothy.legage@smithgroup.com>
Subject: RE: VA Portland - Weekly Team Meeting

Please see attached agenda for our weekly meeting tomorrow afternoon.

Thanks,

Griffin Hornyak
FD STONEWATER
T 703.537.7638 | C 330.461.6002 | ghornyak@fdstonewater.com

-----Original Appointment-----
From: Michael Cartoski <mcartoski@fdstonewater.com>
Sent: Thursday, August 29, 2019 4:51 PM
To: Michael Cartoski; Claiborne Williams; greg.heppner@smithgroup.com; christine.rancourt@smithgroup.com; Reaz Haque; Kevin French; Mason Rowell; Michael Parma; Jeff Griffin; sbushey@gorrillpalmer.com; Ben Dineen; Vin Veroneau; Griffin Hornyak; Rich Burke; Celina Daniell; bob.vallee@jbbrown.com; kane@jbbrown.com; Adriane Cody; michael.coppola@smithgroup.com; paul.taylor@smithgroup.com; denge.agola@smithgroup.com; syoung@ljbinc.com; AJ Hodge; Sasha Velic; Ethan Grossman; jlutz@ljbinc.com; Bill Peterlein; Timothy LeGage
Subject: VA Portland - Weekly Team Meeting
When: Occurs every Thursday effective 9/5/2019 until 1/17/2020 from 2:00 PM to 3:00 PM (UTC-05:00) Eastern Time (US & Canada).
Where: Conference Call: 267-930-4000, Participant ID: 986-960-886

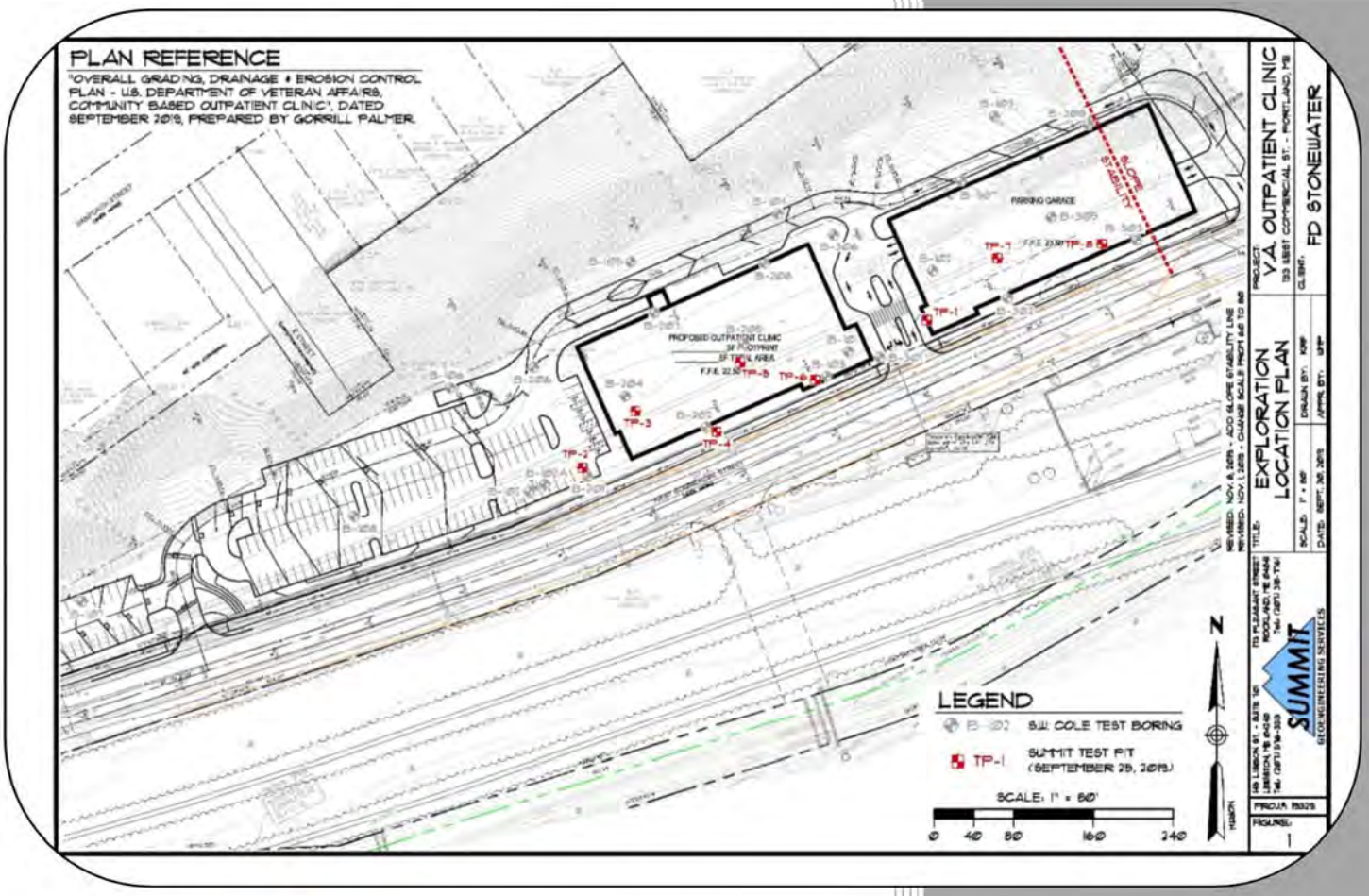
Weekly meeting with the design/construction team for the VA Portland Project.

The key to success starts with a solid foundation.
ENGINEERING | EXPLORATION | EXPERIENCE

Geotechnical Report

New VA COBC and Parking Garage

West Commercial Street, Portland, Maine



SUMMIT
GEOENGINEERING SERVICES

145 Lisbon Street (PO Box 7216) Lewiston, Maine 04243 | (207) 576-3313
173 Pleasant Street Rockland, Maine 04841 | (207) 318-7761
www.summitgeoeng.com

Client

FDS JBB Portland, LLC
c/o Fd Wtonewater, LLC
1001 19th Street North, Suite 1401
Arlington, VA 22209

Project #: 19329
Date: 11/08/2019

November 8, 2019
Summit #19329

Claiborne Williams
FDS JBB Portland, LLC
c/o FD Stonewater
1001 19th Street North, Suite 1401
Arlington, VA 22209

Reference: Geotechnical Investigation, Proposed VA CBOC and Parking Garage
West Commercial Street, Portland, Maine

Dear Claiborne;

Summit Geoengineering Services, Inc. (SGS) has completed a geotechnical investigation for the proposed VA CBOC and Parking Garage at West Commercial Street in Portland, Maine. Our scope of services included reviewing available information, including a preliminary geotechnical report prepared by S.W. Cole Engineering, observing 8 test pits at the site, performing laboratory tests, and preparing this geotechnical report summarizing our findings and providing geotechnical recommendations for the design and construction of the new building and parking garage foundations.

Our scope of services for this project did not include an environmental site assessment or further investigation for the presence or absence of hazardous or toxic material on, below, or around the site. No hazardous materials were encountered in the test borings completed at the site.

1.0 Project and Site Description

The project consists of the construction of a new 2 story MOB with a footprint of approximately 250 feet by 120 feet and a 2 to 3 story parking garage with a footprint of approximately 280 feet by 120 feet. The MOB will have a slab on grade at or near elevation 22.5 feet. The parking garage will have a pavement or concrete ground surface at or near elevation 23.5 feet. The proposed loads are as follows:

CBOC:	DL = 20 kips to 162 kips LL = 23 kips to 179 kips
3-Story Garage:	DL = 78 kips to 962 kips LL = 20 kips to 471 kips
2-Story Garage:	DL = 55 kips to 675 kips LL = 14 kips to 330 kips

Additional construction includes paved driveways and parking lots and retaining walls.

The existing site is an open field with grass and brush. An abandon rail line is present adjacent to West Commercial Street. The ground surface in the proposed CBOC area is relatively flat ranging in elevation from 22 feet to 24 feet. The ground surface in the southern two-thirds of the proposed parking garage ranges from elevation 22 feet to elevation 25 feet. The grade rises steeply to the north up to elevation 40 feet in the northeast corner of the footprint. Cuts of up to 20 feet will be required to construct the proposed parking garage. The cuts will require retaining walls.

2.0 Subsurface Exploration and Laboratory Testing

2.1 SGS Subsurface Explorations

SGS observed the subsurface conditions with the excavation of 8 test pits on September 25, 2019. The tests pits were excavated to depths ranging from 8 to 13 feet by Shaw Brothers using a tracked excavator under the direction of SGS. The location of the test pits are shown on the Exploration Location Plan in Appendix A. Logs of the test pits are included in Appendix B.

2.2 S.W. Cole Engineering Subsurface Explorations

A total of 7 test borings were completed by S.W. Cole Explorations, LLC in September 2015. An additional 17 test borings were completed at the site in July 2019, also by S.W. Cole Explorations, LLC. The location of the borings are presented on the Exploration Location Plan in Appendix A. Logs of the borings are included in Appendix C.

2.3 Laboratory Testing

A grain size analysis and moisture content test was performed on a sample taken at a depth of 4 to 6 feet at the TP-3 location. The grain size test indicated that the sample contained 15% gravel, 84% sand, and 1% silt. The moisture content was 2.5%. A report of the tests are included in Appendix D.

3.0 Subsurface Conditions

3.1 Soil

The following subsurface layers and thicknesses were encountered in our investigation,

- ***Fill***
- ***Glaciomarine Fan*** *(interbedded sand and gravel with local silty clay drapings)*

The ***Fill*** was encountered starting at the ground surface and extending to a depth of approximately 3 feet to greater than 13 feet (TP-8 location) below the ground surface. The composition of the fill encountered in the test pits is summarized in the following table.

FILL DESCRIPTION		
Location	**Thickness**	**Description**
TP-1	3 ft	Silty sand with thin layer of ash
TP-2	10 ft	Silt with ash (1 ft) **over** gravelly sand, trace silt, asphalt piece at 6 ft
TP-3	9 ft	Silt with trace ash (1 ft) **over** sand, little gravel, trace silt
TP-4	8 ft	Silt with trace ash and gravel (1 ft) **over** gravelly sand, trace silt
TP-5	4 ft	Silt with trace ash and gravel (1 ft) **over** gravelly sand, trace silt
TP-6	3 ft	Silt with trace ash and gravel (1 ft) **over** gravelly sand, trace silt
TP-7	10 ft	Sand, little gravel **over** silty clay mixed with sand, **over** sandy gravel, little silt trace clay
TP-8	13+ ft	Sand, little gravel **over** gravelly sand, little silt mixed with clay balls

In general the fill was dry and loose except at the TP-7 and TP-8 locations where it was firm or compact. There were no man-made products or organic material observed in the fill soil. The grain size test at a depth of 4 to 6 feet at the TP-3 location indicated that the sample contained 15% gravel, 84% sand, and 1% silt.

The ***Glaciomarine Fan*** deposit is generally composed of layers of sand and sand and gravel. Periodic layers of silty clay and clayey silt were encountered (TP-7, B-108, B-202, B-203, B-204, B-205, B-301, B-302, B-304, B-308, B-102) at various depths and thicknesses.

The SPT-N values in the sand and sand and gravel deposits ranged from 7 to 93 and averaged 26 blows per foot. SPT-N values in the silty clay layers ranged from 2 to 21 and averaged 9 blows per foot.

Detailed descriptions of the soil types and stratigraphy are included on the logs in Appendix B and C.

3.2 Bedrock

Refusal was not encountered at the site in the borings or test pits. The deepest boring was drilled to a depth of 40 feet below the existing ground surface (elevation -18 feet).

3.3 Groundwater

Groundwater was observed in the S. W. Cole Engineering borings ranging from elevation 3 feet to elevation 5 feet. Groundwater levels are shallower as the grade rises to the north.

Groundwater levels do fluctuate seasonally and the recorded level may be higher or lower than the actual levels during the construction period. Groundwater levels will generally be lower in the middle of the summer and winter and higher in the spring and fall.

4.0 Geotechnical Evaluation

In general the soil at the site is suitable to support the proposed building and parking garage. The geotechnical challenges are the presence of loose pockets or fill in specific areas, periodic layers of silty clay, the large magnitude of the parking garage loads, and the deep cut at the north and northeast sides of the proposed parking garage.

The pockets of loose fill and silty clay can be densified by proof rolling and local ground improvement such as geotextile and crushed stone can be used to allow for use of conventional spread footings for both structures. The majority of the parking garage loads dead loads. These loads will cause immediate settlement of the underlying soil. Additional settlement will occur incrementally as additional structure is built. This process will allow for adjustments to be made to the structure as it is built, if necessary, to accommodate small settlements. After the structure is built, the only remaining loads creating settlement will be the live loads.

A global stability analysis was performed on the areas where deep excavation into the ground and retaining walls will be required. In general the cut slopes will be stable. Recommendations for maximum slope steepness and design and construction of the retaining walls are presented in this report.

5.0 Geotechnical Recommendations

5.1 Foundation Bearing Pressure

We anticipate that footings will be constructed on the native glaciomarine fan deposit or existing fill soil. Based on our analyses and assuming that the following guidelines are used, the proposed building and parking garage can be supported on conventional isolated and continuous spread footings proportioned using an allowable bearing pressure of 3,000 psf.

The total settlement at the proposed building associated with this bearing pressure is estimated to range from 0.4 inches to 0.8 inches. The total settlement at the proposed parking garage location is estimated to range from 0.6 inches to 1.2 inches. Differential settlement at both the building and parking garage will be negligible.

5.1.1 Subgrade Preparation Proposed Building. The above allowable bearing pressure and associated settlement are based on the following subgrade preparation recommendations for the CBOC.

- Excavate the building footprint to 12 inches below the base of the proposed slab.

- Proof roll entire building footprint using a vibrator compactor having a minimum weight of 10 tons and making a minimum of 6 passes in each of two perpendicular directions. This is intended to densify the existing fill soil.
- Excavate to the base of the footings. Proof roll the exposed subgrade by making a minimum of 4 passes using a vibratory plate compactor with a minimum weight of 2 tons.
- Notify SGS to observe the footing subgrade conditions.
- Construct the footing directly on the proof rolled native soil, unless otherwise directed by SGS.

5.1.2 Subgrade Preparation Proposed Parking Garage. The above allowable bearing pressure and associated settlement are based on the following subgrade preparation recommendations for the parking garage.

- Excavate the building footprint to 12 inches below the base of the proposed slab.
- Proof roll entire building footprint using a vibrator compactor having a minimum weight of 10 tons and making a minimum of 4 passes in each of two perpendicular directions. This is intended to densify the existing fill soil.
- Excavate to 12 inches below the base of the footings for a 2-story structure and 24 inches below the base of footings for a 3-story structure. Proof roll the exposed subgrade by making a minimum of 4 passes using a vibratory plate compactor with a minimum weight of 2 tons.
- Install a layer of woven geotextile such as Mirafi RS280i or approved equivalent on the proof-rolled subgrade soil. Extend the geotextile at least 3 feet beyond the edge of the footing all around.
- Place a minimum of 12 inches (2-story structure) or 24 inches (3-story structure) of ¾ inch crushed stone directly on the geotextile. Compact the stone with a vibratory plate compactor.
- Construct the footing directly on the compacted crushed stone. For exterior column footings the crushed stone can be included in the frost protection depth if desired, reducing the minimum depth from the bottom of the footing to the exterior finished grade to 3 feet.

5.2 Frost Protection

The design air freezing index for the Portland area is approximately 1,200 degree F days (10 year, 90% probability). Based on this, a total of 4 feet of frost protection should be provided for the exterior footings. For the parking garage the 12 inches of ¾ inch crushed stone can be considered in the total frost protection depth reducing the depth of the bottom of the footing from the exterior finished grade to 3 feet.

We recommend that the exterior of all foundation elements exposed to freezing temperatures can be backfilled with Foundation Backfill (FB). FB shall consist of soil having a maximum particle size of 4 inches and having a maximum of 7% finer than the #200 sieve. FB should be placed in 6 to 12 inch lifts and compacted to 95% of its optimum dry density determined in accordance with ASTM D1557.

We recommend that the backfill on the interior of the foundation walls in heated areas consist of Structural Fill (SF, see Section 5.4).

5.3 Seismic Design

Based on the subsurface data collected in the borings, we recommend Site Class D be used in accordance with the ASCE 7-16 Code. The following seismic site coefficients should be used:

SUBGRADE SITE SEISMIC DESIGN COEFFICIENTS - IBC	
Seismic Coefficient	**Site Class D**
Short period spectral response (S_S)	0.281
1 second spectral response (S_1)	0.072
Maximum short period spectral response (S_{MS})	0.443
Maximum 1 second spectral response (S_{M1})	0.172
Design short period spectral response (S_{DS})	0.295
Design 1 second spectral response (S_{D1})	0.115

There are no soil conditions at this site that are considered susceptible to liquefaction during seismic events.

5.4 Slabs-on-Grade

We recommend that slabs on grade in heated areas placed on a minimum of 12 inches of Structural Fill (SF, see table below) or ¾" crushed stone (CS). If SF is used, it should be compacted to 95% of ASTM D1557. The subgrade soil beneath the CS or SF should be proof rolled by making a minimum of 6 passes in each of two perpendicular directions using a vibratory rolled with a minimum operating weight of 10 tons (see Section 5.1). Soft and loose areas or areas containing demolition debris, organics, and similar unsuitable materials should be removed and replaced with SF or CS.

Where fill is required beneath the SF under the slab, it should consist of FB as described in Section 5.2 above. FB should be placed in 12 inch lifts and be compacted with a minimum of 4 passes in each of two perpendicular directions with a vibratory roller.

We recommend that slabs-on-grade constructed in unheated building areas or exterior slabs be constructed on a minimum of 24 inches of SF or 1 inch of rigid insulation placed over 12 inches of SF.

STRUCTURAL FILL (SF)	
Sieve Size	**Percent finer**
3 inch	100
½ inch	35 to 80
¼ inch	25 to 65
No. 40	0 to 30
No. 200	0 to 7

Reference: MDOT Specification 703.06, Type

CRUSHED STONE ¾ INCH	
Sieve Size	**Percent finer**
1 inch	100
¾ inch	90 to 100
1/2 inch	20 to 55
3/8 inch	0 to 15
No. 4	0 to 5

Reference: MDOT Specification 703.12, Crushed Stone ¾"

SF have a maximum particle size of 4 inches. SF should be compacted to 95% pf ASTM D1557. CS should be compacted with a vibratory compactor to lock the particles together.

5.4 Asphalt Surfaces

Based on the proposed finish grades within the building footprint, the pavement base soil will be constructed on the existing or imported fill or the glaciomarine fan deposit. The mean annual freezing index for the Portland area is estimated at 900 degree F days. Based on the subgrade soil type and mean annual freezing index, the anticipated mean annual frost penetration depth is 36 inches. Traffic is anticipated to consist of primarily cars and light trucks.

Based on the above, we recommend a minimum total pavement section thickness of approximately 60% of the mean annual frost penetration or approximately 21 inches. We further recommend that the pavement section consist of the following materials.

PAVEMENT SECTION MATERIALS AND THICKNESSES		
Material	**Thickness (in)**	**Specification**
Asphalt Binder Course	3	MDOT 703.09, Type 19 mm
Base Soil	3	MDOT 703.06, Type A
Subbase Soil	15	MDOT 703.06, Type D

Where fill is required beneath the subbase soil it should consist of FB as described in Section 5.2 above. We recommend that FB, base soil, and subbase soil be compacted to a minimum of 95% of ASTM D1557.

Based on the subsurface data, pavement underdrains are not necessary at this site.

5.5 Groundwater Control

Based on observed groundwater levels, groundwater ranges from elevation 3 to elevation 5 feet. This is well below the footings and underdrains are therefore not strictly necessary. It is generally good practice to install

perimeter underdrains to account for surface water infiltration and unanticipated changes in local and regional hydrogeology. If perimeter underdrains are used they should consist of 4 inch rigid perforated PVC placed adjacent to the exterior footings and surrounded by a minimum of 6 inches of crushed stone wrapped in filter fabric to prevent clogging from the migration of the fine soil particles in the foundation backfill soils. The underdrain pipe should be outlet to a location where it will be free flowing. Where exposed at the ground surface, the ends of pipes should be screened or otherwise protected from entry and nesting of wildlife, which could cause clogging.

We also recommend exterior grades slope away from the buildings to reduce runoff water from infiltrating the foundation backfill soils.

5.6 Exterior Retaining Walls

We recommend that the segmental block retaining wall be designed by a qualified Maine Licensed P.E.

All topsoil, loose soil, or organic soil should be removed entirely from within the proposed retaining wall footprint prior to construction of leveling pad. We anticipate that the retaining wall will be constructed on existing fill or the native glaciomarine fan deposit. We recommend that the leveling pad consist of a minimum 12" thick layer of ¾" crushed stone. A woven geotextile fabric (such as Mirafi 600X) should be placed beneath the crushed stone. We recommend that the exposed soil beneath the leveling pad be proof rolled prior to placing the crushed stone. Proofrolling should consist of making a minimum of 4 passes using a vibratory plate compactor with a minimum weight of 2 tons. Any loose, wet, non-mineral, or otherwise unsuitable soil should be removed in its entirety and replaced with ¾" crushed stone prior to installing the leveling pad.

Segmental block retaining walls should be designed in accordance with the National Concrete Masonry Association (NCMA), 3rd Edition design manual. We recommend that the walls be designed using a minimum live load surcharge of 100 psf for construction and for vehicular traffic behind the wall, as applicable.

Retaining wall backfill for gravity retaining walls and reinforced soil for geogrid reinforced retaining walls should consist of Structural Fill (SF, see table below) and be compacted to 95% of its maximum dry density in accordance with ASTM D1557. The portion of SF passing the 3" sieve shall meet the following gradation requirements:

STRUCTURAL FILL (SF)	
Sieve Size	**Percent finer**
3 inch	100
½ inch	35 to 80
¼ inch	25 to 65
No. 40	0 to 30
No. 200	0 to 7

Reference: MDOT Specification 703.06, Type D

The maximum particle size should be limited to 4 inches. Structural Fill should be placed in 12" loose lifts and should be compacted to a minimum of 90 percent of its maximum dry density, determined in accordance with ASTM D1557.

Soil properties presented in the table below can be used in the retaining wall design:

DESIGN PARAMETERS – SEGMENTAL BLOCK WALLS				
Soil Type	**Soil Description**	**Unit Weight**	**Shear Strength**	
			ϕ'	**Cohesion**
Foundation	Proof rolled Existing Fill or Glaciomarine Fan	125 pcf	32°	0 psf
Retained (Gravity)	Structural Fill (MDOT 703.06, Type D)	135 pcf	34°	0 psf
Reinforced (Geogrid)	Structural Fill (MDOT 703.06, Type D)	135 pcf	34°	0 psf

The selection of parameters used in the wall design are the responsibility of the wall designer.

The retaining walls can be designed using an allowable net bearing pressure of 3,000 psf assuming the recommendations above are followed. Since segmental blocks are tolerable of some differential settlement, the blocks do not need to be constructed to full frost depth.

An underdrain system should be provided continuously behind the retaining wall near its base to prevent the buildup of hydrostatic pressures. The underdrain should consist of 6" rigid perforated PVC surrounded by a minimum of 6 inches of ¾" crushed stone and filter fabric to prevent clogging from the migration of the fine soil particles in the foundation backfill soils. The underdrain should outlet at the ends of the wall, at the low points of the wall, and through the face of the wall at a maximum spacing of 50 ft. center-to-center. Underdrains should outlet to a location where the water will be free flowing and should be protected from nesting animals.

We recommend that a ¾" crushed stone column, with a minimum thickness of 12", be installed behind the entire wall between the back of the concrete and the wall backfill to allow for any infiltrated water behind the wall to drain down to the underdrain pipe. No geotextile is required between the crushed stone and the retaining wall backfill. We recommend that geotextile, such as Mirafi 180N, be installed on the face of the cut slopes between the native soil and the retaining wall backfill.

We recommend that the final wall design be made available for SGS to review prior to construction.

6.0 Earthwork Considerations

6.1 Excavations and Slope Stability

The table below summarizes the OSHA general excavation guidelines for occupied excavations for the soils encountered in our geotechnical explorations.

OSHA Excavation Slopes		
Soil	**OSHA Classification**	**Permissible Slope**
Existing Fill	Type C	1.5H:1V
Native Glaciomarine Fan	Type B	1H:1V
Silty Clay	Type B	1H:1V

The above permissible slopes are for soil above the groundwater table. If any excavated soil is found to be below the groundwater table and is not de-watered, the permissible slope for the submerged soil is 1.5H to 1V. Any excavations greater than 20 feet deep should be designed by a qualified Maine Licensed Professional Engineer.

A global stability analysis was performed for static conditions at a deep cut section at the northeast corner of the parking garage. Three conditions were analyzed: Case 1) cut slope with no retaining wall, Case 2) cut slope with geogrid reinforced retaining wall, and Case 3) cut slope with gravity retaining wall. The stability analyses were performed using the SLIDE 2018 computer program and the Spencer method. The results of the analyses are summarized in the table below.

RESULTS OF SLOPE STABILITY ANALYSES	
Condition	**Safety Factor**
Open Cut Face - 2H:1V	1.55
Gravity Retaining Wall	1.55
Geogrid Reinforced Retaining Wall	1.60

Based on the results of these analyses, the maximum safe permanent grade of open cuts is 2H:1V. Our global stability analyses indicate that both gravity and geogrid reinforced retaining walls will be stable.

6.2 Handling and Reuse of Existing Soil.

Based on the results of the grain size analysis, the vast majority of the existing fill soil will meet the requirements for FB but will not meet the requirements for SF. A grain size analysis was not performed on the glaciomarine fan deposit. We anticipate that the majority of this deposit will also be usable as FB. We recommend that grain size analyses be performed on representative samples of the existing soil at the site to confirm compliance to the specifications in this report prior to their use.

SGS did not perform an environmental assessment on the existing fill soil. We did not observe contaminated soils with the exception of a thin layer of ash at or near the existing ground surface. Where possible we recommend that excess fill be used at the site. SGS can work with the Contractor and Owner to find potential places to use these materials on site, depending on their characteristics. Requirements for handling of contaminated soil should be determined by a qualified environmental consultant.

6.3 Earthwork Monitoring.

SGS should be notified so that we can make observations of the footing subgrade soil (existing fill) for both the CBOC and parking garage buildings prior to the placement of footing or geotextile and crushed stone.

We recommend that a qualified geotechnical consultant be retained to monitor and test soil materials used during construction and confirm that soil conditions and construction methods are consistent with this report.

7.0 Closure

Our recommendations are based on professional judgment and generally accepted principles of geotechnical engineering and project information provided by others. Some changes in subsurface conditions from those presented in this report may occur. Should these conditions or the proposed development differ from those described in this report, SGS should be notified so that we can re-evaluate our recommendations.

It is recommended that this report be made available in its entirety to contractors for informational purposes and be incorporated in the construction Contract Documents.

We appreciate the opportunity to serve you during this phase of your project. If there are any questions or additional information is required, please do not hesitate to call.

Sincerely yours,
Summit Geoengineering Services, Inc.

William M. Peterlein, PE
President & Principal Engineer



APPENDIX A

EXPLORATION LOCATION PLAN

PLAN REFERENCE

"OVERALL GRADING, DRAINAGE & EROSION CONTROL PLAN - U.S. DEPARTMENT OF VETERAN AFFAIRS, COMMUNITY BASED OUTPATIENT CLINIC", DATED SEPTEMBER 2019, PREPARED BY GORRILL PALMER.

DANFORTH STREET (width varies)

E STREET (unimproved/unaccepted)

40' wide passageway

PROPOSED OUTPATIENT CLINIC
SF FOOTPRINT
SF TOTAL AREA
F.F.E. 22.50

PARKING GARAGE
F.F.E. 23.50

SLOPE STABILITY

WEST COMMERCIAL STREET (60ft varies)

B-101 B-102 B-103 B-104 B-105 B-106 B-107 B-108 B-201 B-202 B-203 B-204 B-205 B-206 B-207 B-208 B-301 B-302 B-303 B-305 B-306 B-307 B-308

TP-1 TP-2 TP-3 TP-4 TP-5 TP-6 TP-7 TP-8

Temporary Benchmark (TBM)
Spike set in pole DMP #70
Elevation: 22.09'

CONTROL SPIKE
N:2951532.26
E:2925462.69
EL=12.63

CONTROL SPIKE
N:2951537.02
E:2925377.02
EL=11.35

LEGEND

- B-102 — S.W. COLE TEST BORING
- TP-1 — SUMMIT TEST PIT (SEPTEMBER 25, 2019)

SCALE: 1" = 80'

0 40 80 160 240

NORTH

REVISED: NOV. 8, 2019 - ADD SLOPE STABILITY LINE
REVISED: NOV. 1, 2019 - CHANGE SCALE FROM 60 TO 80

PROJECT: V.A. OUTPATIENT CLINIC
133 WEST COMMERCIAL ST. - PORTLAND, ME

CLIENT: FD STONEWATER

TITLE: EXPLORATION LOCATION PLAN

SCALE: 1" = 80'
DRAWN BY: KRF
APPR. BY: WMP
DATE: SEPT. 30, 2019

SUMMIT GEOENGINEERING SERVICES
173 PLEASANT STREET
ROCKLAND, ME 04841
Tel.: (207) 318-7161
145 LISBON ST. - SUITE 101
LEWISTON, ME 04240
Tel.: (207) 576-3313

PROJ.#: 19329

FIGURE: 1

APPENDIX B

SGS EXPLORATION LOGS

SUMMIT GEOENGINEERING SERVICES	**TEST PIT LOG**	Test Pit # **TP-1**
	Project: Veterans Outpatient Clinic 133 West Commercial St Portland, Maine	Project #: 19329 Groundwater: None Observed
Contractor: Shaw Brothers	Ground Surface Elevation: 21.5 ft +/-	
Equipment: CAT Large Tracked Excavator	Reference: Grading, Drainage, ESC Plan, Gorrill Palmer, 9/19	
Summit Staff: B. Peterlein, P.E.	Date: 9/25/2019	Weather: Sunny

Depth (ft)	**DESCRIPTION**	
	ENGINEERING	**GEOLOGIC/GENERAL**
1	Brown Silty SAND, trace Gravel, thin layer of ash, dry, loose, SM	FILL
2		
3		
4	Brown SAND, little Gravel, trace Silt, moist, compact, SP	NATIVE GLACIOMARINE FAN
5		
6		
7	Olive-gray to olive-brown fine Sandy SILT, trace Clay, blocky, damp, slightly mottled, firm, ML	
8		
9	End of Test Pit at 8 ft	
10		
11		
12		
13		
14		
15		
16		
17		

SUMMIT GEOENGINEERING SERVICES	TEST PIT LOG	Test Pit # TP-2
	Project: Veterans Outpatient Clinic 133 West Commercial St Portland, Maine	Project #: 19329 Groundwater: None Observed
Contractor: Shaw Brothers	Ground Surface Elevation: 23 ft +/-	
Equipment: CAT Large Tracked Excavator	Reference: Grading, Drainage, ESC Plan, Gorrill Palmer, 9/19	
Summit Staff: B. Peterlein, P.E.	Date: 9/25/2019	Weather: Sunny

Depth (ft)	DESCRIPTION	
	ENGINEERING	**GEOLOGIC/GENERAL**
1	Black SILT mixed with ash, dry, loose, ML	TOPSOIL
2	Brown Gravelly SAND, trace Silt, dry, loose, SP	FILL
3		
4	Becomes moist at 3 ft	
5		
6		
7	Isolated asphalt piece at 6 ft	
8		
9		
10		
11	Brown medium to fine SAND, trace Silt, moist, loose to compact, SP	NATIVE GLACIOMARINE FAN
12		
13	End of Test Pit at 12 ft	
14		
15		
16		
17		

SUMMIT GEOENGINEERING SERVICES	**TEST PIT LOG**	Test Pit # **TP-3**
	Project: Veterans Outpatient Clinic 133 West Commercial St Portland, Maine	Project #: 19329 Groundwater: None Observed
Contractor: Shaw Brothers	Ground Surface Elevation: 22.5 ft +/-	
Equipment: CAT Large Tracked Excavator	Reference: Grading, Drainage, ESC Plan, Gorrill Palmer, 9/19	
Summit Staff: B. Peterlein, P.E.	Date: 9/25/2019	Weather: Sunny

Depth (ft)	**DESCRIPTION**	
	ENGINEERING	**GEOLOGIC/GENERAL**
1	Black SILT, trace Ash, trace Gravel, dry, loose, ML	TOPSOIL
2	Brown SAND, little Gravel, trace Silt, dry to moist, loose, SP	FILL
3		
4		
5	15% Gravel, 84% Sand, 1% Silt	
6		
7		
8		
9		
10	Gray Silty SAND, trace Clay, wet, firm, SM	NATIVE GLACIOMARINE FAN
11	End of Test Pit at 10 ft	
12		
13		
14		
15		
16		
17		

SUMMIT GEOENGINEERING SERVICES	TEST PIT LOG	Test Pit # TP-4
	Project: Veterans Outpatient Clinic 133 West Commercial St Portland, Maine	Project #: 19329 Groundwater: None Observed
Contractor: Shaw Brothers	Ground Surface Elevation: 21.5 ft+/-	
Equipment: CAT Large Tracked Excavator	Reference: Grading, Drainage, ESC Plan, Gorrill Palmer, 9/19	
Summit Staff: B. Peterlein, P.E.	Date: 9/25/2019	Weather: Sunny

Depth (ft)	DESCRIPTION	
	ENGINEERING	**GEOLOGIC/GENERAL**
1	Black SILT, trace Ash, trace Gravel, dry, loose, ML	TOPSOIL
2	Brown Gravelly SAND, trace Silt, dry, loose, SP	FILL
3		
4		
5		
6		
7		
8		
9	Olive-brown medium to fine SAND, trace Silt, moist, compact, SP	NATIVE GLACIOMARINE FAN
10		
11	End of Test Pit at 10 ft	
12		
13		
14		
15		
16		
17		

SUMMIT GEOENGINEERING SERVICES	TEST PIT LOG	Test Pit # TP-5
	Project: Veterans Outpatient Clinic 133 West Commercial St Portland, Maine	Project #: 19329 Groundwater: None Observed
Contractor: Shaw Brothers	Ground Surface Elevation: 22 ft +/-	
Equipment: CAT Large Tracked Excavator	Reference: Grading, Drainage, ESC Plan, Gorrill Palmer, 9/19	
Summit Staff: B. Peterlein, P.E.	Date: 9/25/2019	Weather: Sunny

Depth (ft)	DESCRIPTION	
	ENGINEERING	**GEOLOGIC/GENERAL**
1	Black SILT, trace Ash, trace Gravel, dry, loose, ML	TOPSOIL
2	Brown Gravelly SAND, trace Silt, dry, loose, SP	FILL
3		
4		
5	Brown medium to fine SAND, trace Silt, moist, compact, SP	NATIVE GLACIOMARINE FAN
6		
7	Olive-gray medium to fine SAND, trace Silt, trace Clay, moist, compact, SM	
8		
9	End of Test Pit at 8 ft	
10		
11		
12		
13		
14		
15		
16		
17		

SUMMIT GEOENGINEERING SERVICES	**TEST PIT LOG**	Test Pit # **TP-6**
	Project: Veterans Outpatient Clinic 133 West Commercial St Portland, Maine	Project #: 19329 Groundwater: None Observed
Contractor: Shaw Brothers	Ground Surface Elevation: 21 ft +/-	
Equipment: CAT Large Tracked Excavator	Reference: Grading, Drainage, ESC Plan, Gorrill Palmer, 9/19	
Summit Staff: B. Peterlein, P.E.	Date: 9/25/2019	Weather: Sunny

Depth (ft)	**DESCRIPTION**	
	ENGINEERING	**GEOLOGIC/GENERAL**
1	Black SILT, trace Ash, trace Gravel, dry, loose, ML	TOPSOIL
2	Dark brown Gravelly SAND, trace Silt, dry, loose, SP	FILL
3		
4	Brown medium to fine SAND, trace Gravel and Silt, moist, loose, SP	NATIVE GLACIOMARINE FAN
5		
6		
7		
8		
9		
10		
11	End of Test Pit at 10 ft	
12		
13		
14		
15		
16		
17		

SUMMIT GEOENGINEERING SERVICES	TEST PIT LOG	Test Pit # TP-7
	Project: Veterans Outpatient Clinic 133 West Commercial St Portland, Maine	Project #: 19329 Groundwater: None Observed
Contractor: Shaw Brothers	Ground Surface Elevation: 22 ft +/-	
Equipment: CAT Large Tracked Excavator	Reference: Grading, Drainage, ESC Plan, Gorrill Palmer, 9/19	
Summit Staff: B. Peterlein, P.E.	Date: 9/25/2019	Weather: Sunny

Depth (ft)	DESCRIPTION	
	ENGINEERING	**GEOLOGIC/GENERAL**
1	Black SILT, trace Ash, trace Gravel, dry, loose, ML	TOPSOIL
2	Brown slightly mottled SAND, little Gravel, trace Silt, dry, loose, SP	FILL
3	Gray Clayey SILT to Silty CLAY mixed with Sand, little Gravel, moist, firm, ML	
4		
5		
6		
7	Brown Sandy GRAVEL, little Silt, trace Clay, few Clay balls, damp, compact, SM	
8		
9		
10		
11	Brown Gravelly SAND, trace Silt, wet, compact, SP	NATIVE GLACIOMARINE FAN
12		
13	End of Test Pit at 12 ft	
14		
15		
16		
17		

SUMMIT GEOENGINEERING SERVICES	TEST PIT LOG	Test Pit # TP-8
	Project: Veterans Outpatient Clinic 133 West Commercial St Portland, Maine	Project #: 19329 Groundwater: None Observed
Contractor: Shaw Brothers	Ground Surface Elevation: 22 ft +/-	
Equipment: CAT Large Tracked Excavator	Reference: Grading, Drainage, ESC Plan, Gorrill Palmer, 9/19	
Summit Staff: B. Peterlein, P.E.	Date: 9/25/2019	Weather: Sunny

Depth (ft)	DESCRIPTION	
	ENGINEERING	**GEOLOGIC/GENERAL**
1	Brown to black SILT, little SAND, trace Gravel mixed with black ash, dry, loose, ML	FILL
2	Brown Silghtly mottled SAND, little Gravel, trace Silt, moist, SP	
3		
4	Brown Gravelly SAND, little Silt mixed with clay balls, compact, SM	
5		
6		
7		
8		
9		
10		
11		
12		
13		
14	End of Test Pit at 13 ft	
15		
16		
17		

APPENDIX C

S.W. COLE ENGINEERING EXPLORATION LOGS

BORING LOG

CLIENT: FDS JBB Portland, LLC
PROJECT: Proposed VA CBOC and Parking Garage
LOCATION: West Commercial Street, Portland, ME

BORING NO.: B-108
SHEET: 1 of 1
PROJECT NO. 15-0942.1
DATE START: 7/16/2019
DATE FINISH: 7/16/2019

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** 23' +/- | **TOTAL DEPTH (FT):** 17.0 | **LOGGED BY:** Tim Boyce
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Corey Culligan | **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Truck Mounted Acker | **AUGER ID/OD:** 2 1/4 in / 5 5/8 in | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic | **HAMMER WEIGHT (lbs):** 140 / 300 | **CASING ID/OD:** N/A /N/A | **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: | **HAMMER DROP (inch):** 30 / 16
WATER LEVEL DEPTHS (ft): ▽ 10 ft 7/16/2019 Soils saturated at 10'
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
										Railroad bed (FILL)		
20			1D		2-4	24/18	13-14-13-10			2.0 Medium dense, brown medium SAND, trace silt (FILL) 2.5		
	5		2D		5-7	24/19	7-5-5-7			4.0 Medium dense to loose, gray silty SAND, some gravel (FILL)		
15										Medium dense to loose, tan SAND, trace silt with cobbles at 7' (FILL)		
	10		3D		10-12	24/24	1-1 FOR 12"-1			10.2 Very loose, olive-gray clayey SILT	▽	
10												
	15		4D		15-17	24/24	1-8-8-10			15.5 Medium dense, olive-gray silty SAND, trace gravel		
										Bottom of Exploration at 17.0 feet		

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING / WELL 15-0942.1.GPJ SWCE TEMPLATE.GDT 7/30/19

BORING LOG

CLIENT: FDS JBB Portland, LLC
PROJECT: Proposed VA CBOC and Parking Garage
LOCATION: West Commercial Street, Portland, ME

BORING NO.: B-201
SHEET: 1 of 1
PROJECT NO. 15-0942.1
DATE START: 7/16/2019
DATE FINISH: 7/16/2019

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 22' +/-
TOTAL DEPTH (FT): 27.0
LOGGED BY: Tim Boyce
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Corey Culligan
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Truck Mounted Acker
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic
HAMMER WEIGHT (lbs): 140 / 300
CASING ID/OD: N/A /N/A
CORE BARREL:
HAMMER EFFICIENCY FACTOR:
HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): ▽ 17 ft 7/16/2019 Free water at 17'
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▽ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
20			1D	SS	2-4	24/17	3-3-2-3			Grass / Loose, brown silty SAND (FILL)		
										3.0 Loose, black coal ASH (FILL)		
	5		2D	SS	5-7	24/22	3-4-6-4			3.5 Medium dense to loose, brown silty SAND, trace gravel, trace clay (FILL)		
15										5.8 Medium dense, brown gravelly SAND, trace silt (FILL)		
	10		3D	SS	10-12	24/14	5-5-7-7			8.0 Medium dense, tan SAND, trace gravel		
10												
	15		4D	SS	15-17	24/17	9-9-7-7					
5										17.0 Medium dense, brown-gray SAND, trace gravel with frequent gray clay seams (Harbor Bottom)	▽	
	20		5D	SS	20-22	24/17	8-9-6-10			6' blow in, borehole abandoned at 27'		
0												
	25		6D	SS	25-27	24/24	6-5-10-14					
-5										Bottom of Exploration at 27.0 feet		

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING / WELL 15-0942.1.GPJ SWCE TEMPLATE.GDT 7/30/19

BORING LOG

CLIENT: FDS JBB Portland, LLC
PROJECT: Proposed VA CBOC and Parking Garage
LOCATION: West Commercial Street, Portland, ME

BORING NO.: B-202
SHEET: 1 of 1
PROJECT NO. 15-0942.1
DATE START: 7/18/2019
DATE FINISH: 7/18/2019

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** 22' +/- | **TOTAL DEPTH (FT):** 25.0 | **LOGGED BY:** Tim Boyce
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Corey Culligan | **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Truck Mounted Acker | **AUGER ID/OD:** 2 1/4 in / 5 5/8 in | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic | **HAMMER WEIGHT (lbs):** 140 / 300 | **CASING ID/OD:** N/A /N/A | **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: | **HAMMER DROP (inch):** 30 / 16
WATER LEVEL DEPTHS (ft): ▽ 18 ft 7/18/2019 Free water at 18'
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_U = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
										Grass / Loose, brown silty SAND (FILL)		
20			1D		2-4.1	25/15	1-4-10-12			2.0 Medium dense, tan SAND, trace silt with occasional gray clayey SILT partings to 5'		
	5		2D		5-7	24/17	4-5-7-4					
15												
	10		3D		10-12	24/15	5-8-10-10			some gravel		
10												
	15		4D		15-17	24/16	WOH-7-7-10	q_P=1 ksf		15.5 Medium, gray clayey SILT, trace sand		
5										16.4 Medium dense, brown SAND and GRAVEL, trace silt with cobbles at 18'	▽	
	20		5D		20-22	24/6	10-16-12-6					
0										2.5' of blow in, abandoned borehole at 25'		
	25											

Bottom of Exploration at 25.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING / WELL 15-0942.1.GPJ SWCE TEMPLATE.GDT 7/30/19

BORING LOG

CLIENT: FDS JBB Portland, LLC
PROJECT: Proposed VA CBOC and Parking Garage
LOCATION: West Commercial Street, Portland, ME

BORING NO.: B-203
SHEET: 1 of 1
PROJECT NO. 15-0942.1
DATE START: 7/18/2019
DATE FINISH: 7/18/2019

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** 22' +/- | **TOTAL DEPTH (FT):** 27.0 | **LOGGED BY:** Tim Boyce
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Corey Culligan | **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Truck Mounted Acker | **AUGER ID/OD:** 2 1/4 in / 5 5/8 in | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic | **HAMMER WEIGHT (lbs):** 140 / 300 | **CASING ID/OD:** N/A /N/A | **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: | **HAMMER DROP (inch):** 30 / 16
WATER LEVEL DEPTHS (ft): ▽ 17.5 ft 7/18/2019 Free water at 17.5'
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▽ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
										Brown silty SAND (FILL)		
20			1D		2-4	24/13	5-6-5-6			2.0 Medium dense, tan SAND, trace silt with occasional olive-gray clayey SILT seams		
15	5		2D		5-7	24/15	4-7-7-7					
10	10		3D		10-12	24/18	3-6-9-12					
5	15		4D		15-17	24/0	12-12-7-4			no recovery - pushing gravel	▽	
0	20		5D		20-22	24/24	3-3-2-3	q_P=0.5 ksf		20.0 Medium/soft, gray silty CLAY with frequent SAND partings		
-5	25		6D		25-27	24/24	9-10-21-25			25.0 Dense, olive-brown silty SAND with frequent SAND seams		
										Bottom of Exploration at 27.0 feet		

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING / WELL 15-0942.1.GPJ SWCE TEMPLATE.GDT 7/30/19

BORING LOG

CLIENT: FDS JBB Portland, LLC
PROJECT: Proposed VA CBOC and Parking Garage
LOCATION: West Commercial Street, Portland, ME

BORING NO.: B-204
SHEET: 1 of 1
PROJECT NO. 15-0942.1
DATE START: 7/18/2019
DATE FINISH: 7/18/2019

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 22' +/- **TOTAL DEPTH (FT):** 26.0 **LOGGED BY:** Tim Boyce
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Corey Culligan **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Truck Mounted Acker **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 300 **CASING ID/OD:** N/A /N/A **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: **HAMMER DROP (inch):** 30 / 16
WATER LEVEL DEPTHS (ft): ▽ 18 ft 7/18/2019 Free water at 18'
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level; ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
										Grass / railroad yard		
20			1D		2-4	24/17	4-5-4-6			2.0 Loose, tan SAND, trace silt with occasional gray clayey SILT seams		
	5		2D		5-7	24/17	4-4-3-4			5.0 Loose, layered tan SAND, trace silt and olive-gray clayey SILT		
15												
	10		3D		10-12	24/18	10-4-4-17					
10												
	15		4D		15-17	24/17	10-16-26-27			15.0 Dense, brown SAND, some gravel, trace silt	▽	
5												
	20		5D		20-22	24/19	15-18-24-21					
0												
	25		6D		25-26	12/12	9-20			1' blow in, abandoned borehole at 26'		

Bottom of Exploration at 26.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING / WELL 15-0942.1.GPJ SWCE TEMPLATE.GDT 7/30/19

BORING LOG

CLIENT: FDS JBB Portland, LLC
PROJECT: Proposed VA CBOC and Parking Garage
LOCATION: West Commercial Street, Portland, ME

BORING NO.: B-205
SHEET: 1 of 1
PROJECT NO. 15-0942.1
DATE START: 7/18/2019
DATE FINISH: 7/18/2019

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** 22' +/- | **TOTAL DEPTH (FT):** 22.0 | **LOGGED BY:** Tim Boyce
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Corey Culligan | **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Truck Mounted Acker | **AUGER ID/OD:** 2 1/4 in / 5 5/8 in | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic | **HAMMER WEIGHT (lbs):** 140 / 300 | **CASING ID/OD:** N/A /N/A | **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: | **HAMMER DROP (inch):** 30 / 16
WATER LEVEL DEPTHS (ft): ▽ 18 ft 7/18/2019 Free water at 18'
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
										Grass / railroad yard		
20			1D		2-4	24/17	6-6-5-6			2.0 Medium dense, tan SAND, trace silt		
	5									3.7 Gray sandy SILT		
			2D		5-7	24/15	4-4-4-4			3.8 Loose, varved tan SAND, trace silt and gray sandy SILT with cobbles at 9'		
15												
	10		3D		10-12	24/11	4-5-3-4			9.0 Loose, gray clayey SILT, some sand		
10												
	15		4D		15-17	24/19	11-12-5-4			15.0 Medium dense, layered brown SAND, some gravel and gray clayey SILT, trace sand	▽	
5												
	20		5D		20-22	24/24	5-29-36-39			20.0 Very dense, brown SAND, some gravel, trace silt		
0										1' blow in, abandoned borehole at 22'		

Bottom of Exploration at 22.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING / WELL 15-0942.1.GPJ SWCE TEMPLATE.GDT 7/30/19

BORING LOG

S.W.COLE ENGINEERING, INC.

CLIENT: FDS JBB Portland, LLC
PROJECT: Proposed VA CBOC and Parking Garage
LOCATION: West Commercial Street, Portland, ME

BORING NO.: B-206
SHEET: 1 of 1
PROJECT NO. 15-0942.1
DATE START: 7/16/2019
DATE FINISH: 7/16/2019

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 23' +/-
TOTAL DEPTH (FT): 32.0
LOGGED BY: Tim Boyce
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Corey Culligan
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Truck Mounted Acker
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic
HAMMER WEIGHT (lbs): 140 / 300
CASING ID/OD: N/A /N/A
CORE BARREL:
HAMMER EFFICIENCY FACTOR:
HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): 7/16/2019 No free water observed
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
20	5		1D	D	2-4	24/19	8-11-12-14			Grass / Medium dense, brown gravelly SAND, trace silt (FILL)		
										3.0 Dense to medium dense, brown gravelly SAND, trace silt with gray silt seams at 3', cobbles 7-9'		
15	10		2D	D	5-7	24/18	12-21-17-24					
			3D	D	10-12	24/20	10-18-10-8					
10	15									11.1 Medium dense, olive-gray silty SAND, some gravel (TILL)		
			4D	D	15-17	24/17	WOH-2-3-4			15.0 Loose to very loose, gray silty SAND, some gravel		
5	20		5D	D	20-22	24/24	WOH-1-2-2					
0	25		6D	D	25-27	24/24	2-2-2-1					
-5	30		7D	D	30-32	24/15	8-8-9-10			30.0 Medium dense, gray silty SAND, some gravel (TILL)		
										Bottom of Exploration at 32.0 feet		

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING / WELL 15-0942.1.GPJ SWCE TEMPLATE.GDT 7/30/19

BORING LOG

CLIENT: FDS JBB Portland, LLC
PROJECT: Proposed VA CBOC and Parking Garage
LOCATION: West Commercial Street, Portland, ME

BORING NO.: B-207
SHEET: 1 of 1
PROJECT NO. 15-0942.1
DATE START: 7/16/2019
DATE FINISH: 7/16/2019

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 23' +/-
TOTAL DEPTH (FT): 22.0
LOGGED BY: Tim Boyce
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Corey Culligan
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Truck Mounted Acker
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic
HAMMER WEIGHT (lbs): 140 / 300
CASING ID/OD: N/A /N/A
CORE BARREL:
HAMMER EFFICIENCY FACTOR:
HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): ▽ 19.5 ft 7/16/2019 Free water at 19.5'
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
										Rail siding / loose, olive-gray silty SAND with tan SAND layers (FILL)		
20			1D		2-4	24/17	1-2-5-9			3.0		
	5		2D		5-7	24/16	16-15-15-22			Dense, brown SAND and GRAVEL with cobbles		
15												
	10		3D		10-12	24/17	19-18-22-23					
10												
	15		4D		15-17	24/19	22-20-19-30					
5											▽	
	20		5D		20-22	24/21	16-21-20-21					
										Bottom of Exploration at 22.0 feet		

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-207

S.W.COLE ENGINEERING, INC.

BORING LOG

CLIENT: FDS JBB Portland, LLC
PROJECT: Proposed VA CBOC and Parking Garage
LOCATION: West Commercial Street, Portland, ME

BORING NO.: B-208
SHEET: 1 of 1
PROJECT NO. 15-0942.1
DATE START: 7/16/2019
DATE FINISH: 7/16/2019

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 24' +/-
TOTAL DEPTH (FT): 13.5
LOGGED BY: Tim Boyce
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Corey Culligan
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Truck Mounted Acker
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic
HAMMER WEIGHT (lbs): 140 / 300
CASING ID/OD: N/A /N/A
CORE BARREL:
HAMMER EFFICIENCY FACTOR:
HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): 7/16/2019 No free water observed
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
										Railroad siding / Medium dense, gray sandy SILT (FILL)		
			1D		2-4	24/18	2-5-15-15			3.2 Medium dense to dense, tan gravelly SAND, trace silt with frequent cobbles		
20	5		2D		5-7	24/17	7-12-15-22					
15	10		3D		10.9-11.8	11/9	20-50/5"					

Refusal at 13.5 feet
Probable boulder

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING / WELL 15-0942.1.GPJ SWCE TEMPLATE.GDT 7/30/19

BORING LOG

CLIENT: FDS JBB Portland, LLC
PROJECT: Proposed VA CBOC and Parking Garage
LOCATION: West Commercial Street, Portland, ME

BORING NO.: B-301
SHEET: 1 of 1
PROJECT NO. 15-0942.1
DATE START: 7/19/2019
DATE FINISH: 7/19/2019

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** 22' +/- | **TOTAL DEPTH (FT):** 30.0 | **LOGGED BY:** Tim Boyce
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Corey Culligan | **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Truck Mounted Acker | **AUGER ID/OD:** 2 1/4 in / 5 5/8 in | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic | **HAMMER WEIGHT (lbs):** 140 / 300 | **CASING ID/OD:** N/A /N/A | **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: | **HAMMER DROP (inch):** 30 / 16
WATER LEVEL DEPTHS (ft): ▽ 17 ft 7/19/2019 Free water at 17'
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
										Black silty SAND with coal and brick (FILL)		
20			1D		2-4	24/15	4-4-5-7					
	5									3.0 Medium dense, tan SAND, trace silt with occasional olive-brown SILT partings below 5'		
			2D		5-7	24/17	6-6-5-7					
15												
	10		3D		10-12	24/17	5-5-6-8					
10												
	15		4D		15-17	24/24	1-1-4-4	q_p=0.5 ksf		15.0 Medium, olive-brown-gray silty CLAY with frequent SAND partings	▽	
5												
	20		5D		20-22	24/24	1-1-2-4					
0												
	25		6D		25-27	24/24	8-16-22-24			25.0 Dense, brown SAND, some gravel 2' blow in, abandoned borehole at 30'		
-5												
	30									Bottom of Exploration at 30.0 feet		

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING / WELL 15-0942.1.GPJ SWCE TEMPLATE.GDT 7/30/19

BORING LOG

CLIENT:	FDS JBB Portland, LLC
PROJECT:	Proposed VA CBOC and Parking Garage
LOCATION:	West Commercial Street, Portland, ME

BORING NO.:	**B-302**
SHEET:	1 of 1
PROJECT NO.	15-0942.1
DATE START:	7/19/2019
DATE FINISH:	7/19/2019

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 22' +/- **TOTAL DEPTH (FT):** 27.0 **LOGGED BY:** Tim Boyce

DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Corey Culligan **DRILLING METHOD:** Hollow Stem Auger

RIG TYPE: Truck Mounted Acker **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon

HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 300 **CASING ID/OD:** N/A /N/A **CORE BARREL:**

HAMMER EFFICIENCY FACTOR: **HAMMER DROP (inch):** 30 / 16

WATER LEVEL DEPTHS (ft): ▽ 18 ft 7/19/2019 Free water at 18'

GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level; ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling

D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear

Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot

WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector

S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
										Brown silty SAND (FILL)		
20			1D		2-4	24/19	8-9-9-8			2.0 Medium dense, tan SAND, trace silt with occasional olive-brown silt partings		
	5		2D		5-7	24/17	1-2-4-2	q_p=0.5 ksf		5.0 Soft/medium, olive-gray silty CLAY		
15			3D		7-9	24/24	1-2-2-2			8.5 Very soft, mixed silty CLAY and SAND		
	10		4D		10-12	24/17	1-12-13-12			10.5 Medium dense to dense, brown-black SAND with gravel and occasional gray silty CLAY seams at 15-17'	▽	
10												
	15		5D		15-17	24/17	5-20-19-18					
5												
	20		6D		20-22	24/19	2-5-17-30			20.0 Medium dense, layered olive-gray silty CLAY and tan SAND		
0										23.0 Very dense, brown-black SAND and GRAVEL with cobbles		
	25		7D		25-27	24/17	23-45-48-62					
-5										Bottom of Exploration at 27.0 feet		

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING / WELL 15-0942.1.GPJ SWCE TEMPLATE.GDT 7/30/19

BORING LOG

CLIENT: FDS JBB Portland, LLC
PROJECT: Proposed VA CBOC and Parking Garage
LOCATION: West Commercial Street, Portland, ME

BORING NO.: B-303
SHEET: 1 of 1
PROJECT NO. 15-0942.1
DATE START: 7/19/2019
DATE FINISH: 7/19/2019

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 22' +/- **TOTAL DEPTH (FT):** 20.0 **LOGGED BY:** Tim Boyce
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Corey Culligan **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Truck Mounted Acker **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 300 **CASING ID/OD:** N/A /N/A **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: **HAMMER DROP (inch):** 30 / 16
WATER LEVEL DEPTHS (ft): ▽ 19 ft 7/18/2019 Free water at 19'
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
										Gravel Lot (FILL)		
20			1D		2-4	24/19	3-4-4-3			2.0 Loose, layered olive-brown clayey SILT and tan-rust brown SAND		
	5		2D		5-7	24/19	1-3-7-8					
15										8.0 Medium dense, tan SAND, trace silt with frequent cobbles		
	10		3D		10-12	24/19	4-8-8-9					
10												
	15		4D		15-17	24/19	5-10-13-15				▽	
5												
	20									1' blow in, abandoned borehole at 20'		
										Bottom of Exploration at 20.0 feet		

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING / WELL 15-0942.1.GPJ SWCE TEMPLATE.GDT 7/30/19

BORING LOG

CLIENT: FDS JBB Portland, LLC
PROJECT: Proposed VA CBOC and Parking Garage
LOCATION: West Commercial Street, Portland, ME

BORING NO.: B-304
SHEET: 1 of 1
PROJECT NO. 15-0942.1
DATE START: 7/18/2019
DATE FINISH: 7/18/2019

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 22' +/- **TOTAL DEPTH (FT):** 22.0 **LOGGED BY:** Tim Boyce
DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Corey Culligan **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Truck Mounted Acker **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 300 **CASING ID/OD:** N/A /N/A **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: **HAMMER DROP (inch):** 30 / 16
WATER LEVEL DEPTHS (ft): ▽ 19 ft 7/18/2019 Free water at 19' (Low Tide)
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
										Grass / tan silty SAND (FILL)		
20			1D		2-4	24/1	5-4-2-1			2.5 Stiff, olive-brown silty CLAY		
										3.0 Soft, gray clayey SILT with shells		
	5		2D		5-7	24/15	4-8-13-12			4.0 Medium dense, gray-black SAND with gravel layered with gray clayey SILT		
15												
	10		3D		10-12	24/12	2-3-13-12					
10										11.5 Medium dense, tan silty fine SAND with frequent cobbles below 16'		
	15		4D		15-16	12/7	10-50					
5											▽	
	20		5D		20-22	24/21	8-8-22-31			2' blow in, abandoned borehole at 22'		
0										Bottom of Exploration at 22.0 feet		

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING NO.: B-304

BORING LOG

CLIENT:	FDS JBB Portland, LLC
PROJECT:	Proposed VA CBOC and Parking Garage
LOCATION:	West Commercial Street, Portland, ME

BORING NO.:	**B-305**
SHEET:	1 of 1
PROJECT NO.	15-0942.1
DATE START:	7/18/2019
DATE FINISH:	7/18/2019

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 22' +/- **TOTAL DEPTH (FT):** 16.0 **LOGGED BY:** Tim Boyce

DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Corey Culligan **DRILLING METHOD:** Hollow Stem Auger

RIG TYPE: Truck Mounted Acker **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon

HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 300 **CASING ID/OD:** N/A /N/A **CORE BARREL:**

HAMMER EFFICIENCY FACTOR: **HAMMER DROP (inch):** 30 / 16

WATER LEVEL DEPTHS (ft): 7/18/2019 No free water observed

GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:

Water Level
- ▽ At time of Drilling
- ▼ At Completion of Drilling
- ▼ After Drilling

D = Split Spoon Sample
U = Thin Walled Tube Sample
R = Rock Core Sample
V = Field Vane Shear

Pen. = Penetration Length
Rec. = Recovery Length
bpf = Blows per Foot
mpf = Minute per Foot

WOR = Weight of Rods
WOH = Weight of Hammer
RQD = Rock Quality Designation
PID = Photoionization Detector

S_v = Field Vane Shear Strength, kips/sq.ft.
q_u = Unconfined Compressive Strength, kips/sq.ft.
Ø = Friction Angle (Estimated)
N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
										Brown SAND, some gravel		
20			1D		2-4	24/15	5-11-5-4			2.5 Medium dense, layered gray silty SAND and gray clayey SILT, some sand		
	5		2D		5-7	24/19	6-4-8-8					
15												
	10		3D		10-12	24/24	7-26-32-42			10.7 Black sandy SILT, relic organic parting 10.8 Very dense, tan SAND, some gravel with frequent cobbles		
10												
	15		4D		15-15.3	4/4	50/4"					

Refusal at 16.0 feet
Probable boulder

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING / WELL 15-0942.1.GPJ SWCE TEMPLATE.GDT 7/30/19

BORING LOG

CLIENT: FDS JBB Portland, LLC
PROJECT: Proposed VA CBOC and Parking Garage
LOCATION: West Commercial Street, Portland, ME

BORING NO.: B-306
SHEET: 1 of 1
PROJECT NO. 15-0942.1
DATE START: 7/16/2019
DATE FINISH: 7/16/2019

Drilling Information

LOCATION: See Exploration Location Plan
ELEVATION (FT): 25' +/-
TOTAL DEPTH (FT): 22.0
LOGGED BY: Tim Boyce
DRILLING CO.: S. W. Cole Explorations, LLC
DRILLER: Corey Culligan
DRILLING METHOD: Hollow Stem Auger
RIG TYPE: Truck Mounted Acker
AUGER ID/OD: 2 1/4 in / 5 5/8 in
SAMPLER: Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic
HAMMER WEIGHT (lbs): 140 / 300
CASING ID/OD: N/A /N/A
CORE BARREL:
HAMMER EFFICIENCY FACTOR:
HAMMER DROP (inch): 30 / 16
WATER LEVEL DEPTHS (ft): ▽ 20 ft 7/16/2019 Free water at 20'
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
										Railroad siding / gray silty SAND, some gravel (FILL)		
			1D		2-4	24/19	14-15-14-14			3.0 Dense, brown SAND and GRAVEL, trace silt		
20	5		2D		5-7	24/19	12-18-19-28					
15	10		3D		10-12	24/11	14-20-15-11			11.0 Medium dense, tan-rust brown SAND, trace silt		
10	15		4D		15-17	24/17	12-19-27-30			16.8 Light brown-brown SAND, some gravel, trace silt		
5	20		5D		20-22	24/17	5-8-11-16				▽	

Bottom of Exploration at 22.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING / WELL 15-0942.1.GPJ SWCE TEMPLATE.GDT 7/30/19

BORING LOG

CLIENT: FDS JBB Portland, LLC
PROJECT: Proposed VA CBOC and Parking Garage
LOCATION: West Commercial Street, Portland, ME

BORING NO.: B-307
SHEET: 1 of 1
PROJECT NO. 15-0942.1
DATE START: 7/17/2019
DATE FINISH: 7/17/2019

Drilling Information

LOCATION: See Exploration Location Plan | **ELEVATION (FT):** 30' +/- | **TOTAL DEPTH (FT):** 32.0 | **LOGGED BY:** Tim Boyce
DRILLING CO.: S. W. Cole Explorations, LLC | **DRILLER:** Corey Culligan | **DRILLING METHOD:** Hollow Stem Auger
RIG TYPE: Truck Mounted Acker | **AUGER ID/OD:** 2 1/4 in / 5 5/8 in | **SAMPLER:** Standard Split-Spoon
HAMMER TYPE: Automatic / Automatic | **HAMMER WEIGHT (lbs):** 140 / 300 | **CASING ID/OD:** N/A /N/A | **CORE BARREL:**
HAMMER EFFICIENCY FACTOR: | **HAMMER DROP (inch):** 30 / 16
WATER LEVEL DEPTHS (ft): ▽ 26.5 ft 7/16/2019 Free water at 26.5'
GENERAL NOTES:

KEY TO NOTES AND SYMBOLS:
Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling
D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear
Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot
WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector
S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_2O Depth	Remarks
										Olive-brown silty SAND (FILL)		
			1D		2-4	24/15	4-6-9-10			2.0 Medium dense, brown GRAVEL and SAND, trace silt		
25	5		2D		5-7	24/19	12-12-14-23					
										6.8 Very dense to dense, tan SAND, some gravel to gravelly with frequent cobbles		
20	10		3D		10-11.4	17/2	15-40-50/5"			gravel in spoon tip at 10' - blow count overstated		
15	15		4D		15-17	24/17	20-17-32-32					
10	20		5D		20-22	24/15	20-23-20-19					
										25.0 Medium dense, brown SAND, trace gravel	▽	
5	25		6D		25-27	24/19	9-9-12-15					
0	30		7D		30-32	24/24	6-11-14-18					

Bottom of Exploration at 32.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING / WELL 15-0942.1.GPJ SWCE TEMPLATE.GDT 7/30/19

BORING LOG

CLIENT:	FDS JBB Portland, LLC
PROJECT:	Proposed VA CBOC and Parking Garage
LOCATION:	West Commercial Street, Portland, ME

BORING NO.:	**B-308**
SHEET:	1 of 1
PROJECT NO.	15-0942.1
DATE START:	7/17/2019
DATE FINISH:	7/17/2019

Drilling Information

LOCATION: See Exploration Location Plan **ELEVATION (FT):** 39' +/- **TOTAL DEPTH (FT):** 36.0 **LOGGED BY:** Tim Boyce

DRILLING CO.: S. W. Cole Explorations, LLC **DRILLER:** Corey Culligan **DRILLING METHOD:** Hollow Stem Auger

RIG TYPE: Truck Mounted Acker **AUGER ID/OD:** 2 1/4 in / 5 5/8 in **SAMPLER:** Standard Split-Spoon

HAMMER TYPE: Automatic / Automatic **HAMMER WEIGHT (lbs):** 140 / 300 **CASING ID/OD:** N/A /N/A **CORE BARREL:**

HAMMER EFFICIENCY FACTOR: **HAMMER DROP (inch):** 30 / 16

WATER LEVEL DEPTHS (ft): 7/16/2019 No free water observed, perched 10-12'

GENERAL NOTES:

KEY TO NOTES AND SYMBOLS: Water Level: ▽ At time of Drilling; ▼ At Completion of Drilling; ▼ After Drilling

D = Split Spoon Sample; U = Thin Walled Tube Sample; R = Rock Core Sample; V = Field Vane Shear

Pen. = Penetration Length; Rec. = Recovery Length; bpf = Blows per Foot; mpf = Minute per Foot

WOR = Weight of Rods; WOH = Weight of Hammer; RQD = Rock Quality Designation; PID = Photoionization Detector

S_v = Field Vane Shear Strength, kips/sq.ft.; q_u = Unconfined Compressive Strength, kips/sq.ft.; Ø = Friction Angle (Estimated); N/A = Not Applicable

Elev. (ft)	Depth (ft)	Casing Pen. (bpf)	SAMPLE INFORMATION: Sample No.	Type	Depth (ft)	Pen./ Rec. (in)	Blow Count or RQD	Field / Lab Test Data	Graphic Log	Sample Description & Classification	H_20 Depth	Remarks
										Medium dense, brown silty SAND (FILL)		
			1D		2-4	24/2	11-9-9-8					
35										4.0		
	5		2D		5-7	24/24	5-7-11-12			Medium dense, varved olive-brown silty CLAY / olive-gray silty SAND / brown SAND and GRAVEL, trace silt with cobbles at 13'		
30												
	10		3D		10-12	24/20	3-9-12-49					
25												
	15		4D		15-17	24/11	13-25-33-33			15.0 Dense to very dense, brown SAND and GRAVEL, trace silt		
20												
	20		5D		20-22	24/24	12-17-15-14					
15										24.0		
	25		6D		25-27	24/24	3-7-6-7			Medium dense, brown silty SAND, some gravel		
										26.0 Loose to medium dense, gray silty SAND, trace gravel		
10												
	30		7D		30-32	24/24	2-4-4-4					
			8D		32-34	24/24	2-5-9-7					
5												
	35		9D		34-36	24/23	5-6-7-7					

Bottom of Exploration at 36.0 feet

Stratification lines represent approximate boundary between soil types, transitions may be gradual. Water level readings have been made at times and under conditions stated. Fluctuations of groundwater may occur due to other factors than those present at the time measurements were made.

BORING / WELL 15-0942.1.GPJ SWCE TEMPLATE.GDT 7/30/19

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-101**
SHEET: 1 OF 1
PROJECT NO.: 15-0942

PROJECT / CLIENT: PROPOSED OFFICE BUILDING & PARKING GARAGE / J.B.BROWN & SONS
LOCATION: WEST COMMERCIAL STREET, PORTLAND, ME
DRILLING CO. : S.W.COLE EXPLORATIONS, LLC DRILLER: KEVIN HANSCOM

DATE START: 9/16/2015
DATE FINISH: 9/16/2015
ELEVATION: 21'
SWC REP.: T.BOYCE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	H S A	2 1/4"		
SAMPLER:	D	1 3/8"	140#	30"
CORE BARREL:				

WATER LEVEL INFORMATION
GROUNDWATER @ 18'

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
										BROWN SANDY LOAM OVER TAN SILTY SAND WITH GRAVEL OVER
	1D	24"	21"	2.0'	4	8	8	5	2'	BLACK-BROWN SAND & COAL ASH WITH BRICK FRAGMENTS (FILL)
	2D	24"	21"	7.0'	5	5	7	5		TAN FINE SAND TRACE SILT ~ MEDIUM DENSE ~
	3D	24"	24"	12.0'	6	9	11	9	14'	
	4D	24"	15"	17.0'	16	12	16	14	20'	BROWN-GRAY GRAVELLY SAND WITH OCCASIONAL GRAY CLAY SEAMS ~ MEDIUM DENSE ~
	5D	24"	15"	22.0'	7	8	10	10	25'	GRAY GRAVELLY SAND WITH FREQUENT OLIVE-BROWN SANDY SILT SEAMS ~ MEDIUM DENSE ~
	6D	24"	17"	27.0'	6	6	8	13		BROWN SAND, SOME SILT, SOME GRAVEL WITH OCCASIONAL BROWN SILT/CLAY SEAMS ~ MEDIUM DENSE ~
	7D									<< ABANDONED SAMPLE DUE TO 2' BLOW-IN >>
	8D								35'	<< ABANDONED SAMPLE DUE TO 2' BLOW-IN >>
										BOTTOM OF EXPLORATION @ 35'

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

	DRILLER - VISUALLY
X	SOIL TECH. - VISUALLY
	LABORATORY TEST

REMARKS:

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-101**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-102**
SHEET: 1 OF 1
PROJECT NO.: 15-0942

PROJECT / CLIENT: PROPOSED OFFICE BUILDING & PARKING GARAGE / J.B.BROWN & SONS
LOCATION: WEST COMMERCIAL STREET, PORTLAND, ME
DRILLING CO. : S.W.COLE EXPLORATIONS, LLC DRILLER: KEVIN HANSCOM

DATE START: 9/16/2015
DATE FINISH: 9/16/2015
ELEVATION: 22'
SWC REP.: T.BOYCE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	HW	4"		
SAMPLER:	D	1 3/8"	140#	30"
CORE BARREL:				

WATER LEVEL INFORMATION
DRILLED WET

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
HW									0.4'	GRASS OVER 4" SANDY LOAM
	1D	24"	20"	2.0'	4	7	8	7	2'	LAYERED SAND & GRAVEL WITH COAL ASH (FILL) ~ MEDIUM DENSE ~
	2D	24"	22"	7.0'	4	3	7	5	8'	BROWN SILTY SAND, SOME GRAVEL (FILL) ~ MEDIUM DENSE ~ ROOTLETS @ 7'
	3D	24"	17"	12.0'	3	4	5	6		TAN FINE TO MEDIUM SAND, TRACE SILT ~ LOOSE ~
	4D								20'	<< ABANDONED SAMPLE DUE TO 2' BLOW-IN >>
OPEN HOLE	5D	24"	7"	22.0'	7	5	9	9	25'	TAN FINE TO MEDIUM SAND WITH GRAVEL AND OCCASIONAL GRAY CLAY SEAMS ~ MEDIUM DENSE ~
	6D	24"	24"	27.0'	2	3	3	3	29'	OLIVE-BROWN SILTY CLAY q_P = 1.0 to 0.0 ksf WITH FREQUENT BROWN & GRAY FINE SAND SEAMS ~ MEDIUM ~
	7D	24"	15"	32.0'	10	16	16	44		TAN SAND, SOME GRAVEL ~ DENSE ~
	8D	24"	5"	37.0'	6	36	23	21	40'	GRAY-BROWN SLTY SAND WITH GRAVEL (BASAL TILL) ~ VERY DENSE ~ << ABANDONED SAMPLE DUE TO 3' BLOW-IN >>
	9D									BOTTOM OF EXPLORATION @ 40'

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

	DRILLER - VISUALLY
X	SOIL TECH. - VISUALLY
	LABORATORY TEST

REMARKS:

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-102**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-102A**
SHEET: 1 OF 1
PROJECT NO.: 15-0942

PROJECT / CLIENT: PROPOSED OFFICE BUILDING & PARKING GARAGE / J.B.BROWN & SONS
LOCATION: WEST COMMERCIAL STREET, PORTLAND, ME
DRILLING CO. : S.W.COLE EXPLORATIONS, LLC DRILLER: KEVIN HANSCOM

DATE START: 9/16/2015
DATE FINISH: 9/16/2015
ELEVATION: 22'
SWC REP.: T.BOYCE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	H S A	2 1/4"		
SAMPLER:	D	1 3/8"	140#	30"
CORE BARREL:				

WATER LEVEL INFORMATION
NO FREE WATER OBSERVED

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
										OFFSET 15' EAST FROM B-102 TO SAMPLE 10'-17' ZONE
										- NO SAMPLING FROM GROUND SURFACE TO 10 FEET -
	1D	24"	15"	12.0'	9	7	6	7		TAN FINE TO MEDIUM SAND, TRACE SILT
										~ MEDIUM DENSE ~
	2D	24"	17"	14.0'	4	7	8	7		
									16'	
	3D	24"	15"	17.0'	6	7	8	21		TAN SAND WITH GRAY CLAY INCLUSIONS
										BOTTOM OF EXPLORATION @ 17'

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

	DRILLER - VISUALLY
X	SOIL TECH. - VISUALLY
	LABORATORY TEST

REMARKS:

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-102A**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-103**
SHEET: 1 OF 1
PROJECT NO.: 15-0942

PROJECT / CLIENT: PROPOSED OFFICE BUILDING & PARKING GARAGE / J.B.BROWN & SONS
LOCATION: WEST COMMERCIAL STREET, PORTLAND, ME
DRILLING CO. : S.W.COLE EXPLORATIONS, LLC DRILLER: KEVIN HANSCOM

DATE START: 9/17/2015
DATE FINISH: 9/17/2015
ELEVATION: 35'
SWC REP.: T.BOYCE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	H S A	2 1/4"		
SAMPLER:	D	1 3/8"	140#	30"
CORE BARREL:				

WATER LEVEL INFORMATION
GROUNDWATER @ 22'

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
	1D	4"	0"	0.4'	50 / 6"				4'	BROWN SANDY SILT WITH ORGANICS AND BOULDERS (FILL) ~ MEDIUM DENSE ~
	2D	24"	17"	7.0'	15	15	24	21	9'	GRAY GRAVELLY SAND, TRACE SILT ~ DENSE ~
	3D	24"	21"	12.0'	13	16	20	23	14'	GRAY GRAVELLY SAND, TRACE SILT ~ DENSE ~
	4D	24"	19"	17.0'	9	9	10	10	19'	TAN FINE TO MEDIUM SAND, TRACE SILT ~ MEDIUM DENSE ~
	5D	24"	19"	22.0'	7	9	9	10	26'	GRAY MEDIUM TO COARSE SAND, TRACE GRAVEL, TRACE SILT ~ MEDIUM DENSE ~
	6D	24"	19"	27.0'	15	14	14	13		GRAY SILT AND SAND, SOME GRAVEL (TILL) ~ MEDIUM DENSE ~
										BOTTOM OF EXPLORATION @ 27'

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

	DRILLER - VISUALLY
X	SOIL TECH. - VISUALLY
	LABORATORY TEST

REMARKS:

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-103**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-104**
SHEET: 1 OF 1
PROJECT NO.: 15-0942

PROJECT / CLIENT: PROPOSED OFFICE BUILDING & PARKING GARAGE / J.B.BROWN & SONS
LOCATION: WEST COMMERCIAL STREET, PORTLAND, ME
DRILLING CO. : S.W.COLE EXPLORATIONS, LLC DRILLER: KEVIN HANSCOM

DATE START: 9/17/2015
DATE FINISH: 9/17/2015
ELEVATION: 30'
SWC REP.: T.BOYCE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	H S A	2 1/4"		
SAMPLER:	D	1 3/8"	140#	30"
CORE BARREL:				

WATER LEVEL INFORMATION
NO FREE WATER OBSERVED

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.4'	BROWN SANDY LOAM OVER
	1D	24"	13"	2.0'	2	2	3	5		TAN-OXIDE SAND, SOME GRAVEL, TRACE SILT ~ LOOSE ~
	2D	24"	19"	7.0'	11	16	36	28		…BECOMES TAN ~ DENSE ~
									9'	
	3D	24"	17"	12.0'	15	22	23	31		BROWN GRAVELLY SAND, TRACE SILT ~ DENSE ~
									14'	
	4D	24"	17"	17.0'	16	22	26	29		TAN GRAVELLY SAND, TRACE SILT ~ DENSE ~
	5D	24"	17"	22.0'	15	22	23	28		
										BOTTOM OF EXPLORATION @ 22'

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:
[ ] DRILLER - VISUALLY
[X] SOIL TECH. - VISUALLY
[ ] LABORATORY TEST

REMARKS:
STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-104**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-105**
SHEET: 1 OF 1
PROJECT NO.: 15-0942

PROJECT / CLIENT: PROPOSED OFFICE BUILDING & PARKING GARAGE / J.B.BROWN & SONS
LOCATION: WEST COMMERCIAL STREET, PORTLAND, ME
DRILLING CO. : S.W.COLE EXPLORATIONS, LLC DRILLER: KEVIN HANSCOM

DATE START: 9/17/2015
DATE FINISH: 9/17/2015
ELEVATION: 30'
SWC REP.: T.BOYCE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	H S A	2 1/4"		
SAMPLER:	D	1 3/8"	140#	30"
CORE BARREL:				

WATER LEVEL INFORMATION
GROUNDWATER @ 20.5'

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.5'	BROWN SANDY LOAM OVER
	1D	24"	19"	2.0'	3	5	10	14		TAN-OXIDE FINE TO MEDIUM SAND, SOME GRAVEL, TRACE SILT ~ MEDIUM DENSE ~
	2D	24"	2"	7.0'	16	26	25	20		<< BLOWCOUNT OVERSTATED - GRAVEL IN TIP >>
									9'	
	3D	24"	24"	12.0'	4	4	5	6		GRAY SILT AND SAND, SOME GRAVEL ~ LOOSE ~
	4D	24"	14"	17.0'	5	6	7	6		~ MEDIUM DENSE ~
	5D	24"	13"	22.0'	15	16	13	11		
	6D	24"	19"	27.0'	2	3	6	7		…WITH BROWN LAYERS OF SAND & GRAVEL ~ LOOSE ~

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

	DRILLER - VISUALLY
X	SOIL TECH. - VISUALLY
	LABORATORY TEST

REMARKS:

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-105**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-106**
SHEET: 1 OF 1
PROJECT NO.: 15-0942

PROJECT / CLIENT: PROPOSED OFFICE BUILDING & PARKING GARAGE / J.B.BROWN & SONS
LOCATION: WEST COMMERCIAL STREET, PORTLAND, ME
DRILLING CO. : S.W.COLE EXPLORATIONS, LLC DRILLER: KEVIN HANSCOM

DATE START: 9/17/2015
DATE FINISH: 9/17/2015
ELEVATION: 24'
SWC REP.: T.BOYCE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	H S A	2 1/4"		
SAMPLER:	D	1 3/8"	140#	30"
CORE BARREL:				

WATER LEVEL INFORMATION
GROUNDWATER @ 9 TO 20 FEET

CASING BLOWS PER FOOT	SAMPLE NO.	SAMPLE PEN.	SAMPLE REC.	SAMPLE DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
										FOREST DUFF AND BLACK SANDY LOAM OVER
	1D	24"	2"	2.0'	1	3	4	10		TAN-OXIDE SAND, SOME GRAVEL, TRACE SILT (FILL) ~ LOOSE ~
									4'	
	2D	24"	19"	7.0'	6	7	7	6		BROWN SILTY SAND WITH GRAVEL ~ MEDIUM DENSE ~
									9'	
	3D	24"	19"	12.0'	6	9	7	10		LAYERED OXIDE-BROWN SAND, SOME SILT AND GRAY SILT AND SAND WITH GRAVEL ~ MEDIUM DENSE ~
									15'	
	4D	24"	24"	17.0'	3	5	4	3		BROWN SILT AND SAND WITH GRAVEL ~ LOOSE ~
	5D	24"	24"	22.0'	7	12	12	14		…BECOMES OLIVE-BROWN ~ MEDIUM DENSE ~
									25'	
	6D	24"	24"	27.0'	4	8	5	9		GRAY SILT AND SAND WITH OCCASIONAL GRAY SAND SEAMS ~ MEDIUM DENSE ~
										BOTTOM OF EXPLORATION @ 27'

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

	DRILLER - VISUALLY
X	SOIL TECH. - VISUALLY
	LABORATORY TEST

REMARKS:

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-106**

S.W.COLE ENGINEERING, INC.

BORING LOG

BORING NO.: **B-107**
SHEET: 1 OF 1
PROJECT NO.: 15-0942

PROJECT / CLIENT: PROPOSED OFFICE BUILDING & PARKING GARAGE / J.B.BROWN & SONS
LOCATION: WEST COMMERCIAL STREET, PORTLAND, ME
DRILLING CO. : S.W.COLE EXPLORATIONS, LLC DRILLER: KEVIN HANSCOM

DATE START: 9/17/2015
DATE FINISH: 9/17/2015
ELEVATION: 23'
SWC REP.: T.BOYCE

	TYPE	SIZE I.D.	HAMMER WT.	HAMMER FALL
CASING:	H S A	2 1/4"		
SAMPLER:	D	1 3/8"	140#	30"
CORE BARREL:				

WATER LEVEL INFORMATION
NO FREE WATER OBSERVED

CASING BLOWS PER FOOT	SAMPLE NO.	PEN.	REC.	DEPTH @ BOT	SAMPLER BLOWS PER 6" 0-6	6-12	12-18	18-24	DEPTH	STRATA & TEST DATA
									0.8'	BLACK-BROWN SANDY LOAM WITH COAL ASH/CINDERS
	1D	24"	21"	2.0'	4	5	9	12	4'	BROWN MEDIUM TO COARSE SAND, SOME GRAVEL (FILL) ~ MEDIUM DENSE ~
	2D	24"	24"	7.0'	8	6	6	5		GRAY SAND AND SILT WITH FINE GRAY SAND SEAMS ~ MEDIUM DENSE ~
	3D	24"	24"	12.0'	4	8	14	6		…WITH GRAVEL
	4D	24"	24"	17.0'	3	3	3	4		~ LOOSE ~
	5D	24"	24"	22.0'	4	3	4	5		
										BOTTOM OF EXPLORATION @ 22'

SAMPLES:
D = SPLIT SPOON
C = 2" SHELBY TUBE
S = 3" SHELBY TUBE
U = 3.5" SHELBY TUBE

SOIL CLASSIFIED BY:

	DRILLER - VISUALLY
X	SOIL TECH. - VISUALLY
	LABORATORY TEST

REMARKS:

STRATIFICATION LINES REPRESENT THE APPROXIMATE BOUNDARY BETWEEN SOIL TYPES AND THE TRANSITION MAY BE GRADUAL.

BORING NO.: **B-107**

KEY TO NOTES & SYMBOLS
Test Boring and Test Pit Explorations

Stratification lines represent the approximate boundary between soil types and the transition may be gradual.

Key to Symbols Used:

w	-	water content, percent (dry weight basis)
q_u	-	unconfined compressive strength, kips/sq. ft. - laboratory test
S_v	-	field vane shear strength, kips/sq. ft.
L_v	-	lab vane shear strength, kips/sq. ft.
q_p	-	unconfined compressive strength, kips/sq. ft. – pocket penetrometer test
O	-	organic content, percent (dry weight basis)
W_L	-	liquid limit - Atterberg test
W_P	-	plastic limit - Atterberg test
WOH	-	advance by weight of hammer
WOM	-	advance by weight of man
WOR	-	advance by weight of rods
HYD	-	advance by force of hydraulic piston on drill
RQD	-	Rock Quality Designator - an index of the quality of a rock mass.
γ_T	-	total soil weight
γ_B	-	buoyant soil weight

Description of Proportions:

Trace:	0 to 5%
Some:	5 to 12%
"Y"	12 to 35%
And	35+%
With	Undifferentiated

Description of Stratified Soils

Parting:	0 to 1/16" thickness
Seam:	1/16" to 1/2" thickness
Layer:	½" to 12" thickness
Varved:	Alternating seams or layers
Occasional:	one or less per foot of thickness
Frequent:	more than one per foot of thickness

REFUSAL: **Test Boring Explorations** - Refusal depth indicates that depth at which, in the drill foreman's opinion, sufficient resistance to the advance of the casing, auger, probe rod or sampler was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

REFUSAL: **Test Pit Explorations** - Refusal depth indicates that depth at which sufficient resistance to the advance of the backhoe bucket was encountered to render further advance impossible or impracticable by the procedures and equipment being used.

Although refusal may indicate the encountering of the bedrock surface, it may indicate the striking of large cobbles, boulders, very dense or cemented soil, or other buried natural or man-made objects or it may indicate the encountering of a harder zone after penetrating a considerable depth through a weathered or disintegrated zone of the bedrock.

APPENDIX D

LABORATORY TEST DATA

SUMMIT
GEOENGINEERING SERVICES

GRAIN SIZE ANALYSIS - ASTM D6913

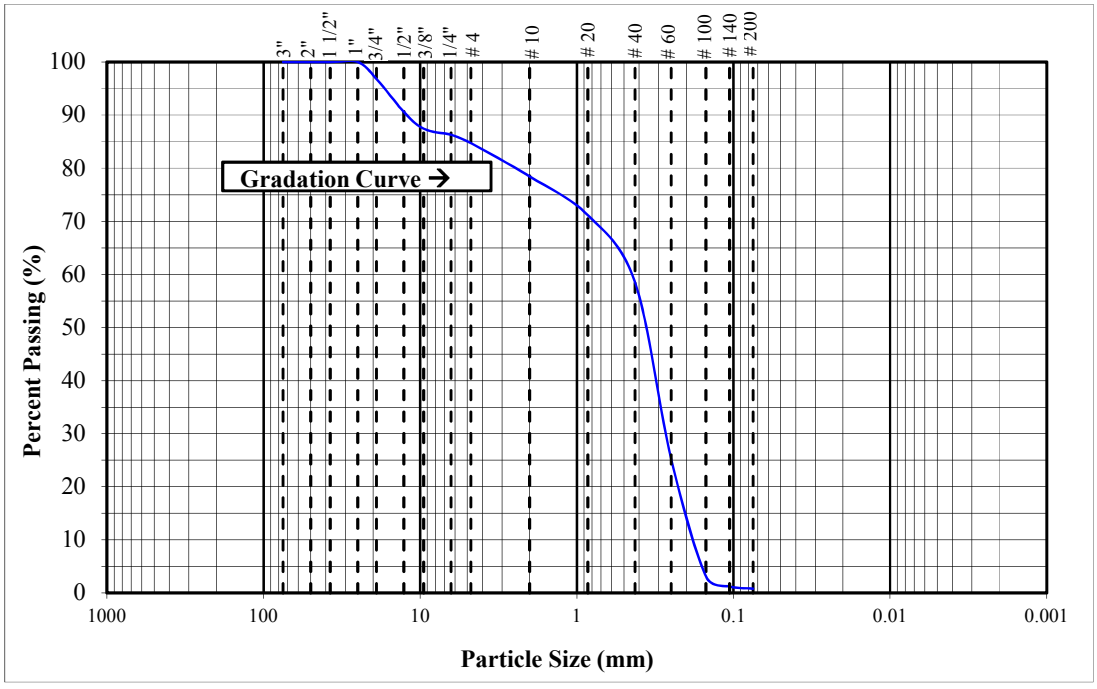
PROJECT NAME:	Proposed VA Facility	PROJECT #:	19329
PROJECT LOCATION:	West Commercial Street, Portland, ME	EXPLORATION #:	TP-3
CLIENT:	FD Stonewater	SAMPLE #:	S-1
TECHNICIAN:	Erika Stewart, P.E.	SAMPLE DEPTH:	4' - 6'
SOIL DESCRIPTION:	SAND, some-little Gravel, trace Silt, SP	TEST DATE:	10/7/2019

TEST PROCEDURE

Sample Source: Test Pit	**Sieve Stack:** Composite	**Specimen Procedure:** Moist
Test Method: Method A	**Separating Sieve(s):** 3/8 Inch	**Dispersion Type:** Tap Water

DATA

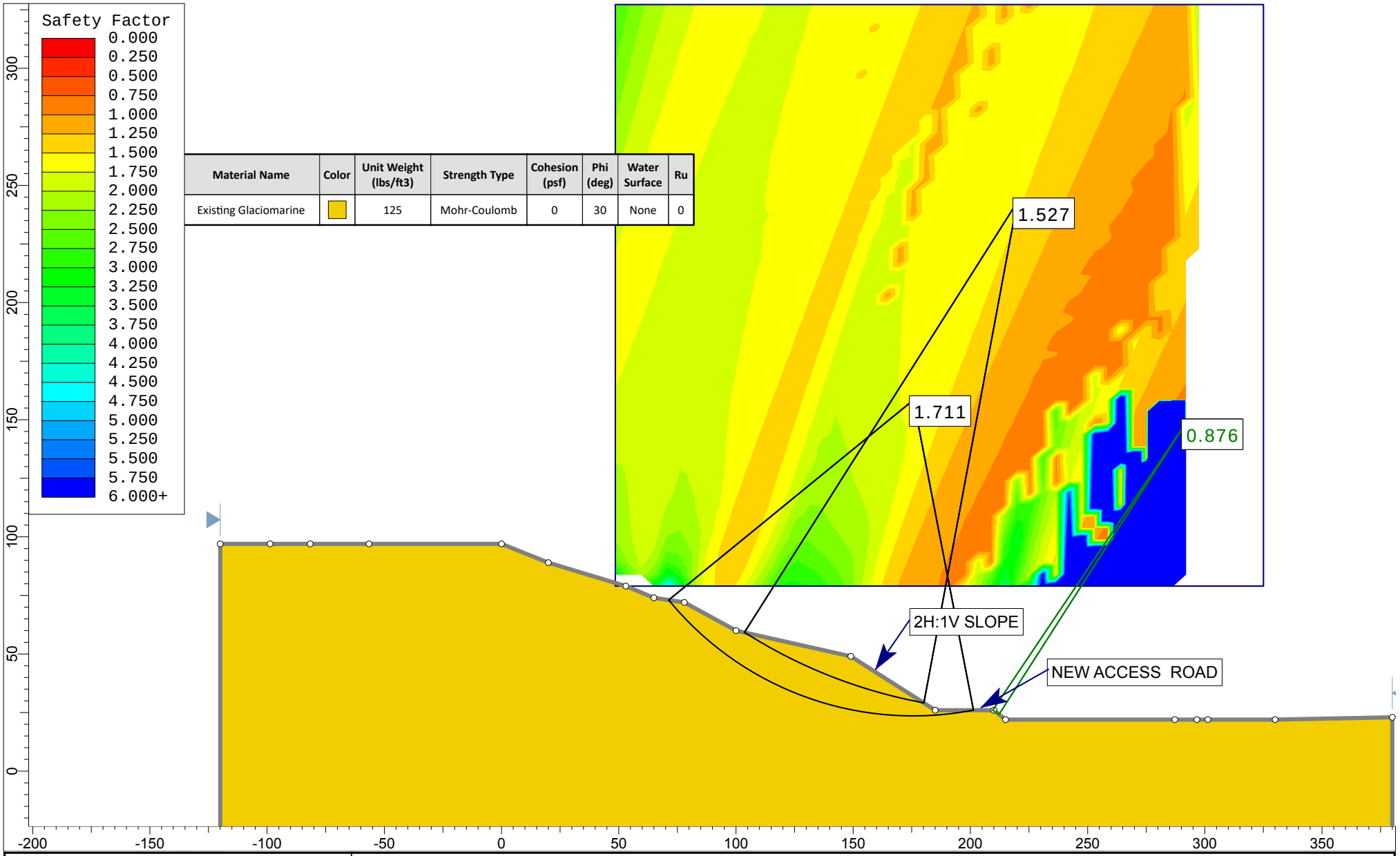
STANDARD SIEVE DESIGNATION (mm)	ALTERNATIVE SIEVE DESIGNATION (in)	PERCENT PASSING (%)
75	(3 in)	100
50	(2 in)	100
37.5	(1-1/2 in)	100
25.0	(1 in)	100
19.0	(3/4 in)	97
12.7	(1/2 in)	91
9.5	(3/8 in)	87
6.35	(1/4 in)	86
4.75	(No. 4)	85
2.00	(No. 10)	78
0.850	(No. 20)	71
0.425	(No. 40)	59
0.250	(No. 60)	25
0.150	(No. 100)	3
0.106	(No. 140)	1
0.075	(No. 200)	1



REMARKS: Moisture Content = 2.5%.

APPENDIX E

SLOPE STABILITY ANALYSES RESULTS

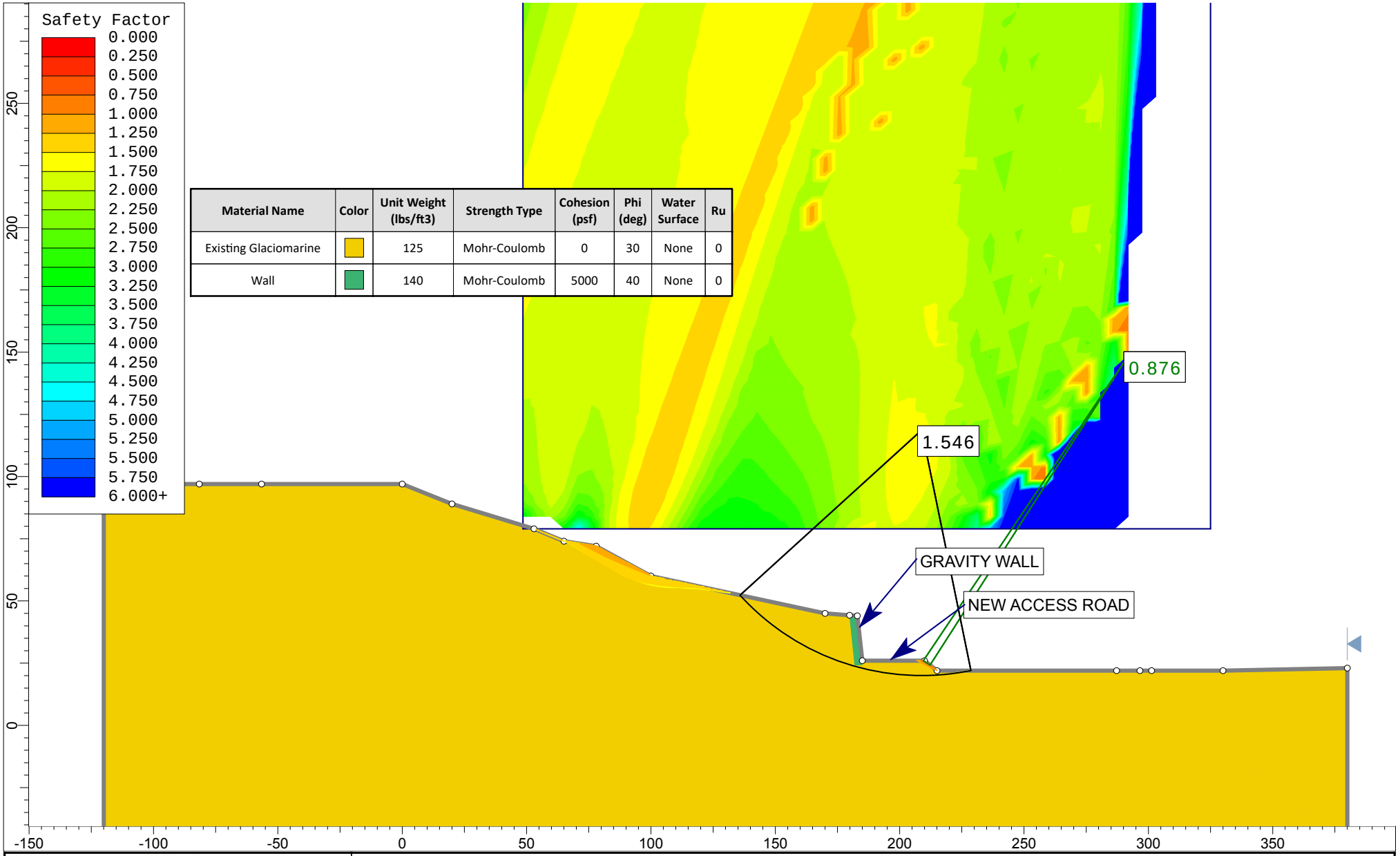


Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
Existing Glaciomarine		125	Mohr-Coulomb	0	30	None	0

SUMMIT GEOENGINEERING SERVICES

SLIDEINTERPRET 8.026

Project: West Commercial Street Portland		
EAST SIDE OF PARKING GARAGE - OPEN CUT FACE 2H:1V		
Drawn By	Scale: 1:679	Company: #19329
Date: 11/4/2019		File Name: proposed conditions NO SLOPE LIMITS.slmd

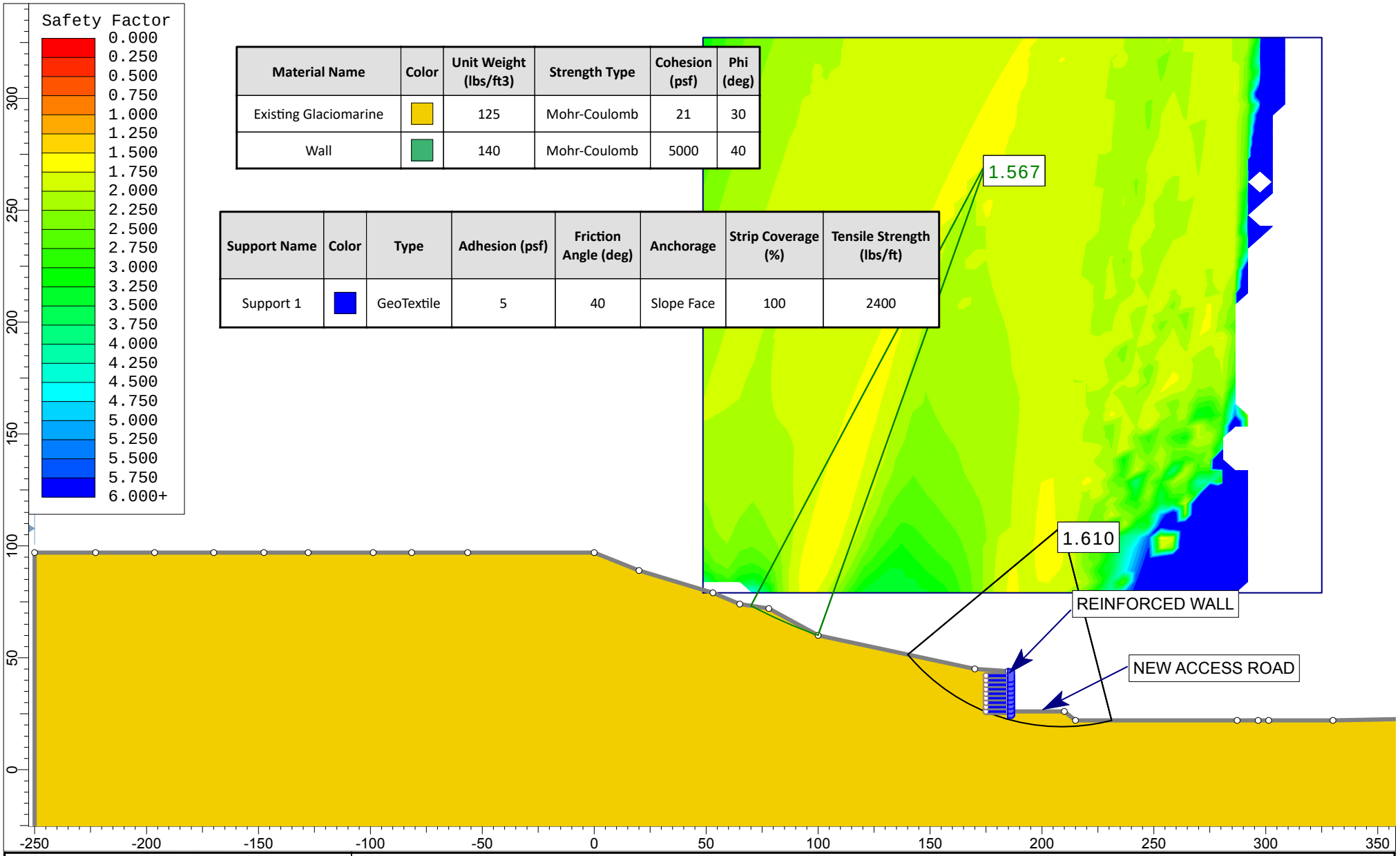


Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)	Water Surface	Ru
Existing Glaciomarine		125	Mohr-Coulomb	0	30	None	0
Wall		140	Mohr-Coulomb	5000	40	None	0

SUMMIT GEOENGINEERING SERVICES

SLIDEINTERPRET 8.026

Project	West Commercial Street Portland		
	EAST SIDE OF PARKING GARAGE - GRAVITY RETAINING WALL		
Drawn By		Scale 1:640	Company #19329
Date	11/4/2019		File Name proposed conditions reinforced wall.slmd



Material Name	Color	Unit Weight (lbs/ft3)	Strength Type	Cohesion (psf)	Phi (deg)
Existing Glaciomarine		125	Mohr-Coulomb	21	30
Wall		140	Mohr-Coulomb	5000	40

Support Name	Color	Type	Adhesion (psf)	Friction Angle (deg)	Anchorage	Strip Coverage (%)	Tensile Strength (lbs/ft)
Support 1		GeoTextile	5	40	Slope Face	100	2400

SUMMIT GEOENGINEERING SERVICES

SLIDEINTERPRET 8.026

Project: West Commercial Street Portland		
EAST SIDE OF PARKING GARAGE - REINFORCED RETAINING WALL		
Drawn By	Scale: 1:711	Company: #19329
Date: 11/4/2019		File Name: proposed conditions.slmd

ATTACHMENT F

Operation & Maintenance Manual

VA CLINIC
113 WEST COMMERCIAL STREET
PORTLAND, MAINE

STORMWATER MANAGEMENT SYSTEM OPERATION AND MAINTENANCE MANUAL FOR STORMWATER FACILITIES

Prepared for

FDS JBB Portland LLC
10 Fore Street
Portland, Maine 04101

Prepared by

Gorrill Palmer
707 Sable Oaks Drive – Suite 30
South Portland, Maine 04106
207.772.2515

January 2020

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APPENDICES

Appendix A – Summary Checklist for Inspection and Maintenance

Appendix B – Inspection Logs

Appendix C – Stormwater Drainage System Maintenance Agreement

Appendix D – Permits for Project

I. INTRODUCTION

Runoff from developed areas may contain a number of contaminants especially when emanating from rooftops, paved or lawn areas. This runoff can contain a significant amount of non-point contaminants, which can have an adverse impact on the receiving waters. The installation of wet ponds, many times combined with soil media filters, vegetated buffer strips and other stormwater best management practices can significantly reduce the non-point pollution discharge from the developed area.

The effectiveness of BMP's and other components of the system are dependent on their upkeep and maintenance to assure they meet their design function over an extended period of years. It is critical that the stormwater management facilities are inspected on a regularly scheduled basis, and that maintenance is performed on an as needed basis. It must also be recognized that the effectiveness of these facilities, and their maintenance requirements, are related to the stormwater drainage facilities that transport the flow to the outlets or treatment measures. Thus, maintenance should be directed to the total system, not just the BMP's.

The purpose of this document is to define in detail the inspection and maintenance requirements deemed necessary to assure that the stormwater management facilities function as intended on a long-term basis for the VA Clinic development. This Operations and Maintenance Manual is specific to the proposed stormwater measures utilized to execute a successful stormwater management plan. Subsequent sections identify individual maintenance items; give a brief commentary of the function and need of the item, a description of the work required, and a suggested frequency of accomplishment. While the suggested programs and schedules must be adapted to specific projects, the material presented should provide guidance for a successful long-term program.

A. Guidelines Overview

A summary of the individual components of stormwater management facilities for this project has been prepared. The format used in the summary is as follows:

Preface: A general description of what function/benefit the element is intended to provide. This is a short summary and not intended to provide the design basis, which can be found in other sources.

Inspection: This section provides the inspection requirements for the individual component.

Maintenance: The section provides general information on the routine maintenance requirements of this element.

Frequency: This section outlines the best judgment of the designer on the system to the frequency of maintenance.

Comments: This section provides any particular comment on the site-specific features of this element. This is a summary only. The owner/operator should review the design drawings and documents carefully to understand the particular elements of the project.

The end of this section should allow the owner/operator to make notes on the specific program. This may include the selected maintenance procedure, cross-references to applicable design drawings, etc.

A list of the individual inspection/maintenance elements is provided in the table of contents. The guidelines are proposed for initial use with adjustments made as appropriate based upon specific project experience.

This report includes the Operation and Maintenance requirements for any potential BMP identified in the Stormwater Management Report for this project.

B. Responsible Party

The responsible party for operation and maintenance of the stormwater and other site infrastructure will be the applicant or their agents or assigns. A copy of an unexecuted Stormwater Drainage System Maintenance Agreement is included in Appendix C.

II. PROJECT OVERVIEW

Key permits issued (or applied for) on the project include:

- City of Portland Level III Site Plan Approval
- Maine Construction General Permit Stormwater General Permit

A copy of the permits and Stormwater Management Report should be appended to this manual as Appendix D. The Owner/Operator of the stormwater management system should review these permits for a general description and background of the project, as well as any specific permit conditions or requirements of the project.

The applicant has retained Gorrill Palmer for civil engineering for the development project. Gorrill Palmer has prepared the design for the stormwater management facilities and may be contacted at:

Gorrill Palmer
707 Sable Oaks Drive – Suite 30
South Portland, Maine 04106
207.772.2515

The applicable plans and design documents which apply to the project are:

1. Civil Site Plans Prepared by Gorrill Palmer
2. The Erosion Control/Sedimentation Control Plan for the project
3. The Stormwater Management Plan for the project

A copy of these documents should be retained with this manual.

The proposed design includes inlets, stormwater conveyance lines, porous pavement, a subsurface sand filter, a filter cartridge, and an outlet control structure.

The key receiving waters for this project is the Fore River that is located south of the project site.

The manual is intended for general guidance; however, any substituted deviations from the manual should be reviewed with respect to provisions of Appendix D.

III. STANDARD INSPECTION/MAINTENANCE DESCRIPTIONS

The following narratives describe the inspection/maintenance provisions for the Stormwater Management system. These O&M procedures will complement scheduled vacuuming of the parking spaces which is anticipated to occur at least twice per year. Proper O&M is necessary to make sure the system will provide its intended purpose of conveying runoff, removing a substantial amount of the suspended solids, and other contaminants in the stormwater runoff. Routine vacuuming of the porous areas is critical to their successful functioning.

A. Stormwater Inlets

Preface: The success of any stormwater facility relies on the ability to intercept stormwater runoff at the design locations. Stormwater inlets include catch basins, open culverts, and field inlets. A field inlet exists in the FocalPoint® as an overflow structure. Several catch basins are located at the base of the northern cut slope.

Inspection: The inspection of inlet points will need to be coordinated with other maintenance items, these include:

- Building maintenance areas
- Grounds maintenance

The key elements of the inspection are to assure the inlet entry point is clear of debris and will allow the intended water entry.

Maintenance: The key maintenance is the removal of any blockage which restricts the entry of stormwater to the inlet. The removed material should be taken out of the area of the inlet and placed where it will not reenter the runoff collection system. Snow should be removed from inlets near the sidewalk areas. Grass clippings and leaves should be bagged and removed particularly near the yard inlets near the buildings.

Frequency: All inlets should be inspected on a quarterly basis, and after/during significant storm events i.e. >1" rainfall).

Maintenance Personnel: The maintenance personnel will perform the normal maintenance/ inspections of the inlets and tributary drainage system.

Comments: Maintenance of inlets is critical on this project.

B. Tributary Drainage System

Preface: Stormwater from most of the project will be directed through filters and into a conveyance (tributary) system which transports the flow to the main point of discharge after.

This conveyance system will be principally overland flow discharging to piped drain systems. Most of the sediment carried by the drainage system is intended to be trapped in pretreatment devices and structures. Maintenance of this system can play a major role in the long-term maintenance costs and the effectiveness of the onsite systems. The primary pretreatment measure for the VA Clinic site will be through deep sumped catch basins with hooded outlets.

Inspection: The tributary drainage system should be periodically inspected to assure that it is operating as intended, and that the carrying capacity has not been diminished by accumulations of debris and sediment or other hydraulic impediments. On piped systems, the inlets must be inspected to ensure the rims are set at the proper elevation to optimize flow entry and are not clogged with debris.

The level of sediment in the sumps should be checked to assure their effectiveness. Pipelines connecting the inlets should be checked to determine if siltation is occurring. This will be most critical on drain lines laid at minimal slopes. This can usually be accomplished by a light and mirror procedure.

Maintenance: Maintenance of the storm drainage system must assure that it continues to serve its design function on a long-term basis, and that its operation does not transport excessive sediments to any downstream treatment device or the receiving waters. Elevations on the rim of catch basins should be adjusted as needed to assure optimal water entry. Depending on the frost susceptibility of the soil, the rims may become elevated over time causing flow to circumvent the inlet. If a temporary filter bag has been designated for the inlet during construction, silt or other deleterious materials, can significantly reduce capacity and the bags should be removed with the sediment and replaced during construction. Catch basin cleaning would normally be accomplished with vacuum trucks contracted as a maintenance service for the Development. The removed material must be disposed of at an approved site for such materials.

If sediment in the pipeline is observed, it should be removed. This may be accomplished by hydraulic flushing, or by mechanical means. If hydraulic flushing is used the downstream conditions should be analyzed.

Frequency: The tributary drainage system should be inspected on an annual basis. Adjustment of inlet rim elevations should be on an as needed basis. Cleaning catch basin sumps and pipelines will depend on the rate of accumulation.

C. Porous Pavement

Preface: The porous pavement collects stormwater runoff from the surface before passing it through a treatment section and discharging into a closed drainage system.

Inspection/Monitoring: The pavement should be inspected regularly to ensure that the surface is not clogged, and that runoff can pass freely through the porous section. The asphalt surface must be inspected for integrity and to ensure rutting or deformation of the surface is minimized.

Maintenance: Any debris should be removed from the pavement surface. If the porous pavement area is holding water in excess of 48-72 hours, corrective action is needed. To correct a standing water problem, the following remedial actions are recommended.

1. Vacuum any sediment or debris from the pavement surface on a semi-annual basis.
2. Ensure the underdrain system or outlet pipe orifice is not clogged with any silt or other materials.
3. Ensure that the porous pavement can pass water freely or drain quickly while handling large amounts of water.

Frequency: The porous pavement should be inspected and vacuumed semi-annually and maintained as necessary.

Maintenance/Inspection Responsibility: The Owner or an outside agent is responsible for inspection and maintenance of the porous pavement areas

Comments: Proper maintenance is critical for the porous pavement as it plays a large role in the overall stormwater management plan for the development.

D. Subsurface Sand Filter

Preface: The subsurface sand filter is a sand filter layer with storage above underneath a typical section for the applicable surface treatment. Stormwater runoff is conveyed to the filter through a closed pipe system from surface runoff and roof drains.

Inspection: The subsurface sand filter will have control structures and maintenance ports to inspect the pretreatment row and storage layer. Inspect system to see if runoff is draining through the system at the outlet and inlet devices. Visual inspections should also occur after large storm events (i.e. >1").

Maintenance: The procedures for maintenance are as follows:

- *Inlets and Outlets*
  Inlets and outlets to the subsurface sand filter should be kept open and in good working condition. This is particularly important for the inlet at the pretreatment rows. Outlets should be cleared and, if necessary flushed of any build-up.

- *Storage Layer*
  Remove and dispose of any sediment and build-up in the storage layer.

- *Sedimentation (or Clogging) of Soil Filter Area*
  If the sand filter appears to be holding water for a period longer than 48-72 hours, the sand mix has, more than likely, become clogged with sediment and/or the underdrains have clogged. To correct a standing water problem, the following remedial actions are recommended:

1. Evaluate the drainage area to the sand filter area to identify any potential sources of sediment, such as an erosive condition, that may be contributing to the clogging of the device. If a source is identified, it is recommended that that source be eliminated to the fullest extent practicable before proceeding with the remaining recommendations provided below.
2. Flush the underdrains. Use cleanouts to flush the underdrains. Sediment in the drains may be preventing the sand filter from draining. Make sure to provide a way to capture any flushed sediment before it enters the stream environment or storm drain system downstream of the device. If, after flushing the underdrains, the device continues to hold water, the sand filter may be contaminated and need to be replaced.

Frequency: The subsurface sand filter should be inspected semi-annually and maintained as necessary.

Comments: Pretreatment in catch basin sumps and pretreatment row is crucial to long-term function of sand filter.

E. Proprietary Treatment Devices (FocalPoint®)

Preface: A FocalPoint® system will be used on site to treat surface runoff from impervious and landscaped area

Inspection: Inspection of the filter should be performed after each major rainfall event to ensure that stormwater runoff is able to pass through the filters. The vegetation should be inspected and maintained regularly similar to other landscape features on site. The underdrain outlet should be inspected regularly.

Maintenance: Clear inlets and pretreatment devices of debris and sediment. Maintain as instructed by manufacturer.

Frequency: The system should be inspected semi-annually and maintained as required by the manufacturer.

Comments: The manufacturer typically commits to the first year of maintenance if their strict guidelines are followed for installation, which is highly encouraged to achieve peak performance. It is recommended that an outside agent who is familiar with the product be retained for future maintenance.

F. Proprietary Treatment Devices (Filter Cartridge)

Preface: A filter cartridge will be installed in a catch basin in the loading dock well.

Inspection: Inspection of the filters should be performed after each major rainfall event to ensure that stormwater runoff is able to pass through the filters.

Maintenance: Clear the grate of debris. Ensure the filter is passing runoff freely, or at the specified rate. A standard cartridge should last a minimum of one year depending on the cartridge used. Maintain as instructed by manufacturer.

Frequency: The filter should be inspected semi-annually and maintained as required by the manufacturer.

Comments: An outside agent who is familiar with the product should be retained for maintenance of the product.

G. Orifice Control Devices

Preface: Orifices of assorted sizes are commonly utilized to control discharge from stormwater management features. This project uses orifice controls to control discharge from the porous pavement area and the subsurface sand filter.

Inspection: Inspection of orifices should be performed after each major rainfall event to ensure that stormwater runoff is able to discharge through the orifice and that it is not clogged.

Maintenance: The orifice cap should be removed and all debris flushed from the pipe prior to reinstalling the orifice cap. An orifice in a weir wall should be cleared of debris by hand.

Frequency: The orifice control devices should be inspected semi-annually and maintained as needed.

Comments: None.

H. Litter

Litter should be removed as a matter of course by workers and as part of the ground's maintenance contract.

IV. PROGRAM ADMINISTRATION

A. General

A reliable administrative structure must be established to assure implementation of the maintenance programs described in the foregoing section. Key factors that must be considered in establishing a responsive administrative structure include:

1. Administrative body must be responsible for long-term operation and maintenance of the facilities. (Maintenance continues for the lifespan of the development in accordance with this document)

2. Administrative body must have the financial resources to accomplish the inspection and maintenance program over the life of the facility.

3. The administrative body must have a responsible administrator to manage the inspection and maintenance programs.

4. The administrative body must have the staff to accomplish the inspection and maintenance programs or must have authority to contract for the required services.

5. The administrative body must have a management information system sufficient to file, retain, and retrieve all inspection and maintenance records associated with the inspection and maintenance programs.

6. A qualified post construction inspector shall be retained by the Owner. His/her duties shall include preparing schedules for the Owner's maintenance, summarizing the results of this maintenance and preparing an annual report on the operation, maintenance, and repair of the stormwater system which must be copied to the City. (The Owner shall be responsible for retaining a separate entity to perform maintenance which cannot be performed by the management of building and property grounds.) This person shall also participate in troubleshooting of the stormwater management system if a problem develops.

If any of the above criteria cannot be met by the entity assigned inspection and maintenance responsibilities, it is likely that the system will fail to meet its water quality objectives at some point during its life. While each of the above criteria may be met by a variety of formats, it is critical to clearly establish the assigned administrative body in a responsible and sustainable manner.

B. Record Keeping

Records of all inspections and maintenance work accomplished must be kept and maintained to document facility operations. These records should be filed and retained for a minimum 5-year time span. The filing system should be capable of ready retrieval of data for periodic reviews by appropriate regulatory bodies. Where possible, copies of such records should also be filed with the designated primary regulatory agency for their review for compliance with permit conditions. Typical inspection and maintenance record forms are attached hereto as Appendix B.

Beyond the initial 5-year time span of the original approval and maintenance plan, the stormwater management system will need to be recertified through the Department every 5 years to confirm that there is conformance with the original permit documents. This process will ensure all systems function properly over time. This document will remain valid throughout any subsequent recertification processes.

C. Contract Services

In some instances, or at specific times, the Maintenance Personnel may not have the staff to conduct the required inspection and/or maintenance programs as outlined in this document. In such cases, the work should be accomplished on a contractual basis with a firm or organization that has the staff and equipment to accomplish the required work.

The service contract for inspection and maintenance should be formal, well-written legal document which clearly defines the services to be provided, the contractual conditions that will apply, and detailed payment schedules. Liability insurance should be required in all contracts.

APPENDIX A

Summary Checklist
Inspection and Maintenance

Stormwater Management System Maintenance Program Summary Checklist						
Item	**Commentary**	**Frequency**				
		Monthly	**Quarterly**	**Semi-Annual**	**Annual**	**Long Term**
Stormwater Inlets	Stormwater inlets allow flow entry from a surface swale to a piped system. Inspect entry for debris accumulation. Remove debris to allow unimpeded entry. Lawn clippings and leaves should be removed from yard areas.		X		X Clearing	
Tributary Drainage System	Inspect to assure that the carrying capacity has not been diminished by debris, sediment or other hydraulic impediments.				X	
Porous Pavement	Inspect after storm events >1" to ensure the pavement is not plugged with debris. Vacuum semi-annually.			X		X
Subsurface Sand Filter	Inspect maintenance ports after rain events >1" and remove sediment. Check for signs of clogging and flush underdrains if necessary.			X		X
Proprietary Device (FocalPoint®)	Filters should be inspected semi-annually and maintained as needed. **Snow Storage within the filter should be prohibited by Maintenance Personnel.**			X		
Proprietary Device (Filter Cartridge)	Filters should be inspected semi-annually and maintained as needed. **Snow Storage within the filter should be prohibited by Maintenance Personnel.**			X		
Orifice Control Devices	Inspect after major storm events and clear debris from orifice. May require flushing of pipes.			X		
Litter	Litter should be removed daily.					

APPENDIX B

Sample Inspection Logs

VA CLINIC
PORTLAND, MAINE

STORMWATER MANAGEMENT
SAMPLE STORMWATER INSPECTION & MAINTENANCE LOG

This log is intended to accompany the Operation and Maintenance Manual for Stormwater Management and Related Facilities. All stormwater BMPs shall be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions of the DEP Stormwater Permit, shall conduct inspections of the facilities as described in the O&M Manual and on this form, and identified deficiencies must be corrected. This log shall be kept on file for a minimum of five (5) years.

A. General Information			
Project Name:		**Inspection Date:**	
Parcel/Lot:		**Current Weather:**	
BMP Owner:		**Date/Amount Last Precip.:**	
Owner Mailing Address:		**Inspection Company:**	
Owner Phone #:		**Inspection Co. Mailing Address:**	
Owner Email:		**Inspector Name:**	
		Inspector Phone #:	
		Inspector Email:	

B. Stormwater Inlets	**Observations**
Frequency: Annually in the spring	
Accumulated sediments from inflow channels and pipes between basins have been removed and legally disposed of	☐ Yes ☐ No ☐ NA
Floating debris and large sediment particles have been removed from inlets.	☐ Yes ☐ No ☐ NA
Stormwater Inlet Notes:	

C. Tributary Drainage System	**Observations**
Frequency: Annually spring or late fall and after heavy rains	
Remove and legally dispose of sediments	☐ Yes ☐ No ☐ NA
Remove floatables and other objects	☐ Yes ☐ No ☐ NA
Check for overgrown vegetation impeding flow	☐ Yes ☐ No ☐ NA
Check pipelines for siltation and clogging	☐ Yes ☐ No ☐ NA
Repair any slumping side slopes or erosion	☐ Yes ☐ No ☐ NA
Replace any riprap on areas where any underlying fabric or underlying gravel is exposed.	☐ Yes ☐ No ☐ NA
Tributary Drainage System Notes:	

D. Porous Pavement	Observations
Frequency: Semi-Annually	
Vacuum any sediment and debris from pavement surface	☐ Yes ☐ No ☐ NA
Check that underdrain system is functioning properly	☐ Yes ☐ No ☐ NA
Check for pooling or signs that pavement is clogged and doesn't pass water	☐ Yes ☐ No ☐ NA
Porous Pavement Notes:	

E. Subsurface Sand Filter	Observations
Frequency: Semi-annually	
Check that inlets are clear and flow into pretreatment row is not obstructed	☐ Yes ☐ No ☐ NA
Inspect maintenance ports and clear debris or buildup	☐ Yes ☐ No ☐ NA
Check for signs of clogging, or water is not draining within 48-72 hours	☐ Yes ☐ No ☐ NA
Bio-Retention Filters Notes:	

F. Orifice Control Devices	Observations
Frequency: Semi-Annually	
Check for debris blocking orifice	☐ Yes ☐ No ☐ NA
If applicable, flush underdrain pipe	☐ Yes ☐ No ☐ NA
Orifice Control Devices Notes:	

G. Proprietary Device (FocalPoint®)	Observations
Frequency: Semi-Annually	
Check for debris blocking orifice	☐ Yes ☐ No ☐ NA
Check overflow structure and clear debris	☐ Yes ☐ No ☐ NA
Check for signs of clogging, or water is not draining freely through filter media	☐ Yes ☐ No ☐ NA
If applicable, flush underdrain pipe	☐ Yes ☐ No ☐ NA
Proprietary Device Notes:	

H. Proprietary Device (Filter Cartridge)	Observations
Frequency: Semi-Annually	
Check for debris blocking orifice	☐ Yes ☐ No ☐ NA
Check for signs of clogging and that runoff is passing freely or at specified rate	☐ Yes ☐ No ☐ NA
Proprietary Device Notes:	

APPENDIX C

Stormwater Drainage System Maintenance Agreement

STORMWATER DRAINAGE SYSTEM
MAINTENANCE AGREEMENT

VA Community Based Outpatient Clinic and Park Garage at 113 West Commercial Street

IN CONSIDERATION OF the site plan approval granted by the Planning Board of the City of Portland to the proposed Community Based Outpatient Clinic and Parking Garage Project ID PL-000927-2019 shown on the Site Layout Plan submitted by Gorrill Palmer Consulting Engineers and associated Grading, & Drainage Plan (Exhibits A and B) prepared by Gorrill Palmer Consulting Engineers of 707 Sable Oaks Drive, South Portland, Maine dated last revised _____ and pursuant to a condition thereof, FDS JBB Portland LLC, a Maine limited liability company with a principal place of business in Portland, Maine, and having a mailing address of c/o FD Stonewater, LLC 1001 19th Street North, Suite 1401, Arlington VA 22209, the owner of the subject premises, does hereby agree, for itself, its successors and assigns (the "Owner"), as follows:

Maintenance Agreement

That it, its successors and assigns, will, at its own cost and expense and at all times in perpetuity, maintain in good repair and in proper working order the porous pavement systems, Subsurface sand filter systems, Roof drains and loading dock drain Filter Cartridge system, Oil-Water Separator and related onsite drainage infrastructure, (hereinafter collectively referred to as the "stormwater system"), as shown on the Grading, & Drainage Plan in Exhibit B and in strict compliance with the approved Stormwater Inspection and Maintenance Manual prepared for the Owner by Gorrill Palmer Consulting Engineers (copy attached in Exhibit C) and Chapter 32 of the Portland City Code.

Owner of the subject premises further agrees, at its own cost, to keep a Stormwater Maintenance Log. Such log shall be made available for inspection by the City of Portland upon reasonable notice and request.

Said agreement is for the benefit of the said City of Portland and all persons in lawful possession of said premises and abutters thereto; further, that the said City of Portland and said persons in lawful possession may enforce this Agreement by an action at law or in equity in any court of competent jurisdiction; further, that after giving the Owner written notice and a stated time to perform, the said City of Portland, by its authorized agents or representatives, may, but is not obligated to, enter upon said premises to maintain, repair, or replace said stormwater system in the event of any failure or neglect thereof, the cost and expense thereof to be reimbursed in full to the said City of Portland by the Owner upon written demand. Any funds owed to the City under this paragraph shall be secured by a lien on the property.

This Agreement shall also not be construed to allow any change or deviation from the requirements of the subdivision and/or site plan most recently and formally approved by the Planning Board of the City of Portland.

This agreement shall bind the undersigned only so long as it retains any interest in said premises, and shall run with the land and be binding upon the Owner's successors and assigns as their interests may from time to time appear.

The Owner agrees to record a copy of this Agreement in the Cumberland County Registry of Deeds within thirty (30) days of final execution of this Agreement. The Owner further agrees to provide a copy of this Agreement to any successor or assign and to forward to the City an Addendum signed by any successor or assign in which the successor or assign states that the successor or assign has read the Agreement, agrees to all its terms and conditions and the successor or assign will obtain and forward to the City's Department of Public Services and Department of Planning and Urban Development a similar Addendum from any other successor or assign.

For the purpose of this agreement and release "Owner" is any person or entity who is a successor or assign and has a legal interest in part, or all, of the real estate and any building. The real estate shown by chart, block and lot number in the records on file in the City Assessor's office shall constitute "the property" that may be entered by the City and liened if the City is not paid all of its costs and charges following the mailing of a written demand for payment to the owner pursuant to the process and with the same force and effect as that established by 36 M.R.S.A. §§ 942 and 943 for real estate tax liens.

Any written notices or demands required by the agreement shall be complete on the date the notice is attached to one or more doors providing entry to any buildings and mailed by certified mail, return receipt requested or ordinary mail or both to the owner of record as shown on the tax roles on file in the City Assessor's Office.

If the property has more than one owner on the tax rolls, service shall be complete by mailing it to only the first listed owner. The failure to receive any written notice required by this agreement shall not prevent the City from entering the property and performing maintenance or repairs on the stormwater system, or any component thereof, or liening it or create a cause of action against the City.

Dated at Portland, Maine this _____ day of _____, 2020.

_____
(*name of company*)

_____
(*representative of owner, name and title*)

STATE OF MAINE
CUMBERLAND, ss. Date: _____

Personally appeared the above-named _____(*name and title*), and acknowledged the foregoing instrument to be his free act and deed in his said capacity.

Before me,

Notary Public/Attorney at Law

Print name: _____

Exhibit A: Approved Site Layout Plan
Exhibit B: Approved Grading & Drainage Plan
Exhibit C: Approved Stormwater Inspection and Maintenance Manual

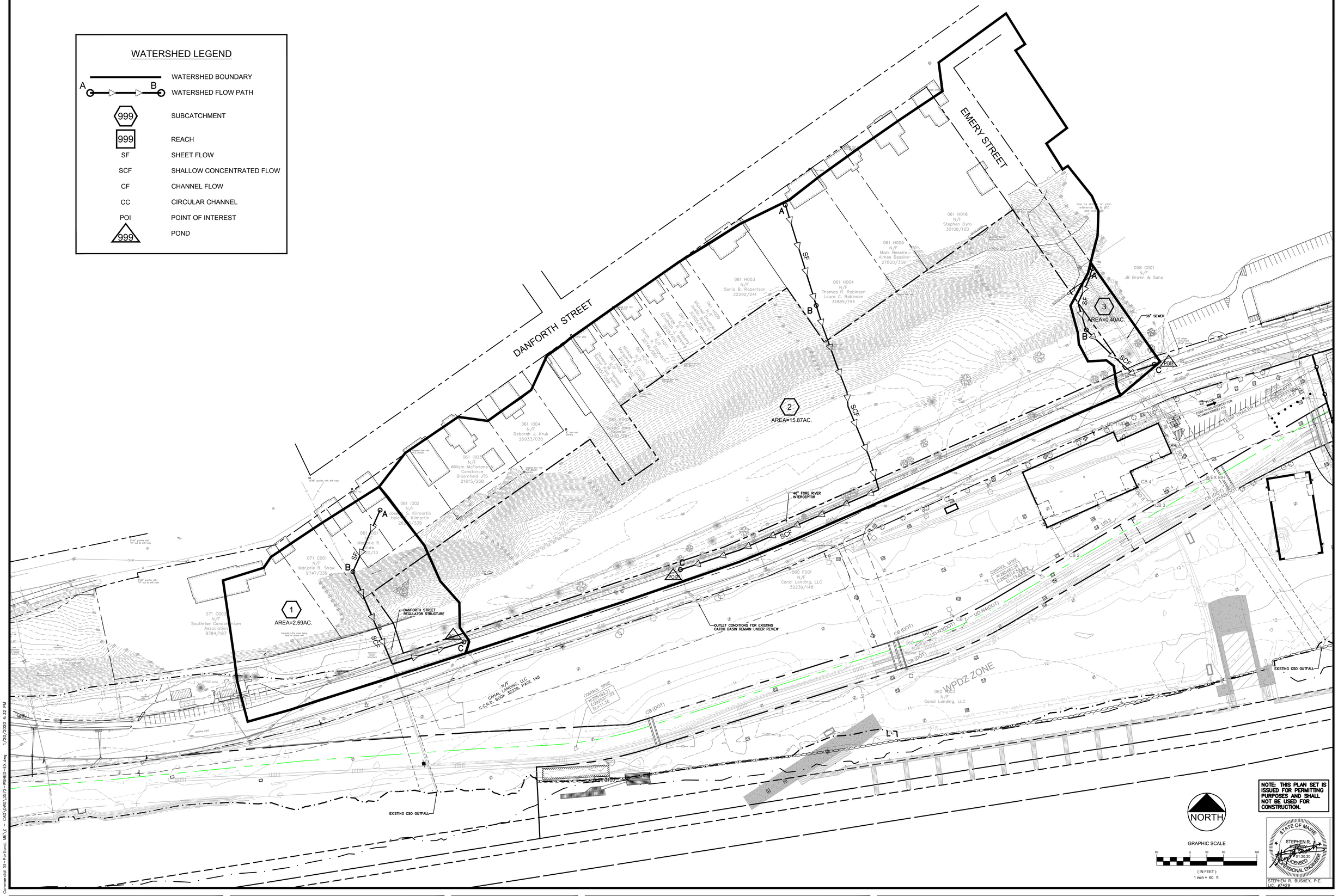
APPENDIX D

Permits for Project

(To be Added at a Subsequent Time)

WATERSHED LEGEND

A — B	WATERSHED BOUNDARY
A → B	WATERSHED FLOW PATH
999	SUBCATCHMENT
999	REACH
SF	SHEET FLOW
SCF	SHALLOW CONCENTRATED FLOW
CF	CHANNEL FLOW
CC	CIRCULAR CHANNEL
POI	POINT OF INTEREST
999	POND



NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 01.20.20 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7428

Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	01.20.20	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB	Draft: CDD	Date: NOV. 2019
Checked: SRB	Scale: AS NOTED	Job No.: 3572
File Name: 3572-WSHED-EX.dwg		

This plan shall not be modified without written permission from Gorrill Palmer Consulting Engineers, Inc.(GP). Any alterations, authorized or otherwise, shall be at the user's sole risk and without liability to GP.

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www.gorrillpalmer.com
207.772.2515

Drawing Name: PRE–DEVELOPMENT WATERSHED PLAN

Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine

Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

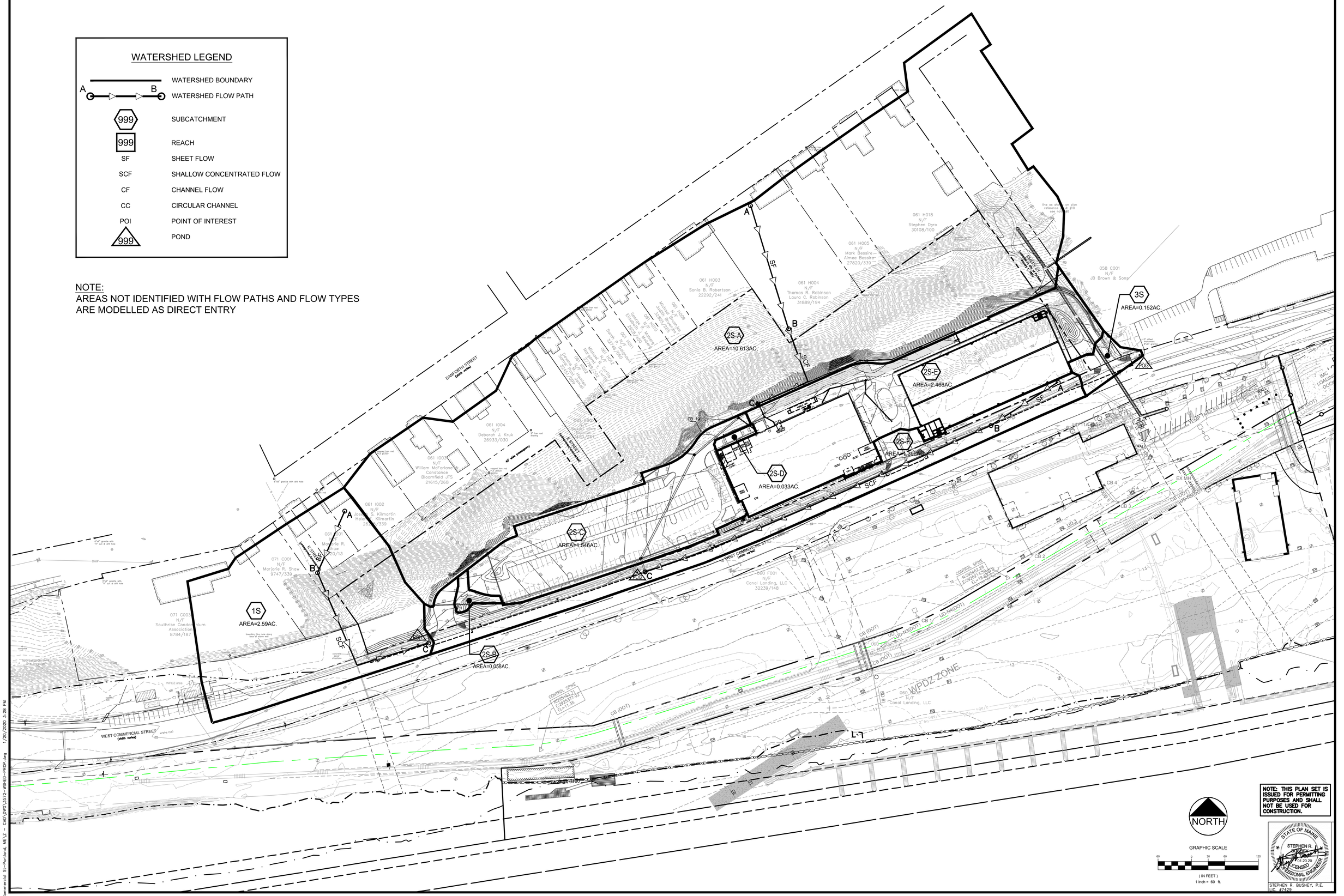
Drawing No. W–1

U:\3572_VA Clinic West Commercial St-Portland, ME\2 - CAD\DWG\3572-WSHED-EX.dwg 1/20/2020 4:32 PM

WATERSHED LEGEND

- WATERSHED BOUNDARY
- A — B: WATERSHED FLOW PATH
- 999: SUBCATCHMENT
- 999: REACH
- SF: SHEET FLOW
- SCF: SHALLOW CONCENTRATED FLOW
- CF: CHANNEL FLOW
- CC: CIRCULAR CHANNEL
- POI: POINT OF INTEREST
- 999: POND

NOTE:
AREAS NOT IDENTIFIED WITH FLOW PATHS AND FLOW TYPES ARE MODELLED AS DIRECT ENTRY



NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 01.20.20 — LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	01.20.20	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB	Draft: CDD	Date: NOV. 2019
Checked: SRB	Scale: AS NOTED	Job No.: 3572
File Name: 3572-WSHED-PROP.dwg		

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GORRILL PALMER
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www.gorrillpalmer.com
207.772.2515

Drawing Name: POST-DEVELOPMENT WATERSHED PLAN
Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine
Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. W-2

U:\3572_VA Clinic West Commercial St-Portland, ME\2_-_CAD\DWG\3572-WSHED-PROP.dwg 1/20/2020 3:28 PM

ENVIRONMENTAL AND LANDSCAPE FEATURES

The following statements are provided in accordance with the Section 14-526 of the ordinance.

(b) Environmental Quality Standards

Preservation of Significant Natural Features (14-526 (b) 1), if applicable

- *Trees, plants, habitats listed on State or Federal list of endangered or threatened*
- *High and moderate value waterfowl and wading habitat*
- *Aquifers on Casco Bay Islands*
- *Waterbodies (including wetlands, watercourses, significant vernal pools and floodplains)*
- *Proposed preservation areas and protection measures*
- *Documentation from environmental consultants, determinations from applicable state agencies*

1. *Preservation of Significant Natural Features:*

   - In 2015, Rich Jordan, then of TRC Solutions completed an onsite investigation to identify wetlands or vernal pools that might exist on the site. He did not identify any of these features on the property. A copy of his December 17, 2015 letter outlining this finding accompanies this narrative.

     The existing site was historically used as a railyard among other land uses. The site is currently vacant and contains some low-level vegetation and sparse tree coverage within the development area. The steeper slopes at the rear of the property are also covered with ground cover and shrub vegetation. The owner cut larger trees on the slopes several years ago, to discourage transient use and encampments.

   - The site does not contain any population of trees or plants that are on the official list of endangered and threatened plans in Maine. Nor does the site contain any habitat for endangered or threatened species, high or moderate value waterfowl and wading bird habitat or significant wetlands or vernal pools.

Landscaping and Landscape Preservation (14-526 (b) 2 a)

- *Preservation of trees and preservation within required zoning setbacks (Technical Manual, Section 4)*
- *Protection measures of existing vegetation during construction*
- *Protection measures within Shoreland Zone, if applicable*

2. *Landscaping and Landscape Prevention:*

   a. *Landscape Preservation.*

      (i) The existing tree coverage within the development area is minimal and does not warrant protection in our opinion.

      (ii) Not applicable as the maximum front yard setback is 10'. Existing vegetation on the steeper slopes that will remain undeveloped will be retained.

(iii) There is no specific vegetation protection required on the site.

(iv) The Applicant will request a waiver from this standard.

(v) Not applicable.

Landscaping and Landscape Preservation (14-526 (b) 2 b i)

a. Screening and buffering of service areas and between non-residential and residential uses
b. Planting plans with plant schedule and sizes

2. Landscaping and Landscape Prevention:

b. Site Landscaping:

(i) Landscaped Buffers:

(a) The Clinic loading dock will be positioned at the rear of the building, and clear of view from the Street. A solid waste collection area will also be located at the rear of the site and it will be screened with a solid enclosure around its perimeter. The transformer pad and an emergency generator will also be located behind the building and thus screened from view of the public along the street. The existing slope and vegetation at the rear of the site will provide suitable screening from residential property along Danforth Street.

(b) The site development area will contain landscaping of the parking lot and project perimeter. A limited amount of landscaping will be provided along the building front since there is only a narrow space between the building and the street line, based on the maximum building setback provision for the B-5b zone.

(c) The applicant is requesting a waiver of these provisions due to the site topography. The residential sites to the north (rear) of the property are elevated greater than 50' above the site grades where the development activity will occur. Existing vegetation along the hillside behind the building is expected to provide sufficient screening of the proposed buildings from the residential neighbors.

(d) Not applicable.

Landscaping and Landscape Preservation (14-526 (b) 2 b ii)

Parking Lot Landscaping, if applicable

- *Landscaped islands within parking areas (Technical Manual, Section 4)*

2. Landscaping and Landscape Preservation:

a. Site Landscaping.

(ii) Parking Lot Landscaping:

a) thru d) The proposed parking lots will contain landscaping that is consistent with the City's technical standards. This landscaping will maintained in a well-manicured manner.

Street Trees (14-526 (b) 2 b iii)

- *Existing Heritage or Feature Trees on site and measures to preserve*
- *Identify street trees on the plan meeting the site plan and Technical Manual standards (Section 4) or identify alternative measures, if applicable*

2. Landscaping and Landscape Preservation:

b. Site Landscaping.

(iii) Street Trees:

(a) The site landscaping plan contains tree plantings long the front of the property, within the site and not within the Public right of way. The plans include the development of a 5' wide esplanade and the 10' wide pathway within the right of way. Unfortunately, the esplanade is generally located over the existing 115 KVA high voltage underground power transmission line and also below the overhead lines, thus the placement of trees in this zone is basically prohibited because of these conflicts. To offset these restrictions, the plan includes the tree plantings on the site.

TRC
6 Ashley Drive
Scarborough, ME 04074

Main 207-879-1930
Fax 207-879-9293

Memorandum

To: Barry Stowe – Opechee Construction Corporation
11 Corporate Dr | Belmont | NH 03220

From: Rich Jordan - TRC
(rjordan@trcsolutions.com)

Subject: Wetlands Survey – West Commercial Street, Portland, Maine

Date: 2015-Dec-17

CC: -

Barry –

As requested by your email to me on December 14, this morning I surveyed an area of land located on the north side of the west end of Commercial Street in Portland (indicated in red on Figure 1). The purpose of my visit was to review the site for the presence of wetlands, streams or potential vernal pools. There are none of these features on the property.

I will attach some photographs from my site visit to this memo. Please let me know if you need any additional information. Thanks again!



Figure 1. Survey Site on West Commercial Street, Portland.

Respectfully submitted,

Rich Jordan, PWS/CPESC

Cell: 207-317-3583 Office: 207-274-2624
Email: rjordan@trcsolutions.com

ATTACHMENT (1 - photos)



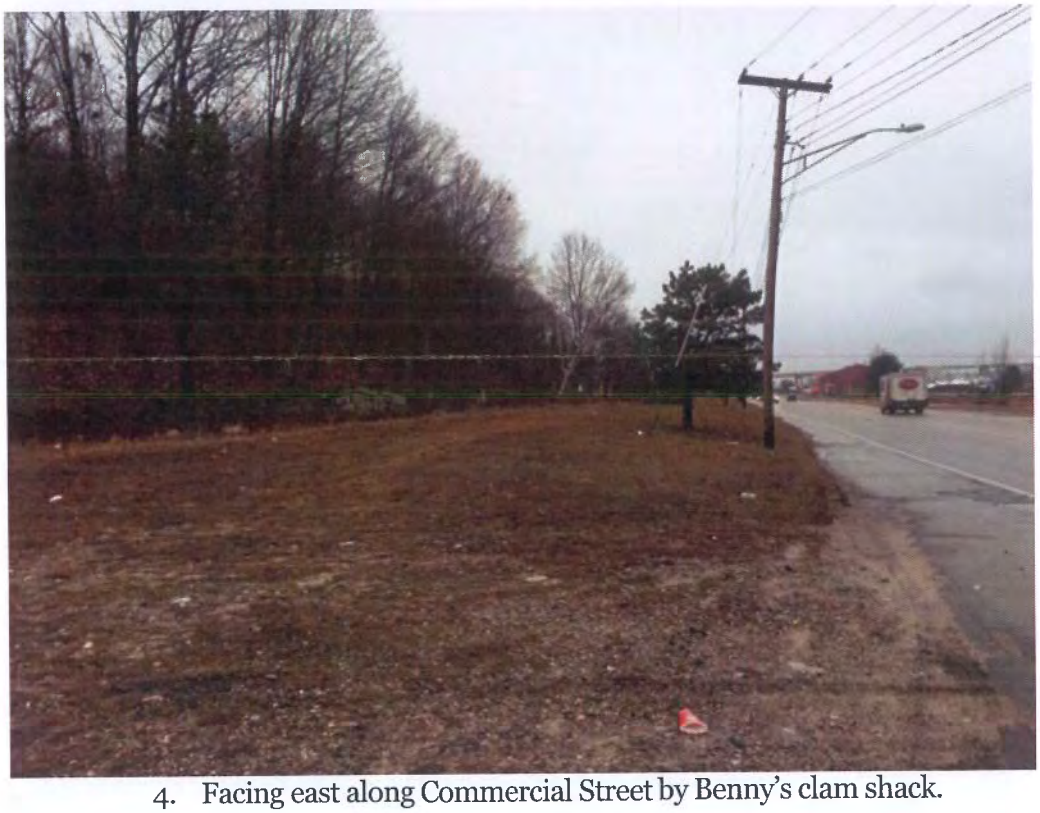
1. Facing east toward eastern end of subject area.



2. Facing north into subject area.



3. Facing west within subject area.



4. Facing east along Commercial Street by Benny's clam shack.

ENVIRONMENTAL AND STORMWATER

The following statements are provided in accordance with the submission checklist and Section 14-526 of the ordinance.

(b) Environmental Quality Standards

Water Quality, Stormwater Management and Erosion Control (14-526 (b) 3 a)

- *Stormwater report in compliance with Section 5 of Technical Manual and DEP Chapter 500 stormwater for basic, general and flooding standards, as applicable*
- *Erosion control plan and measures*
- *Evidence of compliance with Urban Impaired Stream Standards pursuant to DEP Chapter 500 stormwater, as applicable*
- *Subsurface sanitary sewage disposal and groundwater protection*

3. Water Quality, Stormwater Management and Erosion Control:

a. Stormwater:

(i) The development site does not currently contain a defined stormwater management system nor does it lie in a manner that influences offsite drainage patterns from neighboring properties, thus the proposed development is not expected to impede or otherwise cause flooding onto adjacent properties. Generally, the site conditions allow for minor absorption of runoff into the ground based on the site site's soils conditions or otherwise stormwater runoff sheets to the street and is captured within catch basins located in the street. The exact conveyance route of the existing street system is unknown and the development team is coordinating with DPW on these existing conditions. The existing 48" Fore River interceptor sewer is located along the site frontage. An existing overflow control structure is located just west of the site and that structure contains a 24" overflow pipe to the Fore River. Similarly, there is a control structure along the Interceptor opposite the Emery Street right of way and that CSO structure regulates flows to multiple overflow pipes out to the Fore River. Each of these CSO systems remains active. The site is proximate to the Fore River tidal conditions and only the Canal Landing Boat Yard is between the site and the river.

(ii) The site's stormwater runoff will be collected by several means. The proposed clinic building roof will contain drains that will tie into a subsurface chamber storage system and below grade treatment device. These systems will provide both water quality treatment and flood control

(iii) The development drainage systems will minimize impacts on the volume or rate of stormwater draining offsite. These systems will include runoff storage within the porous pavement sections of the parking lot and within underground proprietary chamber storage for building roof runoff.

(iv) The existing drainage systems within West Commercial Street are adequately sized to handle the increase in runoff volume and peak discharge.

b. Flooding Standards:

The project will ultimately meet the General Standards under Chapter 500, Stormwater Law (City of Portland Technical Manual, Section 5 – Portland Stormwater Management and MaineDEP Ch. 500, 3 (e)). The Basic Standards will apply to this project and a detailed Soil Erosion and Sediment Control Plan has been developed to address this.

c. Not applicable, not located within an Urban Impaired Stream.

d. Not applicable – not a residential development.

e. Construction at the site will be required to follow Local, State and Federal regulations and will be undertaken under the supervision of a suitably qualified environmental professional. Post-construction activities at the site do not pose a risk of groundwater contamination.

f. The project will be connected to the public sanitary sewer system which is adequately sized for the anticipated project flows.

SITE DEVELOPMENT PLANS

FOR

U.S. Department of Veterans Affairs
Community Based Outpatient Clinic

113 WEST COMMERCIAL ST., PORTLAND, MAINE

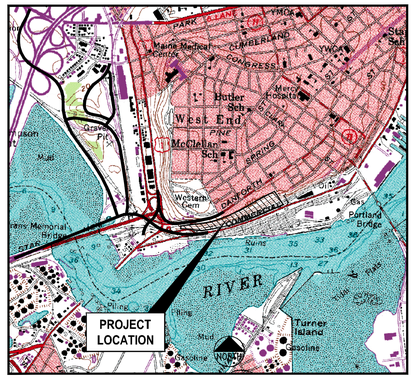
DECEMBER 2019

DESIGN DEVELOPMENT / PERMIT APPROVAL

TAX MAP-BLOCK-LOT NUMBER:
060 A001001

CURRENT LAND OWNER:
J.B. BROWN & SONS
10 FREE STREET
PORTLAND, ME 04101
CONTACT: VIN VERONEAU - PRESIDENT / CEO
207.553.6633
veroneau@jbbrown.com
CCRD BOOK 29147, PAGE 254

DEVELOPER / APPLICANT:
FDS JBB PORTLAND, LLC
c/o FD STONEWATER, LLC
1001 19th STREET NORTH, SUITE 1401
ARLINGTON, VA. 22209
CONTACT: CLAIBORNE WILLIAMS - MEMBER
213.600.4326
cwilliams@fdstonewater.com



LOCATION MAP
N.T.S.

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C-2.0 BOUNDARY SURVEY ("PLAN OF PROPOSED LOT A" BY TITCOMB ASSOCIATES)
C-3.0 EXISTING CONDITIONS & REMOVALS PLAN
C-3.1 WEST COMMERCIAL STREET EXISTING PLAN & PROPOSED CONCEPTUAL SECTIONS
C-4.0 OVERALL SITE LAYOUT PLAN
C-4.1 SITE LAYOUT PLAN - WEST SIDE
C-4.2 SITE LAYOUT PLAN - EAST SIDE
C-5.0 OVERALL GRADING & DRAINAGE PLAN
C-5.1 GRADING & DRAINAGE PLAN - WEST SIDE
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C-7.2 LANDSCAPE DETAILS
C-8.0 ACCESS DRIVE PROFILES
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C-10.0 SITE DETAILS
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C-11.0 STORM DRAIN PROFILES
C-12.0 UTILITY PROFILES
W-1 PRE-DEVELOPMENT WATERSHED MAP
W-2 POST-DEVELOPMENT WATERSHED MAP

* PLAN NOT INCLUDED IN THIS SUBMISSION

I HEREBY ACKNOWLEDGE THAT THESE PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MAINE AND THAT I AM COMPETENT TO PREPARE THIS DOCUMENT.

UTILITIES

WATER:
PORTLAND WATER DISTRICT
22 DOUGLASS STREET
P.O. BOX 3553
PORTLAND, MAINE 04104
207.761.8310
CONTACT: ROBERT BARTELS
rbartels@pwd.org

SEWER:
CITY OF PORTLAND
PUBLIC SERVICES DIVISION
212 CANCO ROAD
PORTLAND, MAINE 04103
207.874.8840
CONTACT: KEITH GRAY / BRAD ROLAND

ELECTRIC:
CENTRAL MAINE POWER
162 CANCO ROAD
PORTLAND, MAINE 04103
207.842.2367
CONTACT: JAMIE COUGH

TELEPHONE:
CONSOLIDATED COMMUNICATIONS
5 DAVIS HILL FARM ROAD
PORTLAND, MAINE 04103
207.797.1866
CONTACT: PATRICK MORRISON

NATURAL GAS:
NORTHERN UTILITIES / UNITIL
1075 FOREST AVENUE
PORTLAND, MAINE 04103
207.797.8002, EXT. 6220
CONTACT: CRAIG CAMPBELL / SCOTT CARPENTER
207.650.6716

CABLE TV:
TIME WARNER CABLE / SPECTRUM
115 JOHNSON ROAD
PORTLAND, MAINE 04102
207.253.2324
CONTACT: MARK PELLETIER

DIG SAFE:
CALL BEFORE YOU DIG
DIAL 811 (AT LEAST 72 HRS IN ADVANCE)

PERMITS / APPROVALS

TYPE:	GOVERNING BODY:	STATUS/DATE ISSUED:
LOCAL		
SITE PLAN PERMIT:	CITY OF PORTLAND PLANNING AUTHORITY CITY HALL, CONGRESS STREET PORTLAND, MAINE 04103 207.874.8608 CONTACT: CHRISTINE GRIMANDO	LEVEL III SITE PLAN APPLICATION
BUILDING PERMIT:	CITY OF PORTLAND CODE ENFORCEMENT OFFICE CITY HALL, CONGRESS STREET PORTLAND, MAINE 04103 207.874.8900	TO BE DETERMINED
UTILITY OPENING PERMITS:	CITY OF PORTLAND PUBLIC SERVICES DIVISION 212 CANCO ROAD PORTLAND, ME 04103	TO BE DETERMINED
STATE		
MAINE DOT TRAFFIC PERMIT:	MAINE DEPARTMENT OF TRANSPORTATION SOUTHERN REGION (REGION 1) 51 PLEASANT HILL ROAD SCARBOROUGH, MAINE 04074 207.885.7000	DELEGATED AUTHORITY TO CITY OF PORTLAND SCOPING MEETING PLANNED FOR DECEMBER
MAINE VOLUNTARY RESPONSE ACTION PLAN (VRAP):	MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF REMEDIATION AND WASTE MANAGEMENT 17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017 ATTN: NICHOLAS HODGKINS 207.623.8367	-

CONSULTANT LIST

CIVIL ENGINEER:
Gorrill Palmer Consulting Engineers, Inc.
707 SABLE OAKS DRIVE, SUITE 30
SOUTH PORTLAND, MAINE 04106
207.772.2515
CONTACT: STEPHEN BUSHEY
sbushey@gorrillpalmer.com

CLINIC ARCHITECT:
SmithGroup
100 HIGH STREET, SUITE 1800
BOSTON, MASS. 02110
617.502.3562
CONTACT: CHRISTINE RANCOURT
christine.rancourt@smithgroup.com

SURVEYOR (TOPOGRAPHY AND BOUNDARY):
Titcomb Associates
133 GRAY ROAD
FALMOUTH, MAINE 04105
207.797.9199
CONTACT: NICHOLAS ELLISTON
NElliston@titcombsurvey.com

GEOTECHNICAL ENGINEER:
Summit Geoengineering Services Inc.
145 LISBON STREET, SUITE 701
LEWISTON, MAINE 04240
207.576.3313
CONTACT: WILLIAM M. PETERLEIN, P.E.

ENVIRONMENTAL ENGINEER:
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GRAY, MAINE 04039
207.651.2866
CONTACT: TIM BOYCE
Tboyce@swcole.com

CONSTRUCTION MANAGER:
Landry / French Construction
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SCARBOROUGH, MAINE 04074
207.730.5566
CONTACT: KEVIN FRENCH
Kfrench@landryfrenchconstruction.com

TRAFFIC ENGINEER:
Traffic Solutions
17 MOUNTVIEW DRIVE
GORHAM, MAINE 04038
207.400.6890
CONTACT: WILLIAM J. BRAY, P.E.
trafficsolutions@maine.rr.com

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STATE OF MAINE
STEPHEN R. BUSHEY
12.05.19
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	12.05.19	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB | Draft: CDD | Date: NOV. 2019
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207.772.2515

Drawing Name: COVER SHEET
Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine
Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C–1.0

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GENERAL NOTES:

1. THE CONTRACTOR SHALL REFER TO THE PROJECT MANUAL FOR CONSTRUCTION SPECIFICATIONS AND BIDDING PROCEDURES.
2. THIS PROJECT WILL BE SUBJECT TO THE TERMS AND CONDITIONS OF ALL PERMITS ISSUED BY LOCAL UTILITY COMPANIES AND THE CITY OF PORTLAND.
3. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF THE ENTRANCE, PAVING, PRECISE BUILDING DIMENSIONS, AND EXACT BUILDING UTILITY ENTRANCE POINTS. ENTRANCES IN MOST LOCATIONS REQUIRE STRUCTURAL SLABS. REFER TO THE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR INFORMATION ON THE STRUCTURAL SLAB ENTRANCES.
4. ALL REQUIRED AND NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSIONS AND THE FINAL SERVICE CONNECTIONS.
5. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR THE ELEVATION OF THE EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AND DIG SAFE AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
6. MAINTENANCE OF EROSION CONTROL MEASURES IS OF PARAMOUNT IMPORTANCE TO THE APPLICANT AND THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL EROSION CONTROL MEASURES SHOWN ON THE PLANS. ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY ONSITE INSPECTIONS OF THE OWNER, THEIR REPRESENTATIVES, OR THE CITY, AT NO ADDITIONAL COST TO THE OWNER.
7. ALL MATERIAL SCHEDULES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL PREPARE HIS OWN MATERIAL SCHEDULES BASED UPON HIS PLAN REVIEW. ALL SCHEDULES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS OR PERFORMING WORK.
8. ALL MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE PROJECT SPECIFICATIONS, THE CITY OF PORTLAND AND SERVICING UTILITY REQUIREMENTS, IN CASES WHERE THESE CONFLICT THE MOST STRINGENT SHALL APPLY AT NO EXTRA COST TO THE OWNER.
9. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RECORD DRAWINGS THROUGHOUT THE PROJECT AND PROVIDING THE OWNER WITH A SET OF THE FINAL RECORD DRAWINGS WHEN THE PROJECT IS COMPLETE.
10. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ACCESS AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY MARKINGS, SIGNAGE AND INCIDENTALS TO MAINTAIN SAFE VEHICLE AND PEDESTRIAN ACCESS THROUGH OUT THE LIFE OF THE PROJECT.

SITE LAYOUT NOTES:

1. ALL HANDICAP PARKING SPACES ARE TO RECEIVE HANDICAP SIGNS AND PAVEMENT MARKINGS AS ILLUSTRATED ON THE DETAIL SHEETS.
2. BITUMINOUS CONCRETE CURB AND GRANITE CURB SHALL MEET THE REQUIREMENTS OF MDOT 702.01, 703.07, AND 609.04.
3. ALL DIMENSIONING, UNLESS NOTED OTHERWISE, IS TO THE FACE OF CURB OR THE FACE OF THE BUILDING.
4. EXCEPT WHERE INDICATED OTHERWISE, THE PAVEMENT IS TO BE STANDARD DUTY PAVEMENT.
5. ALL TRAFFIC CONTROL SIGNS INDICATED ON THE SITE LAYOUT PLAN ARE TO MEET ALL REQUIREMENTS AND STANDARDS OF THE MAINE DEPARTMENT OF TRANSPORTATION, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITIONS AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS.
6. STRIPE PARKING AREAS, DRIVES AND ROADWAY AS SHOWN, INCLUDING PARKING SPACES, STOP BARS, CROSSWALKS, HANDICAP SYMBOLS, PAINTED ISLANDS AND FIRE LANES. (ALL MARKINGS EXCEPT MEDIAN ISLANDS AND CENTERLINES TO BE CONSTRUCTED USING WHITE TRAFFIC PAINT.) ALL TRAFFIC PAINT SHALL MEET THE REQUIREMENTS OF AASHTO M248 TYPE `F'. MEDIAN ISLANDS AND CENTERLINES TO BE CONSTRUCTED USING YELLOW TRAFFIC PAINT.
7. SEE DETAILS FOR PARKING STALL DIMENSIONS, HANDICAP SYMBOLS, SIGNS AND SIGN POSTS.
8. STOP BARS SHALL BE 12" WIDE.
9. PAINTED ISLANDS SHALL BE 4" WIDE DIAGONAL LINES @ 3'-0" O.C. BORDERED BY 4" WIDE LINES.

GRADING & DRAINAGE NOTES:

1. ALL STORM DRAIN PIPE SHALL BE SMOOTH BORE INTERIOR PROVIDING A MANNINGS ROUGHNESS COEFFICIENT OF n = 0.013 OR LESS.
2. PROVIDE TURF REINFORCEMENT IN AREAS INDICATED ON THE PLANS.
3. AN "AS-BUILT" CERTIFICATION OF THE STORMWATER DRAINAGE SYSTEM BY A REGISTERED ENGINEER IS REQUIRED PRIOR TO THE OWNER ACCEPTING THE BUILDING AND PROPERTY. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT ANY DEVIATION FROM THE PLANS MAY DELAY THE ACCEPTANCE OF THE PROJECT.
4. A DETAILED O&M MANUAL FOR STORMWATER MANAGEMENT SYSTEMS IS (WILL BE) FILED WITH THE CITY OF PORTLAND DURING THE PERMIT REVIEW PROCESS. A SPECIFIC MANUAL HAS BEEN PREPARED FOR O&M OF THE DRAINAGE SYSTEM.
5. SEE EXISTING CONDITIONS FOR BENCHMARK INFORMATION.
6. SEE GRADING, DRAINAGE AND EROSION/SEDIMENT CONTROL FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
7. ALL DISTURBED AREAS NOT TO BE PAVED, SODDED OR OTHERWISE TREATED SHALL RECEIVE 4" LOAM, SEED, FERTILIZER AND MULCH.
8. COMPACTION REQUIREMENTS:

LOCATION	MINIMUM COMPACTION
SUBBASE AND BASE GRAVEL BELOW PAVED OR CONCRETE AREAS	95%
SUBGRADE FILL BELOW PAVED AREAS	90%
TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL	95%
BELOW LOAM AND SEED AREAS	90%
STRUCTURAL FILL WITHIN PROPOSED BUILDING AREA	95%
SELECT FILL ADJACENT BUILDING FOUNDATIONS, EXTERIOR FOUNDATIONS, AND WITHIN 8 INCHES OF THE SLAB-ON-GRADE	95%

*ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557.

9. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
10. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCE AND EXIT RAMPS ADJACENT TO THE BUILDING AND ALONG NEW CURBED AREAS. ALL ADA COMPLIANT PARKING SPACES SHALL BE PAVED WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
11. PROVIDE STABILIZATION OR SEPARATION GEOTEXTILE FABRIC OVER WETLAND AREAS TO BE FILLED OR OVER UNSTABLE SOILS AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND IN ACCORDANCE WITH THE FINAL GEOTECHNICAL RECOMMENDATIONS.
12. NATIVE SOILS RANGE FROM GRANULAR TO CLAYEY AND SILTY. CARE MUST BE EXERCISED TO LIMIT DISTURBANCE OF THE BEARING SOILS. THE NATIVE CLAYEY OR SILTY SOILS SHOULD NOT BE PROOF-ROLLED. SHOULD THE SUBGRADE BECOME YIELDING OR DIFFICULT TO WORK, DISTURBED AREAS SHOULD BE EXCAVATED AND BACKFILLED WITH COMPACTED SELECT FILL OR CRUSHED STONE AT NO EXTRA EXPENSE TO THE OWNER.
13. FIVE (5.0) FEET OF CLEAN GRANULAR SOIL MEETING THE SELECT FILL GRADATION SPECIFICATIONS SHALL BE PROVIDED BELOW THE ENTRANCE SLABS AND ADJACENT SIDEWALKS. GRADUAL TRANSITION (3 HORIZONTAL TO 1 VERTICAL) OF SELECT FILL THICKNESS SHALL BE PROVIDED FROM THE 5.0 FOOT DEPTH TO THE GRAVEL BASE THICKNESS AT THE SIDEWALKS AND PAVED AREAS AWAY FROM THE BUILDINGS.

LOCAL APPROVALS, WAIVERS, AND VARIANCES:
(ADDITIONAL INFORMATION TO BE PROVIDED UPON RECEIPT OF APPROVALS)

THE CONSTRUCTION PLANS ARE TO BE SUBMITTED TO THE CITY OF PORTLAND FOR THEIR REVIEW AND APPROVAL.

UTILITY NOTES:

1. ALL REQUIRED UTILITIES SERVING THE PROJECT SHALL BE COORDINATED AND CONSTRUCTED BY THE SITE WORK CONTRACTOR TO WITHIN 5 FEET OF THE BUILDINGS, AT A LOCATION COORDINATED WITH THE MEP CONTRACTOR AND THE BUILDING PLANS. SITE WORK WITHIN 5 FEET OF UNDERSLAB UTILITIES SHALL CONSIST OF TRENCHING AND BACKFILLING. ACTUAL UTILITY INSTALLATION SHALL BE BY THE MEP CONTRACTOR. ALL REQUIRED CONNECTION FEES SHALL BE PAID BY THE GENERAL CONTRACTOR.
2. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF AND/OR RELOCATION OF OVERHEAD AND UNDERGROUND TELEPHONE WITH CONSOLIDATED COMMUNICATIONS. CONTRACTOR SHALL BE RESPONSIBLE FOR CONDUITS, PULL WIRES, TRENCHING AND BACKFILLING NECESSARY TO COMPLETE THE WORK.
3. ALL SANITARY SEWER WORK SHALL MEET THE STANDARDS OF THE MAINE STATE PLUMBING CODE AND CITY OF PORTLAND PUBLIC WORKS DEPARTMENT.
4. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ELECTRIC SERVICE WITH CENTRAL MAINE POWER.
5. COORDINATE ALL UTILITY WORK WITH THE APPROPRIATE UTILITY COMPANY. ALL UTILITY WORK SHALL CONFORM TO THE STANDARDS OF THE UTILITY COMPANY AND PROJECT SPECIFICATIONS.
6. THE LOCATIONS OF THE NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE SERVING UTILITY COMPANY.
7. UNDERGROUND ELECTRICAL, CONDUIT MATERIAL AND INSTALLATION SHALL CONFORM TO UTILITY COMPANY STANDARDS AND PROJECT SPECIFICATIONS, WHICH EVER IS MORE STRINGENT.
8. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
9. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
10. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATES TO THE OWNER PRIOR TO COMPLETION OF THE PROJECT.
11. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL BOXES, FITTINGS, CONNECTORS, COVER PLATES AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL, AT NO EXTRA EXPENSE TO THE OWNER.
12. A 10 FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18 INCH OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER AND SANITARY SEWER CROSSINGS.
13. THE CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION AND PROVIDE TEMPORARY SERVICES AS REQUIRED TO PROVIDE CONTINUOUS SERVICE TO THE JOBSITE. TEMPORARY SERVICES SHALL COMPLY WITH ALL FEDERAL, STATE, LOCAL AND UTILITY COMPANY STANDARDS. COORDINATE ALL TEMPORARY SERVICES WITH UTILITY COMPANY, OWNER AND AFFECTED BUSINESSES.

LANDSCAPE NOTES:

(SUBJECT TO COORDINATION WITH LANDSCAPE DRAWINGS. IN CASE OF CONFLICT, THE LANDSCAPING DRAWINGS SHALL GOVERN.)

1. ALL PLANTS SHALL BE NURSERY GROWN AND WORKMANSHIP SHALL CONFORM TO THE AMERICAN ASSOCIATION OF NURSERYMEN, STANDARDS AND SHALL BE SUBJECT TO THE APPROVAL OF THE OWNERS REPRESENTATIVE BEFORE AND AFTER PLANTING.
2. PLANTS SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER INSPECTION AND ACCEPTANCE, AND SHALL HAVE AT LEAST 80% HEALTHY GROWTH AT THE END OF THE GUARANTEED PERIOD.
3. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 4" LOAM AND SEED.
4. THREE (3) INCH BARK MULCH IS TO BE USED AROUND THE TREE AND SHRUB PLANTING AS SPECIFIED IN THE DETAILS. WHERE BARK MULCH IS USED IN A CURBED ISLAND, THE BARK SHALL MEET THE TOP INSIDE EDGE OF THE CURB. ALL OTHER AREAS SHALL RECEIVE 4" LOAM AND SEED.
5. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTING AS SHOWN.
6. PARKING AREA PLANTED ISLANDS TO HAVE A MINIMUM OF 4" TOPSOIL. REMOVE ALL CONSTRUCTION DEBRIS BEFORE TOPSOILING. TOPSOIL SHALL BE PLACED TO TOP OF CURB.
7. ALL PLANT MATERIAL SHALL BE APPROVED BY THE OWNER OR THE OWNERS REPRESENTATIVE PRIOR TO ARRIVAL ON THE SITE.
8. PLANT MATERIAL SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS TO THE ORIGINAL PLANTING GRADE PRIOR TO DIGGING.
9. THE CONTRACTOR SHALL LOCATE, VERIFY, AND MARK ALL EXISTING AND NEWLY INSTALLED UNDERGROUND UTILITIES PRIOR TO ANY LAWN WORK OR PLANTING. ANY CONFLICTS WHICH MIGHT OCCUR BETWEEN PLANTINGS AND UTILITIES SHALL BE IMMEDIATELY REPORTED TO THE OWNER SO THAT ALTERNATE PLANTING LOCATIONS CAN BE DETERMINED.
10. NO SUBSTITUTION OF PLANT MATERIALS SHALL BE ALLOWED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PLANTING AND LAWNS AGAINST DAMAGE FROM ONGOING CONSTRUCTION. THIS PROTECTION SHALL BEGIN AT THE TIME THE PLANT IS INSTALLED AND CONTINUE UNTIL THE FORMAL ACCEPTANCE OF ALL THE PLANTINGS.
12. SEE PLANTING DETAILS FOR WEED BARRIER INFORMATION.
13. ALL PLANTING LOCATED AT THE ENTRANCE TO THE PROJECT OR AT INTERSECTIONS WITHIN THE SITE WILL BE MAINTAINED AND WILL NOT EXCEED 3 FEET IN HEIGHT WITHIN A TRIANGLE FORMED 25' INTO THE DRIVEWAY AND 25' ALONG THE TRAVEL WAY.

EROSION CONTROL NOTES:

1. PRIOR TO BEGINNING ANY LAND DISTURBING ACTIVITIES. CLEARING AND GRADING LIMITS SHALL BE STAKED BY THE CONTRACTOR BASED ON THE LIMITS OF GRADING SHOWN ON THE DRAWINGS AND ACCEPTED BY THE OWNER'S REPRESENTATIVE IN THE FIELD. AFTER THE CLEARING AND GRADING LIMITS HAVE BEEN ACCEPTED, THE CONTRACTOR SHALL INSTALL THE PERIMETER SILT FENCES AND THE CONSTRUCTION ENTRANCES ASSOCIATED WITH THE PROJECT.
2. ALL GROUND AREAS GRADED FOR CONSTRUCTION SHALL BE GRADED, LOAMED, SEEDED AND MULCHED AS SOON AS POSSIBLE. TEMPORARY/PERMANENT SEED MIXTURES SHALL CONFORM TO THE SEEDING PLAN CONTAINED IN THE EROSION CONTROL PROJECT PREPARED FOR THIS PROJECT.
3. PRIOR TO PAVING, THE CONTRACTOR SHALL FLUSH SILT FROM ALL STORM LINES.
4. ALL STORM DRAIN INLETS AND OUTLETS NOT IN PAVED AREAS ARE TO RECEIVE RIPRAP PROTECTION APRONS DURING CONSTRUCTION.
5. SILT FENCES SHALL BE INSPECTED, REPAIRED AND CLEANED AS NOTED IN THE EROSION CONTROL NOTES SHOWN ON THE EROSION CONTROL DETAIL SHEET.
6. THE CONTRACTOR SHALL REPAIR AND ADD STONE TO THE CONSTRUCTION ENTRANCE AS IT BECOMES SATURATED WITH MUD TO ENSURE THAT IT FUNCTIONS TO CAPTURE MUD FROM THE TIRES OF CONSTRUCTION VEHICLES DURING CONSTRUCTION. THE PURPOSE OF THE CONSTRUCTION ENTRANCE IS TO KEEP ADJACENT STREETS CLEAR OF DIRT AND MUD, SWEEPING OF THE ROADWAYS SHALL BE PERFORMED BY THE CONTRACTOR.
7. SILT REMOVED FROM AROUND INLETS AND BEHIND THE SILT FENCES SHALL BE PLACED ON A TOPSOIL STOCKPILE AND MIXED INTO TOPSOIL FOR USE IN LANDSCAPING OPERATIONS.
8. LAND DISTURBING ACTIVITIES SHALL BE ACCOMPLISHED IN A MANNER AND SEQUENCE WHICH CAUSE THE LEAST PRACTICAL UNPROTECTED DENUDED AREAS ON THE SITE DURING CONSTRUCTION.
9. THE CONTRACTOR IS CAUTIONED THAT FAILURE TO COMPLY WITH THE SEQUENCE OF CONSTRUCTION, EROSION / SEDIMENT CONTROL PLAN, AND OTHER PERMIT REQUIREMENTS MAY RESULT IN MONETARY PENALTIES AS ENFORCED BY THE MEDEP OR LOCAL AGENCIES. THE CONTRACTOR SHALL BE ASSESSED ALL SUCH PENALTIES AT NO COST TO THE OWNER OR PERMITTEE.
10. A FULL EROSION/SEDIMENTATION CONTROL PLAN ACCOMPANIES THIS DRAWING SET AND IS ALSO CONTAINED IN THE SITE WORK SPECIFICATIONS.
11. PROVIDE INLET PROTECTION BARRIERS AROUND ALL EXISTING AND PROPOSED STORM DRAINAGE INLETS AS SHOWN AND MAINTAIN FOR THE DURATION OF THE PROJECT UNTIL PAVEMENT HAS BEEN INSTALLED.
12. INSPECT EROSION AND SEDIMENT CONTROL DEVICES AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS $\frac{1}{3}$ THE STRUCTURE HEIGHT.
13. INSTALL CURLEX EROSION CONTROL MAT OR EQUAL ON ALL SLOPES STEEPER THAN 3:1.
14. THE CONTRACTOR SHALL INSTALL ALL EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "MAINE EROSION & SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES, CUMBERLAND COUNTY SOIL AND WATER CONVERSATION DISTRICT AND MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, MARCH 1991"

CITY OF PORTLAND
SPACE AND BULK REQUIREMENTS

1. EXISTING ZONE: B5b - Urban Commercial Mixed-Use Zone; R-4 - Residential Zone
2. PARCEL SIZE: 8.40 ACRES
3. SPACE AND BULK:

	REQUIRED / ALLOWED	PROVIDED
MAXIMUM LOT COVERAGE	100%	< 100%
MAXIMUM BUILDING HEIGHT	55 FT. (62 FT. FOR ROOFTOP PROJECTIONS)	< 55 FT.
MINIMUM LOT SIZE	NONE	8.40 ACRES
MINIMUM SIDE YARD	NONE	5.3 FT.±
MINIMUM REAR YARD	NONE	120 FT.±
MINIMUM FRONTAGE	NONE	1,394 FT.
MAXIMUM FRONT YARD BUILDING SETBACK	10 FT.	< 10 FT.

4. PARKING REQUIREMENT:
   MEDICAL OFFICE - 1 SPACE/400SF
   PROPOSED OUTPATIENT CLINIC 62,300 SF — 156 SPACES — 400± SPACES (SATISFIES TENANT LEASE REQUIREMENTS)

LEGEND

EXISTING	PROPOSED
EXISTING STRUCTURE	BUILDING
EDGE OF TRAVEL WAY, PAVEMENT, ROADS, DRIVES	
CURBING	RETAINING WALL
PROPERTY LINE	CURBING
OVERHEAD ELECTRIC LINES / OVERHEAD WIRES	VERTICAL GRANITE
UNDERGROUND ELECTRIC LINE	SLOPED GRANITE
UNDERGROUND TELEPHONE LINE	EDGE OF PAVEMENT
WATER LINE	GRADING CONTOUR LINE
WATER GATE VALVE	SPOT ELEVATION
STORM DRAIN LINE	GUARD POST/BOLLARD
SANITARY SEWER LINE	POLE WITH LIGHT FIXTURE(S)
ROADWAY PAVEMENT STRIPING	FREESTANDING SIGN
GAS	BARRIER FREE PARKING SYMBOL
FENCE	PEDESTRIAN CROSSWALK
EXISTING CONTOUR LINE	DIRECTION OF TRAFFIC FLOW
EXISTING WETLANDS	UNDERGROUND TELEPHONE / CABLE
RAILROAD TRACKS	UNDERGROUND ELECTRIC/TELEPHONE
UTILITY POLE	WATER LINE
SIGN	SEWER LINE
LIGHT POLE	GAS LINE
CATCH BASIN	STORM DRAIN LINE
SEWER MANHOLE	HYDRANT
ELECTRICAL/COMMUNICATIONS VAULT	WATER GATE VALVE
ELECTRICAL/COMMUNICATIONS PULL BOX	WATER SHUT OFF VALVE
HYDRANT	MANHOLE
	CATCH BASIN
TREES, LANDSCAPING	EXISTING CATCH BASIN TO BE ALTERED
	RIPRAP
TREELINE / EDGE OF BRUSH	SILT FENCE
	CHAIN LINK OR SAFETY FENCE
TELEPHONE MANHOLE	WOOD FENCE
ELECTRICAL MANHOLE	GUIDE RAIL
TEST BORING	LIMIT OF WORK
TEST PIT	STONE SEDIMENT BARRIER
	TRANSFORMER PAD

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 12.05.19 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	12.05.19	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB	Draft: CDD	Date: NOV. 2019
Checked: SRB	Scale: AS NOTED	Job No.: 3572
File Name: 3572-GEN NOTES.dwg		

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Drawing Name: GENERAL NOTES & LEGEND
Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine
Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C–1.1

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PLAN REFERENCES

1) Plan of Land on West Commercial Street Maine Central Railroad to J.B. Brown & Sons by Owen Haskell, Inc. dated October 13, 2011. Recorded in Plan Book 211, Page 350.

2) State of Maine Department of Transportation Right of Way Map of State Highway "10" D.O.T. File No. 3–483. Sheets 16–19. Recorded in Plan Book 208, Pages 16–19.

3) Maine State Highway Commission Right of Way Map of State Highway "A" S.H.C. File No. 3–77. Sheets 1 & 2. Recorded in Plan Book 43, Pages 52 & 54.

4) Plan of West Commercial Street Alteration by City of Portland, Maine Department of Public Works dated July 1, 1952.

5) Street right of way plans obtained from the City of Portland Engineering Department for West Commercial Street, Emery Street, and Danforth Street.

6) Plans of Pollution Abatement Facilities West Commercial Street made for Portland Water District by Camp Dresser & McKee, Inc. dated April 1973 and revised through August 1981. Sheets 25–29. On file at the City of Portland Department of Engineering.

7) Plan of Condominium Plat, Southrise Condominium made for Coastland Corp. by Sebago Technics, Inc. dated March 13, 1989 and revised through June 2, 1989. Recorded in Plan Book 179, Page 44.

8) Plan of Boundary Survey made for Mark & Aimee Bessire by Owen Haskell dated September 8, 2014. Unrecorded.

9) Plan of Land on West Commercial Street Portland Terminal Company to J.B. Brown & Sons by Owen Haskell dated July 27, 2010. Recorded in Plan Book 210, Page 285.

10) Right of Way and Track Map – Portland Terminal Operated by Portland Terminal Company. Sheets V1D–1 & V1D–2 dated June 30, 1916. Station 0+00 to Station 105+60. On file at PanAm Railway Department of Engineering.

11) Plan of Property made for Constance Bloomfield by Titcomb Associates dated October 20, 2004, revised through October 5, 2005. Recorded in Plan Book 205, Page 635.

12) Plan of ALTA/ACSM Land Title Survey – 113 West Commercial Street, made for J.B. Brown & Sons by Titcomb Associates dated February 9, 2016.

NOTES

1) Book and Page references are to the Cumberland County Registry of Deeds.

2) Bearings are referenced to grid north, Maine State Plane Coordinate System, NAD83, West Zone.

3) Property lies within Zone C based on FIRM Community #230051 Panels #0013–B & #0016–B, dated July 17, 1986. It does not lie within a special flood hazard area.

4) The purpose of this plan is to divide the locus property into two lots. Many features, notes, utilities, etc. are not shown; see Plan Reference 12.

AREA

As noted.

OWNER OF RECORD

J.B. Brown & Sons
Book 29147, Page 254
10 Free Street
Portland, ME 04101

GRID N

LEGEND

- Monument – found
- Iron marker – found
- Iron marker – set (#5 rebar)
- Property line (locus)
- Property line (abutter)
- Right of way line
- Edge of pavement
- Edge of gravel
- N/F — Now or formerly of
- 1234/567 — Deed reference (Book/Page)

DANFORTH STREET (width varies)

capped iron rod PLS #1172

1" iron pipe

N/F Deborah J. Kruk 26933/030

N/F Andrew Butcher Julie Beth Pezzino 34049/304

N/F Foreview, LLC 33375/141

N/F Sean G. Murphy Colleen D. Katana 33591/216

N/F Marjorie R. Shaw 9747/339

K STREET (unimproved/undeveloped)

E STREET (unimproved/undeveloped)

8"X8" granite with drill hole

3/4" rod

capped iron rod PLS #2518

capped iron rod PLS #2320

capped iron rod PLS #2273

capped iron rod PLS #2303

1/2" iron rod leaning

N/F Divens M. Hamlen Sandra Post Hamlin 32457/099

N/F Susan Jane Noonan 7400/261

N/F Michael R. Curtis Margaret T. Curtis 27789/302

N/F The Sarah N. Fraser 2016 Trust 34034/150

N/F Georgia R. Hobson Elizabeth J. Maberg 2324/450

N/F Michael Brueckner Juliana Brueckner 32809/298

N/F Sonia B. Robertson 22292/241

N/F Thomas R. Robinson Laura C. Robinson 31889/194

N/F Mark Bessire Aimee Bessire 27820/339

N/F Stephen Dyro 30108/100

capped iron rod PLS #2407

3/4" iron pipe

capped iron rod 0.63' from corner

capped iron rod

capped iron rod PLS #1252 2.90' from corner

capped iron rod PLS #1172

1" iron pipe leaning

N 64°40'20" E 385.73'

S 43°24'17" E 118.82'

N 64°51'25" E 415.77'

S 43°02'28" E 380.11'

EMERY STREET (accepted by City of Portland January 1, 1851)

60'

3" offset monument 8"x8" granite

N:295834.00 E:2926363.54

capped iron rod PLS #2518

gravel parking area

S 66°07'19" W 787.39'

WEST COMMERCIAL STREET (width varies)

S 71°41'30" W 607.20'

N 64°52'47" E 479.00'

40' wide passageway

capped iron rod PLS #2518

N:295433.15 E:2925010.67

N 35°07'13" W 82.18'

capped iron rod PLS #2303 0.99' from corner

N 18°18'30" W 56.95'

Remaining Land - Lot B
97,872 Sq. Ft. / 2.25 Acres

S 35°07'13" E 120.00'

N 54°52'47" E 80.00'

N 35°07'13" W 172.81'

capped iron rod PLS #2518

Lot A
366,067 Sq. Ft. / 8.40 Acres

SCALE IN FEET
40 0 40 80
1" = 40'

CERTIFICATION

This survey conforms to the current standards of practice set forth by the Maine State Board of Licensure for Land Surveyors.

Nicholas S. Elliston, P.L.S. #2518

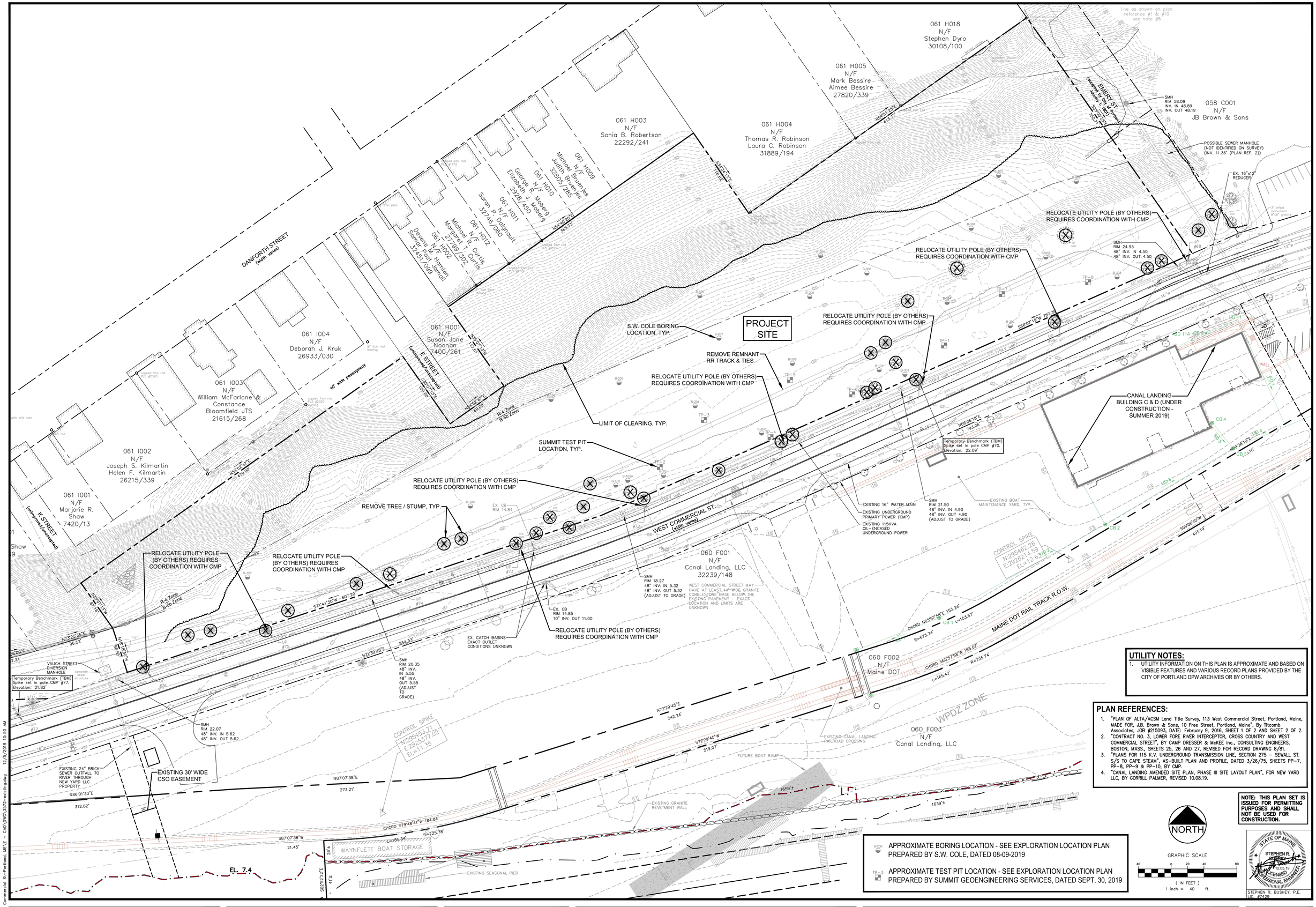
STATE OF MAINE · NICHOLAS S. ELLISTON #2518 · PROFESSIONAL LAND SURVEYOR

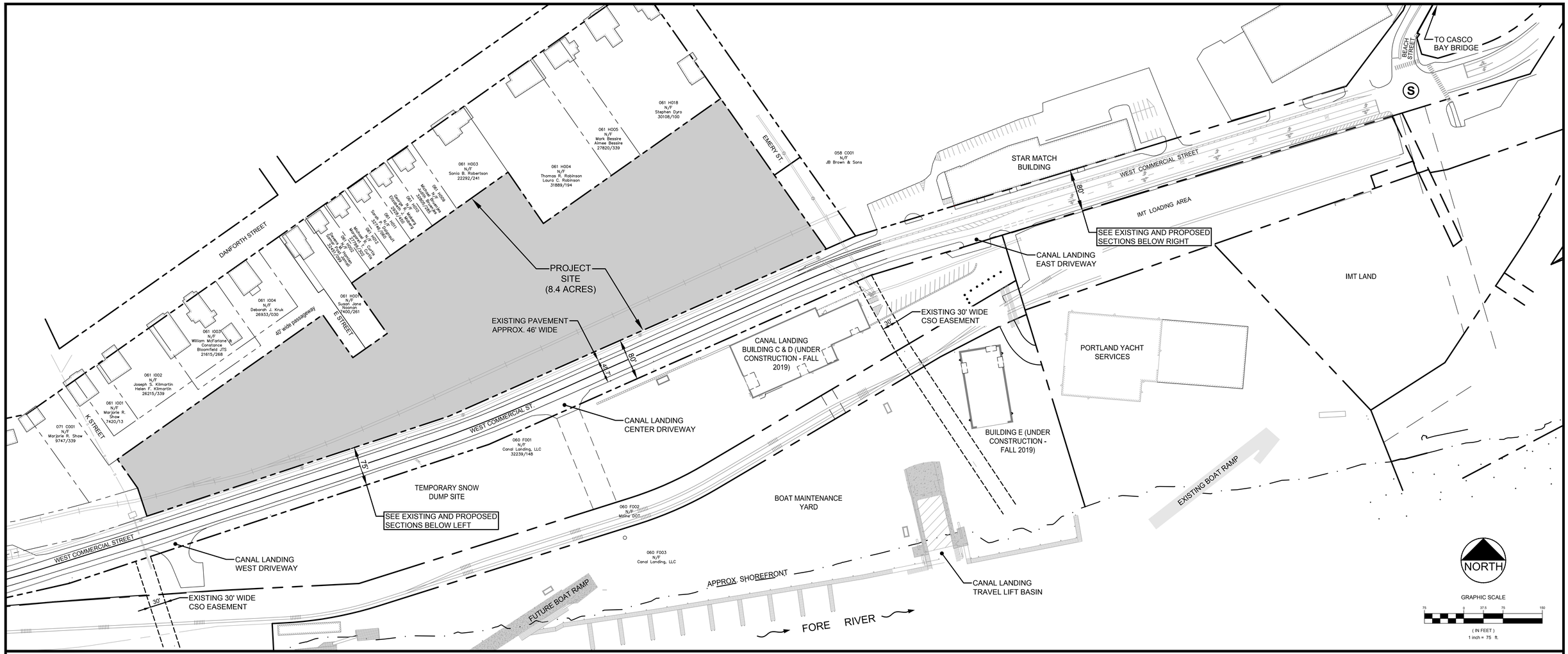
PLAN OF
Proposed Lot A
113 West Commercial Street — Portland, Maine

MADE FOR
J.B. Brown & Sons
10 Free Street — Portland, Maine

JOB #215093	DATE: November 12, 2019	SCALE: 1" = 40'
BOOK #891		
215093_Lot Division.dwg		
FILE #9805		

Titcomb Associates
133 Gray Road, Falmouth, Maine 04105
(207)797-9199 www.titcombsurvey.com


DANFORTH STREET
(width varies)
E STREET
(unimproved/unaccepted)
K STREET
(unimproved/unaccepted)
WEST COMMERCIAL ST.
(width varies)
EMERY ST.
(accepted by City Council January 7, 1867)
061 I004
N/F
Deborah J. Kruk
26933/030
061 I003
N/F
William McFarlane &
Constance
Bloomfield JTS
21615/268
061 I002
N/F
Joseph S. Kilmartin
Helen F. Kilmartin
26215/339
061 I001
N/F
Marjorie R.
Shaw
7420/13
061 H001
N/F
Susan Jane
Noonan
7400/261
061 H002
N/F Hamlen
Sarah Post Jarrell
32451/099
061 H003
N/F
Sonia B. Robertson
22292/241
061 H004
N/F
Thomas R. Robinson
Laura C. Robinson
31889/194
061 H005
N/F
Mark Bessire
Aimee Bessire
27820/339
061 H018
N/F
Stephen Dyro
30108/100
058 C001
N/F
JB Brown & Sons
060 F001
N/F
Canal Landing, LLC
32239/148
060 F002
N/F
Maine DOT
060 F003
N/F
Canal Landing, LLC
PROJECT SITE
S.W. COLE BORING LOCATION, TYP.
SUMMIT TEST PIT LOCATION, TYP.
LIMIT OF CLEARING, TYP.
REMOVE REMNANT RR TRACK & TIES
REMOVE TREE / STUMP, TYP.
RELOCATE UTILITY POLE (BY OTHERS) REQUIRES COORDINATION WITH CMP
EX. CATCH BASINS EXACT OUTLET CONDITIONS UNKNOWN
EX. CB RIM 14.85 10" INV. OUT 11.00
SMH RIM 18.27 48" INV. IN 5.32 48" INV. OUT 5.32 (ADJUST TO GRADE)
SMH RIM 20.35 48" INV. IN 5.55 48" INV. OUT 5.55 (ADJUST TO GRADE)
SMH RIM 22.07 48" INV. IN 5.62 48" INV. OUT 5.62
SMH RIM 58.09 INV. IN 48.89 INV. OUT 48.19
SMH RIM 24.95 48" INV. IN 4.50 48" INV. OUT 4.50
SMH RIM 21.50 48" INV. IN 4.90 48" INV. OUT 4.90 (ADJUST TO GRADE)
POSSIBLE SEWER MANHOLE (NOT IDENTIFIED ON SURVEY) (INV. 11.36' (PLAN REF. 2))
EX. 16"x12" REDUCER
CANAL LANDING BUILDING C & D (UNDER CONSTRUCTION - SUMMER 2019)
EXISTING 16" WATER MAIN
EXISTING UNDERGROUND PRIMARY POWER (CMP)
EXISTING 115KVA OIL-ENCASED UNDERGROUND POWER
EXISTING BOAT MAINTENANCE YARD, TYP.
Temporary Benchmark (TBM) Spike set in pole CMP #70. Elevation: 22.09'
Temporary Benchmark (TBM) Spike set in pole CMP #77. Elevation: 21.82'
VAUGH STREET DIVERSION MANHOLE
EXISTING 24" BRICK SEWER OUTFALL TO RIVER THROUGH NEW YARD LLC PROPERTY
EXISTING 30' WIDE CSO EASEMENT
CONTROL SPIKE N:2395153.71 E:2325377.02 EL=11.35
CONTROL SPIKE N:2395462.26 E:2326211.59 EL=12.63
WAYNFLETE BOAT STORAGE
EXISTING SEASONAL PIER
EXISTING GRANITE REVETMENT WALL
EXISTING CANAL LANDING RAILROAD CROSSING
FUTURE BOAT RAMP
MAINE DOT RAIL TRACK R.O.W.
WPDZ ZONE
R-4 Zone
B-5b Zone
40' wide passageway
EL. 7.4
S57°54'47"E 1158.85'
N64°40'20"W 365.73'
N63°53'47"W 179.87'
N64°05'47"E 80.00'
N63°53'47"W 419.00'
N57°07'13"W 16.18'
S71°41'30"W 607.25'
N72°25'35"E 96.52'
N71°39'48"E 854.31'
N66°06'18"E 793.06'
S66°07'19"W 287.30'
N72°29'45"E 542.24'
S72°29'45"W 519.07'
N87°07'38"E 273.21'
N86°01'33"E 312.82'
S87°07'38"W 21.45'
CHORD S79°48'41"W 184.84'
CA185.34'
R=725.78'
CHORD N65°57'58"E 153.24'
R=673.74'
CB 1 L=153.57'
CHORD S65°57'58"W 165.03'
R=725.74'
L=165.42'
S50°30'10"W 452.19'
N63°26'10"E 33.10'
S02°52'22"E 47.8'
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PROJECT RECOMMENDATIONS

PROJECT 2

INSTALL SHARED-USE PATH BETWEEN BENNY'S AND STAR MATCH BUILDING

A shared use path will run within the West Commercial Street ROW for an approximately 2000' stretch. The 10' wide path will be separated from the roadway by a minimum five foot buffer featuring tinted concrete or unit pavers or bricks with intermittent trees set in grates. (A cost-saving option is to use a 5' wide grassy esplanade to separate the path from the roadway.) This relatively-urban treatment will help prepare the north edge of West Commercial Street to accommodate future mixed use development. On the western half of the project area, the change in grade will require a small retaining wall along the north edge of the path (corresponds with the approximate property line). This project is currently funded by the Maine Department of Transportation (with match funding provided by the City of Portland) and is planned for implementation in the next two years.



TIMEFRAME: Short term

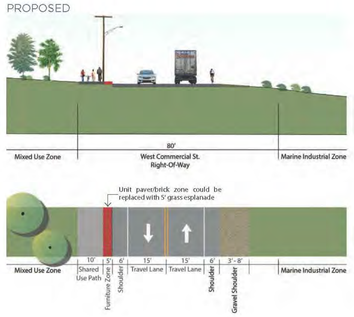
LEAD AGENCY(IES): MDOT + City of Portland (with funding provided by both)

COST ESTIMATE: $615,000 (grass strip)
$805,000 (5' brick strip)

EXISTING CONDITIONS



PROPOSED



WEST COMMERCIAL STREET EXISTING & PROPOSED SECTIONS FROM CASSIDY POINT SIGNAL TO STAR MATCH BUILDING
NOT TO SCALE

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PROJECT RECOMMENDATIONS

PROJECT 3

EXPAND SIDEWALK TO INCLUDE SHARED-USE PATH IN FRONT OF STAR MATCH BUILDING*

Current conditions in front of the Star Match building include a 7' brick sidewalk, 13' wide parking lane, 5' bike lane with 3' buffer and a 12' wide travel lanes. To maintain pedestrian access into and out of the multiple business entries, the current sidewalk should be maintained and the shared use path extended out into the street. This necessitates restriping the roadway with 11' wide travel lanes, a 9' parking lane and a bike lane without a buffer. That provides the necessary space for a shared use path of 10' in width. In the final design for this configuration, the cross slope of the path will need to be carefully considered to ensure appropriate drainage and placement of the utility poles. This project is currently funded by the Maine Department of Transportation (with match funding provided by the City of Portland) and is planned for implementation in the next two years.

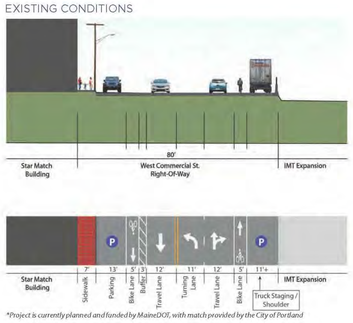


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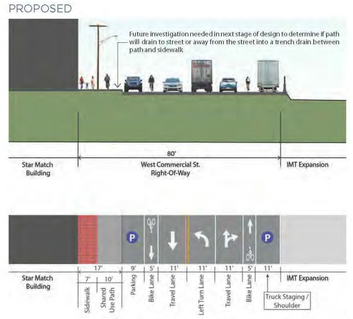
LEAD AGENCY(IES): MDOT + City of Portland (with funding provided by both)

COST ESTIMATE: $310,000

EXISTING CONDITIONS



PROPOSED



*Project is currently planned and funded by MaineDOT, with match provided by the City of Portland

WEST COMMERCIAL STREET EXISTING & PROPOSED SECTIONS FROM STAR MATCH BUILDING TO BEACH STREET
NOT TO SCALE

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
12.05.19
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	12.05.19	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB | Draft: CDD | Date: NOV. 2019
Checked: SRB | Scale: 1" = 60' | Job No.: 3572
File Name: 3572-existing.dwg

This plan shall not be modified without written permission from Gorrill Palmer Consulting Engineers, Inc.(GP). Any alterations, authorized or otherwise, shall be at the user's sole risk and without liability to GP.

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Drawing Name: WEST COMMERCIAL STREET EXISTING PLAN & PROPOSED CONCEPTUAL SECTIONS
Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine
Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C–3.1

U:\3572_VA Clinic West Commercial St-Portland, ME\2 - CAD\DWG\3572-existing.dwg 12/5/2019 10:51 AM

CITY OF PORTLAND
SPACE AND BULK REQUIREMENTS

1. EXISTING ZONE: B5b - Urban Commercial Mixed-Use Zone
   R-4 - Residential Zone

2. PARCEL SIZE: 8.40 ACRES

3. SPACE AND BULK:

	REQUIRED / ALLOWED	PROVIDED
MAXIMUM LOT COVERAGE	100%	< 100%
MAXIMUM BUILDING HEIGHT	55 FT. (62 FT. FOR ROOFTOP PROJECTIONS)	< 55 FT.
MINIMUM LOT SIZE	NONE	8.40 ACRES
MINIMUM SIDE YARD	NONE	5.3 FT.±
MINIMUM REAR YARD	NONE	120 FT.±
MINIMUM FRONTAGE	NONE	1,394 FT.
MAXIMUM FRONT YARD BUILDING SETBACK	10 FT.	< 10 FT.

4. PARKING REQUIREMENT:
   MEDICAL OFFICE - 1 SPACE/400SF

PROPOSED OUTPATIENT CLINIC 62,300 SF	156 SPACES	400± SPACES

SEE ENLARGED SITE PLANS FOR ADDITIONAL INFORMATION, INCLUDING SURFACE MATERIALS, SIGNAGE, GEOMETRIC & DIMENSIONAL INFORMATION AND RELATED SITE LAYOUT DATA.

PROPOSED OUTPATIENT CLINIC
34,155 SF FOOTPRINT
62,300 SF TOTAL AREA
(SEE ARCHITECTURAL PLANS BY SMITHGROUP)

PARKING GARAGE
35,800 SF FOOTPRINT
3 LEVELS
TOTAL 382 PARKING STALLS
(SEE GARAGE PLAN BY OTHERS)

APPROXIMATE LIMITS OF CLEARING & GRADING, TYP.
TRUCK ROUTE - 24' WIDE HEAVY-DUTY PAVEMENT, TYP.
TRUCK ROUTE - 20' WIDE
ONE-WAY
EAST DRIVEWAY - 36' WIDE
CITY STREET LIGHT (BY OTHERS)
PEDESTRIAN PATH CONNECTING WEST COMMERCIAL STREET WITH THE PAVED PORTION OF EMERY STREET - EXACT ROUTE & SURFACE MATERIAL T.B.D.
CONTINUATION OF 10' SHARED PATHWAY BY OTHERS - EX. STAR MATCH BLDG. DRIVEWAY TO BE CLOSED
FUTURE CONNECTION TO STAR MATCH BUILDING PARKING LOT (BY OTHERS)
CENTRAL DRIVEWAY
OFFSITE IMPROVEMENTS WITHIN WEST COMMERCIAL STREET ARE SUBJECT TO THE ISSUANCE OF A TRAFFIC MOVEMENT PERMIT AND SHALL BE PREPARED AS SEPARATE DOCUMENTS, IF NECESSARY
EXISTING 'CANAL LANDING' SITE UNDER CONSTRUCTION
8' WIDE BITUMINOUS SIDEWALK
10' WIDE BITUMINOUS SHARED PATHWAY
VERTICAL GRANITE CURB - CITY STANDARD
5' WIDE GRASSED ESPLANADE
MAXIMUM STREET BUILDING SETBACK LINE - 10'
LOT DIVISION LINE
WESTERLY LIMIT OF 10' PATHWAY
WESTERLY EXTENSION OF 10' PATHWAY BY OTHERS
WEST DRIVEWAY - 36' WIDE
APPROX. PROJECT LIMITS
EXISTING GRAVEL DRIVEWAY ENTRANCE TO BOATYARD
N 295324.53
E 2925066.83
N 295834.00
E 2926363.54
TOTAL SURFACE PARKING (151)
STAFF ENTRANCE
MAIN ENTRANCE
GARAGE ENTRY
SNOW STORAGE
STAIR
LOADING DOCK
MATCH LINE
WEST COMMERCIAL ST. (width varies – speed limit 40)
DANFORTH STREET (width varies)
E STREET (unimproved/unaccepted)
40' wide passageway
R-4 Zone
B-5b Zone
SIGHT DISTANCE = 400'
240'± TO CANAL LANDING ENTRANCE

061 H018 N/F Stephen Dyro 30108/100
061 H005 N/F Mark Bessire Aimee Bessire 27820/339
061 H004 N/F Thomas R. Robinson Laura C. Robinson 31889/194
061 H003 N/F Sonia B. Robertson 22292/241
061 H009 N/F Michael Bruenjes Judith Bruenjes 32805/285
061 H010 N/F George R. Maberg Elizabeth J. Maberg 2928/450
061 H011 N/F Sarah P. Dagnault 32746/060
061 H012 N/F Michael R. Curtis Margaret T. Curtis 27759/302
061 H002 N/F Devens M. Hansen Sonya Post Hansen 32451/099
061 I004 N/F Deborah J. Kruk 26933/030
061 I003 N/F William McFarlane & Constance Bloomfield JTS 21615/268
061 I002 N/F Joseph S. Kilmartin Helen F. Kilmartin 26215/339
061 H001 N/F Susan Jane Noonan 7400/261
058 C001 N/F JB Brown & Sons
060 F001 N/F Canal Landing, LLC 32239/148
060 F002 N/F Maine DOT

NOTE:
SEE SHEET C-4.2 FOR SIGN LEGEND.

MATERIAL LEGEND:
- POROUS PAVEMENT SECTION
- STANDARD-DUTY PAVEMENT SECTION
- HEAVY-DUTY PAVEMENT SECTION
- HEAVY-DUTY PAVEMENT W/STONE STORAGE SECTION
- BITUMINOUS SIDEWALK
- 10' WIDE SHARED BITUMINOUS PATHWAY (USE STANDARD-DUTY PAVEMENT SECTION)
- C.I.P. REINFORCED CONCRETE

NOTE:
SEE DETAIL SHEETS FOR SECTION REQUIREMENTS.

PLAN REFERENCES:
1. "PLAN OF ALTA/ACSM Land Title Survey, 113 West Commercial Street, Portland, Maine, MADE FOR, J.B. Brown & Sons, 10 Free Street, Portland, Maine", by Titcomb Associates, JOB #215093, DATE: February 9, 2016, SHEET 1 OF 2 AND SHEET 2 OF 2.
2. "PLAN OF Property Division, 113 West Commercial Street, Portland, Maine, MADE FOR, J.B. Brown & Sons, 10 Free Street, Portland, Maine", by Titcomb Associates, JOB #215093, DATE: November 12, 2019.
3. "CONTRACT NO. 3, LOWER FORE RIVER INTERCEPTOR, CROSS COUNTRY AND WEST COMMERCIAL STREET", BY CAMP DRESSER & McKEE Inc., CONSULTING ENGINEERS, BOSTON, MASS., SHEETS 25, 26 AND 27, REVISED FOR RECORD DRAWING 8/81.
4. "PLANS FOR 115 K.V. UNDERGROUND TRANSMISSION LINE, SECTION 275 – SEWALL ST. S/S TO CAPE STEAM", AS-BUILT PLAN AND PROFILE, DATED 3/26/75, SHEETS PP-7, PP-8, PP-9 & PP-10, BY CMP.
5. "CANAL LANDING AMENDED SITE PLAN, PHASE III SITE LAYOUT PLAN", FOR NEW YARD LLC, BY GORRILL PALMER, REVISED 10.08.19.

NOTES:
1. OWNER OF RECORD: J.B. BROWN & SONS, 10 FREE STREET, PORTLAND, ME 04101, TAX MAP-BLOCK-LOT NUMBER 060 A001001, C.C.R.D. BOOK 29147 PAGE 254
2. BEARINGS ARE BASED ON MAINE STATE PLANE COORDINATE SYSTEM, NAD83, WEST ZONE. BEARINGS ARE REFERENCED TO GRID NORTH.
3. ELEVATIONS ARE BASED ON CITY OF PORTLAND DATUM.
4. BOUNDARY LINES SHOWN ARE TAKEN FROM PLAN REFERENCE 2.
5. PROPERTY IS LOCATED IN THE CITY OF PORTLAND B-5b & R-4 ZONES.
6. SNOW REMOVAL AND PROPERTY MAINTENANCE SHALL BE BY THE OWNER.
7. WASTE DISPOSAL SHALL BE BY PRIVATE WASTE HAULER.
8. ALL GRANITE TIPDOWNS SHALL BE 7' LENGTH. NO GRANITE CURB PIECES SHALL BE LESS THAN 4' LONG MINIMUM.
9. THE DOMESTIC WATER ENTRY SHALL INCLUDE SPACE FOR THE METER ASSEMBLY AND BACKFLOW PREVENTER IN ACCORDANCE WITH P.W.D. REQUIREMENTS (SEE STANDARD METER SET DETAILS).

NORTH

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 inch = 40 ft.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
02.04.20
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	01.20.20	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB | Drafted: CDD | Date: NOV. 2019
Checked: SRB | Scale: AS NOTED | Job No.: 3572
File Name: 3572-SITE.dwg

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207.772.2515

Drawing Name: OVERALL SITE LAYOUT PLAN
Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine
Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C-4.0

U:\3572_VA Clinic West Commercial St-Portland, ME\Z - CAD\DWG\3572-SITE.dwg 2/12/2020 9:52 AM

061 I004
N/F
Deborah J. Kruk
26933/030

½" iron rod leaning

061 H001
N/F
Susan Jane Noonan
7400/261

N35°07'13"W 117.61'

E STREET
(unimproved/unaccepted)

S35°07'13"E 100.00'

N54°52'47"E 80.00'

capped iron rod PLS #2320

061 I003
N/F
William McFarlane &
Constance
Bloomfield JTS
21615/268

40' wide passageway

capped iron rod PLS #2320 leaning

capped iron rod PLS #2273

061 I002
N/F
Joseph S. Kilmartin
Helen F. Kilmartin
26215/339

capped iron rod PLS #2320

N54°52'47"E 479.00'

40' wide passageway

rock pile

R-4 Zone
B-5b Zone

B-4 Zone
B-5b Zone

stone

N35°07'13"W 67.16'

S25°35'E 36.52'

N18°18'30"W 56.55'

WESTERLY LIMIT OF 10' PATHWAY

concrete sewer structure

WESTERLY EXTENSION OF 10' PATHWAY BY OTHERS

APPROX. PROJECT LIMITS

LOT DIVISION LINE

FLUSH GRANITE CURB AT RAMPS, TYP.

SNOW STORAGE

STOP SIGN

STOP

STOP

#75

#76

#74

#73

#72

TD

A

SIGHT DISTANCE > 400'

SIGHT DISTANCE > 400'

EXISTING GRAVEL DRIVEWAY ENTRANCE TO BOATYARD

ROAD IMPROVEMENTS T.B.D. AS PART OF TRAFFIC IMPACT STUDY - IMPROVEMENT PLANS WILL BE PREPARED UNDER SEPARATE COVER, IF REQUIRED

BEGIN BASELINE 'A' STA. 10+00
N: 295333.35
E: 2925221.01

FOCAL POINT SYSTEM SEE STORMWATER MANAGEMENT PLAN & DETAILS

N: 295412.81
E: 2925309.27

BEGIN MODULAR BLOCK WALL (REDI-ROCK SYSTEMS OR EQUAL)

S71°41'30"W 607.20'

WEST COMMERCIAL ST.
(width varies – speed limit 40)

N71°39'48"E

854.33'

PROPOSED VERTICAL GRANITE CURB (BID ALT #1 - SLIPFORM CONCRETE CURB)

POROUS PAVEMENT SECTION

HEAVY-DUTY PAVEMENT WITH STONE STORAGE SECTION

LOAM AND SEED ISLAND (TYP.)

8' WIDE BITUMINOUS SIDEWALK

SLOPED GRANITE CURB ISLAND, TYP.

HEAVY-DUTY PAVEMENT

POROUS PAVEMENT

20" LIGHT POLE BASE FOR 20' TALL POLE (TYP.)

N: 295554.07
E: 2925329.20

N: 295478.24
E: 2925316.21

N: 295641.11
E: 2925594.28

N: 295606.91
E: 2925684.45

N: 295583.99
E: 2925612.68

N: 295598.52
E: 2925685.26

N: 295576.67
E: 2925615.89

N: 295573.69
E: 2925606.94

N: 295544.73
E: 2925691.96

N: 295532.88
E: 2925642.60

N: 295516.89
E: 2925625.95

TOTAL SURFACE PARKING
151

SLOPED GRANITE CURB

HEAVY-DUTY PAVEMENT

6" BOLLARD, TYP. OF 3 @ 4' O.C.

CONCRETE SURFACE FLUSH WITH ADJACENT BIT. PAVEMENT

6" BOLLARD, TYP. OF 7 @ 5' O.C.

2 BIKE HITCHES SEE DETAIL

LARGE BLOCK RETAINING WALL OR ROCK FACE CUT - HEIGHT & EXTENT T.B.D.

9' x 9' REINFORCED CONCRETE PAD FOR TRANSFORMER

VERTICAL GRANITE CURB

BEGIN C.I.P. REINF. CONCRETE WALL (SEE STRUCTURAL PLANS)

LARGE BLOCK RETAINING WALL OR ROCK FACE CUT - HEIGHT & EXTENT T.B.D.

REINFORCED CONCRETE PAD FOR TRASH ENCLOSURE, SEE DETAILS

6" BOLLARD, TYP.

LOADING DOCK

EMERG ELEC.

NORM ELEC.

TELE/ DATA ROOM

GAS CYL

STAIR 1

PLUMBING

STAFF ENTRANCE

STAFF ENTR.

MECH. ROOM

MATCH LINE

TP-2

TP-3

060 FC
N/F
Canal Landi
32239/

END MODULAR BLOCK WALL (REDI-ROCK SYSTEMS OR EQUAL)

ANGLE POINT IN R.O.W.

VERTICAL GRANITE CURB - CITY STANDARD

5' WIDE GRASSED ESPLANADE

10' WIDE BITUMINOUS SHARED PATHWAY

PRECAST CONCRETE STEP SYSTEM & CONCRETE LANDING AREA. SHOP DRAWINGS PREPARED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF MAINE SHALL BE PROVIDED FOR REVIEW AND ACCEPTANCE BY THE OWNER. SHOP DRAWINGS SHALL INCLUDE STRUCTURAL DESIGN INCLUDING, BUT NOT LIMITED TO, CODE COMPLIANCE, HAND RAILING (STAINLESS STEEL) SURFACE, COLOR & FOUNDATION REQUIREMENTS

LANDSCAPE AREA WITH CURBING & BENCHES - SEE LANDSCAPE PLANS

PAVEMENT SAWCUT, TYP. PAVEMENT THICKNESS TO MATCH EXISTING - PROVIDE 1' WIDE BY 1" DEEP PAVEMENT GRIND TO ALLOW SURFACE COURSE TO OVERLAP SAWCUT JOINT, TYP.

PROPOSED CITY STREET LIGHT - SEE FIGURE X-8B OF THE TECHNICAL STANDARDS SECTION 10 - MUNICIPAL STREET LIGHTING STANDARDS (TYP. OF 11) INSTALLATION OF STREET LIGHTS TO BE COORDINATED WITH KEVIN THOMAS OF CITY DPW. INSTALLATION OF ALL POWER AND CONTROLS SHALL BE INCIDENTAL TO THE WORK.

MODULAR BLOCK RETAINING WALL - HEIGHT VARIES (REDI ROCK SYSTEMS OR EQUAL) - SEE SHEET C-8.1 FOR PROFILE

MAXIMUM STREET BUILDING SETBACK LINE - 10'

SAWCUT, TYP.

EXISTING UTILITY POLES TO BE RESET/SHIFTED TO ALLOW FOR NEW PATHWAY (BY OTHERS) TYP.

EXISTING INTERCEPTOR SEWER STRUCTURE TO BE ADJUSTED TO GRADE (TYP.)

10' WIDE BITUMINOUS SHARED PATHWAY

5' WIDE GRASSED ESPLANADE

VERTICAL GRANITE CURB - CITY STANDARD

PAVEMENT SAWCUT, TYP.

ADA RAMP, TYP.

WEST DRIVEWAY - 36' WIDE

NOTE:
SEE SHEET C-4.2 FOR SIGN LEGEND & PLAN REFERENCES.

MATERIAL LEGEND:

- POROUS PAVEMENT SECTION
- STANDARD-DUTY PAVEMENT SECTION
- HEAVY-DUTY PAVEMENT SECTION
- HEAVY-DUTY PAVEMENT W/STONE STORAGE SECTION
- BITUMINOUS SIDEWALK
- 10' WIDE SHARED BITUMINOUS PATHWAY (USE STANDARD-DUTY PAVEMENT SECTION)
- C.I.P. REINFORCED CONCRETE

NOTE:
SEE DETAIL SHEETS FOR SECTION REQUIREMENTS.

NORTH

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 ft.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
02.04.20
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

U:\3572_VA Clinic West Commercial St-Portland, ME\Z - CAD\DWG\3572-SITE.dwg 2/12/2020 10:04 AM

Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	01.20.20	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB	Draft: CDD	Date: NOV. 2019
Checked: SRB	Scale: AS NOTED	Job No.: 3572

File Name: 3572–SITE.dwg

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207.772.2515

Drawing Name: SITE LAYOUT PLAN – WEST SIDE

Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine

Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C–4.1

061 H003
N/F
B. Robertson
2292/241

061 H004
N/F
Thomas R. Robinson
Laura C. Robinson
31889/194

058 C001
N/F
JB Brown & Sons

capped iron rod
capped iron rod
capped iron rod
PLS #1252
2.90' from corner

S34°34'17"E
118.82'

N54°51'25"E
413.77

S35°05'35"E
350.71

WEST COMMERCIAL ST.
(width varies – speed limit 40)

S66°07'19"W 787.39'

LARGE BLOCK RETAINING WALL OR ROCK FACE CUT - HEIGHT & EXTENT T.B.D.
CONCRETE STEPS & LANDING
4' DIAGONAL CHEVRON PAVEMENT MARKINGS @ 2' O.C.
CONTINUATION OF 10' SHARED PATHWAY BY OTHERS - EX. STAR MATCH BLDG. DRIVEWAY TO BE CLOSED
SLOPED GRANITE CURB
END WALL
CITY STREET LIGHT (BY OTHERS)
FUTURE CONNECTION TO STAR MATCH BUILDING PARKING LOT (BY OTHERS)
EASTERLY LIMIT OF 10' PATHWAY
HEAVY-DUTY PAVEMENT
BEGIN WALL
TRUCK ROUTE - 20' WIDE
STA. 31+96.11 BASELINE 'B' = STA. 20+23.49 BASELINE 'A'
4" DIAGONAL CHEVRON PAVEMENT MARKINGS @ 2' O.C.
GRANITE CURB TRANSITION STONE
VERTICAL GRANITE CURB
10' x 20' RAISED PLANTER WITH SURROUNDING SEAT WALL (SEE DETAILS)
SLOPED GRANITE CURB
GRANITE CURB TRANSITION STONE
VERTICAL GRANITE CURB
END RAISED VERTICAL GRANITE CURB
SNOW STORAGE
STAIR
5' WIDE BITUMINOUS SIDEWALK
SNOW STORAGE
STANDARD DUTY PAVEMENT
GARAGE ENTRY
2' WIDE C.I.P. CONCRETE ISLAND
5' WIDE BITUMINOUS SIDEWALK
APPROXIMATE LIMITS OF CLEARING & GRADING, TYP.
TRUCK ROUTE - 24' WIDE HEAVY-DUTY PAVEMENT, TYP.
CANOPY OVER AMBULANCE VESTIBULE AREA
CONCRETE SURFACE FLUSH WITH HD ASPHALT PAVEMENT, TYP.
END C.I.P. REINFORCED CONCRETE WALL AT CLINIC BLDG. (SEE STRUCTURAL PLANS)
MOBILE IMAGING UNIT PARKING
10' x 25' REINFORCED CONCRETE PAD FOR GENERATOR
CANOPY OVER LOADING DOCK - SEE ARCHITECTURAL PLANS
C.I.P. REINFORCED CONCRETE WALL (SEE STRUCTURAL PLANS)
BASELINE 'A'
MOBILE MRI
3 FLAGPOLES - SEE DETAIL
2' WIDE C.I.P. CONCRETE ISLAND (COORDINATE LOCATION OF CONCRETE FOR FUTURE GATE CONTROLS WITH OWNER) TYP. FOR EACH ENTRY LOCATION
PARKING GARAGE
35,800 SF FOOTPRINT
3 LEVELS
TOTAL 382 PARKING STALLS
(SEE GARAGE PLAN BY OTHERS)
GARAGE ENTRY
BASELINE 'B'
SLOPED GRANITE CURB ON ISLANDS, TYP.
2 BIKE HITCHES - SEE DETAIL
4" BOLLARD, TYP. OF 4 @ 3' O.C. IN FRONT OF GAS METER
6" BOLLARD, TYP. OF 11 @ 6' O.C.
CANOPY ABOVE
CONCRETE SURFACE FLUSH WITH ADJACENT ASPHALT PAVEMENT
DROP-OFF ZONE 3 SPACES
RAISED TABLE WITH 8' WIDE PAINTED CROSSWALK (SEE DETAILS)
6" BOLLARD, TYP.
SEE SHEET C-10.4 FOR SECTION A-A THROUGH LOADING DOCK AREA
6" BOLLARD, TYP.
PROPOSED OUTPATIENT CLINIC
34,155 SF FOOTPRINT
62,300 SF TOTAL AREA
(SEE ARCHITECTURAL PLANS BY SMITHGROUP)
LOADING DOCK
AMBULANCE VESTIBULE
ENTRY VESTIBULE
MAIN ENTRANCE
STAFF ENTRANCE
STAFF ENTRY
MATCH LINE
MECH. ROOM
STAIR 1
STAIR 2
PLUMBING
EMERG ELEC.
NORM ELEC.
TELE/ DATA ROOM
GAS CYL.
ELEV.
STAIR
TP-1
TP-2
TP-3
TP-6
TP-7
TP-8
SIGHT DISTANCE > 400'
SIGHT DISTANCE > 400'
SIGHT DISTANCE > 400'
240' TO CANAL LANDING DRIVEWAY
EX. PAVED SHOULDER
EX. SWLL
EX. DYCL
EX. SWLL
EX. PAVED SHOULDER
EX. EDGE OF PAVEMENT
skiing (typ.)
SAWCUT, TYP.
VERTICAL GRANITE CURB - CITY STANDARD
5' WIDE GRASSED ESPLANADE
10' WIDE BITUMINOUS SHARED PATHWAY
END BASELINE 'A' STA. 25+52.75 N: 295813.36 E: 2926422.97
EAST DRIVEWAY - 36' WIDE
BEGIN BASELINE 'B' STA. 30+00 N: 295652.54 E: 2926053.07
N66°06'18"E 793.06'
CENTRAL DRIVEWAY
PROVIDE FULL DEPTH BOX CONSTRUCTION IN DRIVEWAY AREA UP TO EXISTING TRAVEL WAY - TYPICAL AT EACH DRIVEWAY
EXISTING UTILITY POLE TO BE RELOCATED BY CMP
BOLLARD, TYP. OF 18 AT 5' O.C. (SEE DETAILS)
VERTICAL GRANITE CURB - CITY STANDARD
OFFSITE IMPROVEMENTS WITHIN WEST COMMERCIAL STREET ARE SUBJECT TO THE ISSUANCE OF A TRAFFIC MOVEMENT PERMIT AND SHALL BE PREPARED AS SEPARATE DOCUMENTS, IF NECESSARY
POSSIBLE EXISTING GRANITE COBBLESTONE BELOW EXISTING PAVEMENT. EXACT LIMITS UNKNOWN. IF ENCOUNTERED DURING EXCAVATION WORK IN THE STREET, ALL COBBLES SHALL BE RECOVERED AND DELIVERED TO CITY STOCKYARD AT NO EXTRA EXPENSE TO OWNER.
EXISTING CANAL LANDING ACCESS DRIVEWAY
N: 295544.73
E: 2925691.98
#72

MATERIAL LEGEND:

- POROUS PAVEMENT SECTION
- STANDARD-DUTY PAVEMENT SECTION
- HEAVY-DUTY PAVEMENT SECTION
- HEAVY-DUTY PAVEMENT W/STONE STORAGE SECTION
- BITUMINOUS SIDEWALK
- 10' WIDE SHARED BITUMINOUS PATHWAY (USE STANDARD-DUTY PAVEMENT SECTION)
- C.I.P. REINFORCED CONCRETE

NOTE:
SEE DETAIL SHEETS FOR SECTION REQUIREMENTS.

SIGN LEGEND:

A	B	C	D	E	F	G	H	I	J	K	L
STOP R1-1 24"x24"	RESERVED PARKING R7-8 12"x18"	RESERVED PARKING VAN ACCESSIBLE R7-8A 12"x6"	NO PARKING R8-3 18"x24"	NO PARKING AUTHORIZED VEHICLES ONLY 18"x24"	NO PARKING ANY TIME R7-1 18"x24"	DO NOT ENTER R5-1 30"x30"	30"x30"	ONE WAY 18"x24"	AUTHORIZED VEHICLES ONLY	W11-2A 30"x30"	DROP-OFF ONLY NO PARKING 18"x24"

PLAN REFERENCES:

1. "PLAN OF ALTA/ACSM Land Title Survey, 113 West Commercial Street, Portland, Maine, MADE FOR, J.B. Brown & Sons, 10 Free Street, Portland, Maine", by Titcomb Associates, JOB #215093, DATE: February 9, 2016, SHEET 1 OF 2 AND SHEET 2 OF 2.
2. "PLAN OF Property Division, 113 West Commercial Street, Portland, Maine, MADE FOR, J.B. Brown & Sons, 10 Free Street, Portland, Maine", by Titcomb Associates, JOB #215093, DATE: November 12, 2019.
3. "CONTRACT NO. 3, LOWER FORE RIVER INTERCEPTOR, CROSS COUNTRY AND WEST COMMERCIAL STREET", BY CAMP DRESSER & McKEE Inc., CONSULTING ENGINEERS, BOSTON, MASS., SHEETS 25, 26 AND 27, REVISED FOR RECORD DRAWING 8/81.
4. "PLANS FOR 115 K.V. UNDERGROUND TRANSMISSION LINE, SECTION 275 – SEWALL ST. S/S TO CAPE STEAM", AS-BUILT PLAN AND PROFILE, DATED 3/26/75, SHEETS PP-7, PP-8, PP-9 & PP-10, BY CMP.
5. "CANAL LANDING AMENDED SITE PLAN, PHASE III SITE LAYOUT PLAN", FOR NEW YARD LLC, BY GORRILL PALMER, REVISED 10.08.19.

NORTH

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 ft.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
02.04.20
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

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Rev.	Date	Revision
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Issued For	Date	By
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TMP APPLICATION	11.22.19	SRB

Design: SRB	Draft: CDD	Date: NOV. 2019
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Drawing Name: SITE LAYOUT PLAN – EAST SIDE
Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine
Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C-4.2

NOTE: SEE SHEET C-5.1 FOR STORM DRAIN PIPE AND STRUCTURE SCHEDULES.

NORTH

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 inch = 40 ft.

061 H018
N/F
Stephen Dyro
30108/100

061 H005
N/F
Mark Bessire
Aimee Bessire
27820/339

061 H003
N/F
Sonia B. Robertson
22292/241

061 H004
N/F
Thomas R. Robinson
Laura C. Robinson
31889/194

058 C001
N/F
JB Brown & Sons

061 H009
N/F
Michael Bruenjes
Judith Bruenjes
32805/285

061 H010
N/F
George R. Maberg
Elizabeth J. Maberg
2928/1450

061 H011
N/F
Sarah P. Dognault
32746/080

061 H012
N/F
Michael R. Curtis
Margaret T. Curtis
27799/302

061 H002
N/F
Dewens M. Hamien
Sonya Post Jamail
32457/099

061 H001
N/F
Susan Jane
Noonan
7400/261

061 I004
N/F
Deborah J. Kruk
26933/030

061 I003
N/F
William McFarlane &
Constance
Bloomfield JTS
21615/268

061 I002
N/F
Joseph S. Kilmartin
Helen F. Kilmartin
26215/339

061 I001
N/F
Marjorie R.
Shaw
7420/13

060 F001
N/F
Canal Landing, LLC
32239/148

060 F002
N/F
Maine DOT

060 F003
N/F
Canal Landing, LLC

DANFORTH STREET (width varies)

E STREET (unimproved/unaccepted)

K STREET (unimproved/unaccepted)

WEST COMMERCIAL ST (width varies)

EMERY ST (Discontinued by City Council Order 1, 1891)

MODULAR BLOCK RETAINING WALL T.O.W. EL. 33.0 (SEE PROFILE SHEET C-8.1)

RETAINING WALL OR ROCK CUT FACE, EXACT HEIGHT & LENGTH T.B.D.

SEE ACCESS DRIVE 1 PROFILE, SHEET C-8.0

PROPOSED OUTPATIENT CLINIC
34,155 SF FOOTPRINT
62,300 SF TOTAL AREA
(SEE ARCHITECTURAL PLANS BY SMITHGROUP)
F.F.E. 22.50

PARKING GARAGE
35,800 SF FOOTPRINT
3 LEVELS
TOTAL 382 PARKING STALLS
(SEE GARAGE PLAN BY OTHERS)
F.F.E. 23.50

SUBSURFACE SAND FILTER – SEE STORMWATER MANAGEMENT PLAN & DETAILS

WPDZ ZONE

FUTURE BOAT RAMP

WAYNFLETE BOAT STORAGE

EXISTING GRANITE REVETMENT WALL

EXISTING CANAL LANDING RAILROAD CROSSING

EXISTING 16" WATER MAIN
EXISTING UNDERGROUND PRIMARY POWER (CMP)
EXISTING 115KVA OIL-ENCASED UNDERGROUND POWER

EXISTING BOAT MAINTENANCE YARD, TYP.

SMH
RIM 21.50
48" INV. IN 4.90
48" INV. OUT 4.90
(ADJUST TO GRADE)

SMH
RIM 58.09
INV. IN 48.89
INV. OUT 48.19

SMH
RIM 18.27
48" INV. IN 5.32
48" INV. OUT 5.32
(ADJUST TO GRADE)

WEST COMMERCIAL STREET MAY HAVE AT LEAST 14" WIDE GRANITE COBBLESTONE BASE BELOW THE EXISTING PAVEMENT – EXACT LOCATION AND LIMITS ARE UNKNOWN

SMH
RIM 20.35
48" INV. IN 5.55
48" INV. OUT 5.55
(ADJUST TO GRADE)

SMH
RIM 22.07
48" INV. IN 5.62
48" INV. OUT 5.62

EX. CB
RIM 14.85
10" INV. OUT 11.00

EX. CATCH BASINS
EXACT OUTLET CONDITIONS UNKNOWN

POSSIBLE SEWER MANHOLE (NOT IDENTIFIED ON SURVEY) (INV. 11.36' (PLAN REF. 2))

EX. 16"x12" REDUCER

EXISTING 24" BRICK SEWER OUTFALL TO RIVER THROUGH NEW YARD LLC PROPERTY

Temporary Benchmark (TBM)
Spike set in pole CMP #70.
Elevation: 22.09'

Temporary Benchmark (TBM)
Spike set in pole CMP #77.
Elevation: 21.82'

CONTROL SPIKE
N:2954553.71
E:2925377.02
EL=11.35

CONTROL SPIKE
N:295462.26
E:292614.59
EL=12.62

CB (DOT)
CB 1 L=153.5 (UD-NMDOT)
CHORD N85°57'58"E 153.24'
CB 2
CB 3
CB 4
UD 1
UD 2
UD 3
UD 11
UD 11A
UP #58
UP #72
UP #73
UP #74
UP #75
UP #76
UP #77

N71°39'48"E 854.33'
N72°29'45"E 542.24'
S72°29'45"W 519.07'
N87°07'38"E 273.21'
N86°01'33"E 312.82'
S87°07'38"W 21.45'
CHORD S79°48'41"W 184.84'
L=185.34'
R=725.78'
CHORD S85°57'58"W 165.07'
L=165.42'
R=725.74'
N65°36'16"E 793.08'
S59°26'10"E 495.19'
S59°26'10"W

1659'±
1639'±
1575'±
26'±

VAUCH ST DIVERSION

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.20.20
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	01.20.20	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB | Draft: CDD | Date: NOV. 2019
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File Name: 3572-grading.dwg

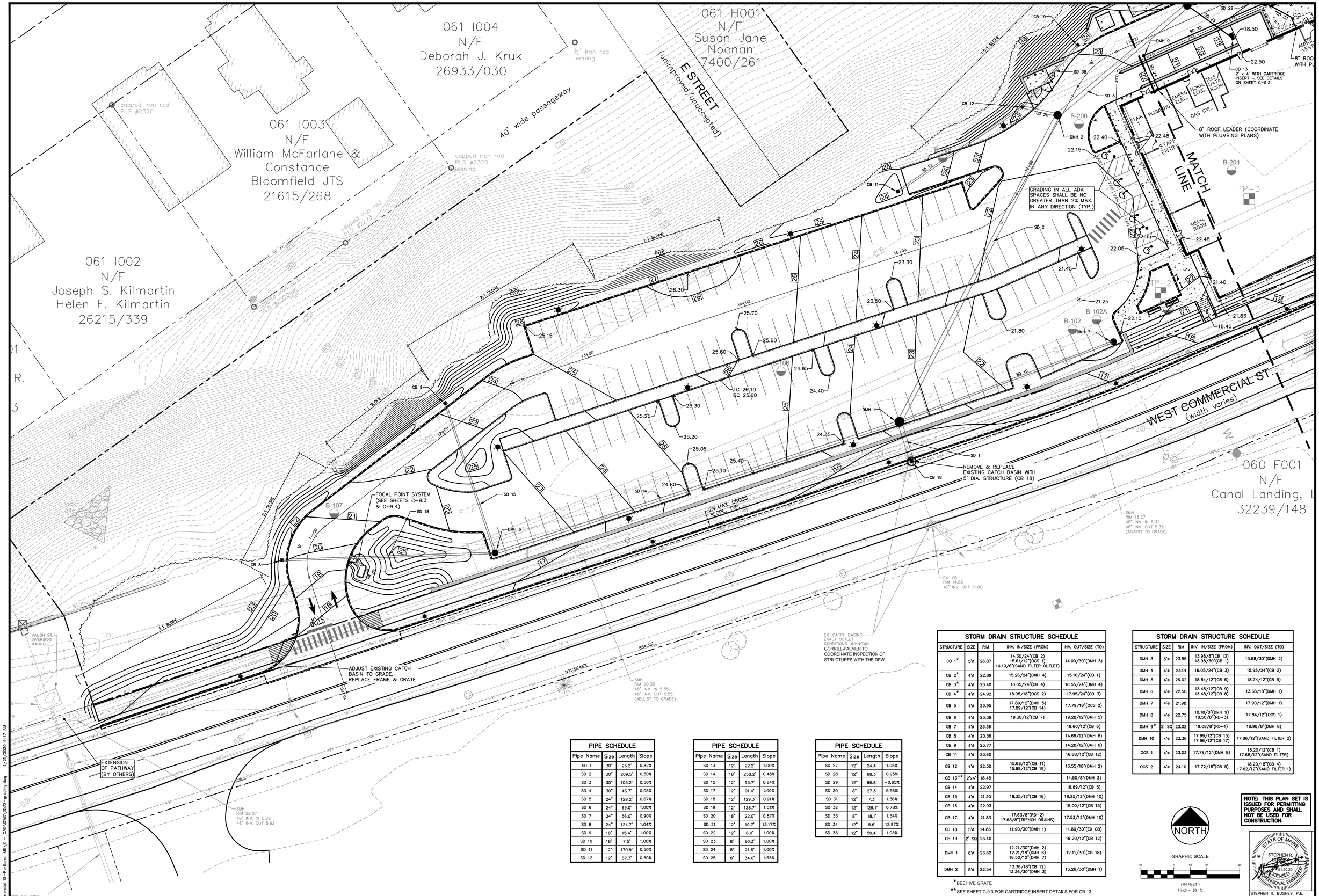
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Drawing Name: OVERALL GRADING & DRAINAGE PLAN
Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine
Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C-5.0

U:\3572_VA Clinic West Commercial St-Portland, ME\Z - CAD\DWG\3572-grading.dwg 1/21/2020 9:23 AM



PIPE SCHEDULE			
Pipe Name	Size	Length	Slope
SD 1	30"	25.2'	0.82%
SD 2	30"	209.5'	0.50%
SD 3	30"	103.2'	0.50%
SD 4	30"	43.7'	0.05%
SD 5	24"	129.2'	0.67%
SD 6	24"	69.0'	1.00%
SD 7	24"	56.0'	0.90%
SD 8	24"	124.7'	1.04%
SD 9	18"	15.4'	1.00%
SD 10	18"	7.5'	1.00%
SD 11	12"	170.9'	0.50%
SD 12	12"	87.3'	0.50%

PIPE SCHEDULE			
Pipe Name	Size	Length	Slope
SD 13	12"	22.2'	1.00%
SD 14	18"	258.2'	0.45%
SD 15	12"	95.7'	0.84%
SD 17	12"	91.4'	1.09%
SD 18	12"	129.3'	0.91%
SD 19	12"	138.7'	1.01%
SD 20	18"	22.0'	0.87%
SD 21	12"	19.7'	13.17%
SD 22	12"	6.0'	1.00%
SD 23	8"	80.3'	1.00%
SD 24	8"	21.6'	1.00%
SD 25	8"	34.0'	1.53%

PIPE SCHEDULE			
Pipe Name	Size	Length	Slope
SD 27	12"	24.4'	1.05%
SD 28	12"	68.3'	0.95%
SD 29	12"	66.8'	−0.65%
SD 30	8"	27.3'	5.56%
SD 31	12"	7.3'	1.36%
SD 32	12"	129.1'	0.78%
SD 33	8"	18.1'	1.54%
SD 34	12"	5.6'	12.97%
SD 35	12"	50.4'	1.03%

STORM DRAIN STRUCTURE SCHEDULE				
STRUCTURE	SIZE	RIM	INV. IN/SIZE (FROM)	INV. OUT/SIZE (TO)
CB 1*	5'ø	26.87	14.30/24"(CB 2) 15.61/12"(OCS 1) 14.10/6"(SAND FILTER OUTLET)	14.00/30"(DMH 3)
CB 2*	4'ø	22.89	15.26/24"(DMH 4)	15.16/24"(CB 1)
CB 3*	4'ø	23.40	16.65/24"(CB 4)	16.55/24"(DMH 4)
CB 4*	4'ø	24.92	18.05/18"(OCS 2)	17.95/24"(CB 3)
CB 5	4'ø	23.95	17.89/12"(DMH 5) 17.89/12"(CB 14)	17.79/18"(OCS 2)
CB 6	4'ø	23.36	19.38/12"(CB 7)	19.28/12"(DMH 5)
CB 7	4'ø	23.36		19.60/12"(CB 6)
CB 8	4'ø	20.56		14.66/12"(DMH 6)
CB 9	4'ø	23.77		14.28/12"(DMH 6)
CB 11	4'ø	23.60		16.68/12"(CB 12)
CB 12	4'ø	22.50	15.68/12"(CB 11) 15.68/12"(CB 19)	13.55/18"(DMH 2)
CB 13**	2'x4'	18.45		14.50/8"(DMH 3)
CB 14	4'ø	22.97		18.89/12"(CB 5)
CB 15	4'ø	21.30	18.35/12"(CB 16)	18.25/12"(DMH 10)
CB 16	4'ø	22.93		19.00/12"(CB 15)
CB 17	4'ø	21.83	17.63/8"(RD–2) 17.63/8"(TRENCH DRAINS)	17.53/12"(DMH 10)
CB 18	5'ø	14.85	11.90/30"(DMH 1)	11.80/30"(EX CB)
CB 19	2' SQ	23.40		16.20/12"(CB 12)
DMH 1	6'ø	23.62	12.21/30"(DMH 2) 12.21/18"(DMH 6) 16.50/12"(DMH 7)	12.11/30"(CB 18)
DMH 2	5'ø	22.54	13.36/18"(CB 12) 13.36/30"(DMH 3)	13.26/30"(DMH 1)

STORM DRAIN STRUCTURE SCHEDULE				
STRUCTURE	SIZE	RIM	INV. IN/SIZE (FROM)	INV. OUT/SIZE (TO)
DMH 3	5'ø	23.55	13.98/8"(CB 13) 13.98/30"(CB 1)	13.88/30"(DMH 2)
DMH 4	4'ø	23.91	16.05/24"(CB 3)	15.95/24"(CB 2)
DMH 5	4'ø	26.02	18.84/12"(CB 6)	18.74/12"(CB 5)
DMH 6	4'ø	22.50	13.48/12"(CB 9) 13.48/12"(CB 8)	13.38/18"(DMH 1)
DMH 7	4'ø	21.98		17.90/12"(DMH 1)
DMH 8	4'ø	22.75	18.18/8"(DMH 9) 18.50/8"(RD–3)	17.84/12"(OCS 1)
DMH 9*	2' SQ	23.02	19.08/8"(RD–1)	18.98/8"(DMH 8)
DMH 10	4'ø	23.36	17.99/12"(CB 15) 17.96/12"(CB 17)	17.86/12"(SAND FILTER 2)
OCS 1	4'ø	23.03	17.78/12"(DMH 8)	18.20/12"(CB 1) 17.68/12"(SAND FILTER)
OCS 2	4'ø	24.10	17.72/18"(CB 5)	18.20/18"(CB 4) 17.62/12"(SAND FILTER 1)

*BEEHIVE GRATE

**SEE SHEET C-9.3 FOR CARTRIDGE INSERT DETAILS FOR CB 13

NORTH

GRAPHIC SCALE

30 0 10 20 40

(IN FEET)

1 inch = 20 ft.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.20.20
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
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Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	01.20.20	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB | Draft: CDD | Date: NOV. 2019
Checked: SRB | Scale: AS NOTED | Job No.: 3572
File Name: 3572-grading.dwg

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Drawing Name: GRADING & DRAINAGE PLAN – WEST SIDE

Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine

Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C–5.1

U:\3572_VA Clinic West Commercial St-Portland, ME\2 - CAD\DWG\3572-grading.dwg 1/21/2020 9:17 AM

061 H004
N/F
Thomas R. Robinson
Laura C. Robinson
31889/194

058 C001
N/F
JB Brown & Sons

capped iron rod

WEST COMMERCIAL ST.
(width varies)

MATCH LINE

PROPOSED OUTPATIENT CLINIC
34,155 SF FOOTPRINT
62,300 SF TOTAL AREA
(SEE ARCHITECTURAL PLANS BY SMITHGROUP)
F.F.E. 22.50

PARKING GARAGE
35,800 SF FOOTPRINT
3 LEVELS
TOTAL 382 PARKING STALLS
(SEE GARAGE PLAN BY OTHERS)
F.F.E. 23.50

RETAINING WALL OR ROCK CUT FACE, EXACT HEIGHT & LENGTH T.B.D.

SEE ACCESS DRIVE 1 PROFILE, SHEET C-8.0

ACO TRENCH DRAINS THREE @ 30' LENGTH EACH PROVIDE 8" HDPE DRAIN LINE AND TIE INTO CB 17

MODULAR BLOCK RETAINING WALL T.O.W. EL. 33.0 (SEE PROFILE SHEET C-8.1)

SUBSURFACE SAND FILTER – SEE STORMWATER MANAGEMENT PLAN & DETAILS

8" ROOF LEADER (COORDINATE WITH PLUMBING PLANS)

4" FOUNDATION DRAIN, TYP. (SEE STRUCTURAL PLANS)

CB 13
2' x 4' WITH CARTRIDGE INSERT – SEE DETAILS ON SHEET C-9.3

POSSIBLE SEWER MANHOLE (NOT IDENTIFIED ON SURVEY) (INV. 11.36' (PLAN REF. 2))

EX. 16"x12" REDUCER

HIGH PT.
TC 24.00
BC 23.50

SMH
RIM 24.95
48" INV. IN 4.50
48" INV. OUT 4.50

Temporary Benchmark (TBM)
Spike set in pole CMP #70.
Elevation: 22.09'

SMH
RIM 21.50
48" INV. IN 4.90
48" INV. OUT 4.90
(ADJUST TO GRADE)

EXISTING 16" WATER MAIN

EXISTING UNDERGROUND PRIMARY POWER (CMP)

EXISTING 115KVA OIL-ENCASED UNDERGROUND POWER

NOTE: SEE SHEET C-5.1 FOR STORM DRAIN PIPE AND STRUCTURE SCHEDULES.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 ft.

STATE OF MAINE
STEPHEN R. BUSHEY
01.20.20
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
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Design: SRB | Draft: CDD | Date: NOV. 2019
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File Name: 3572-grading.dwg

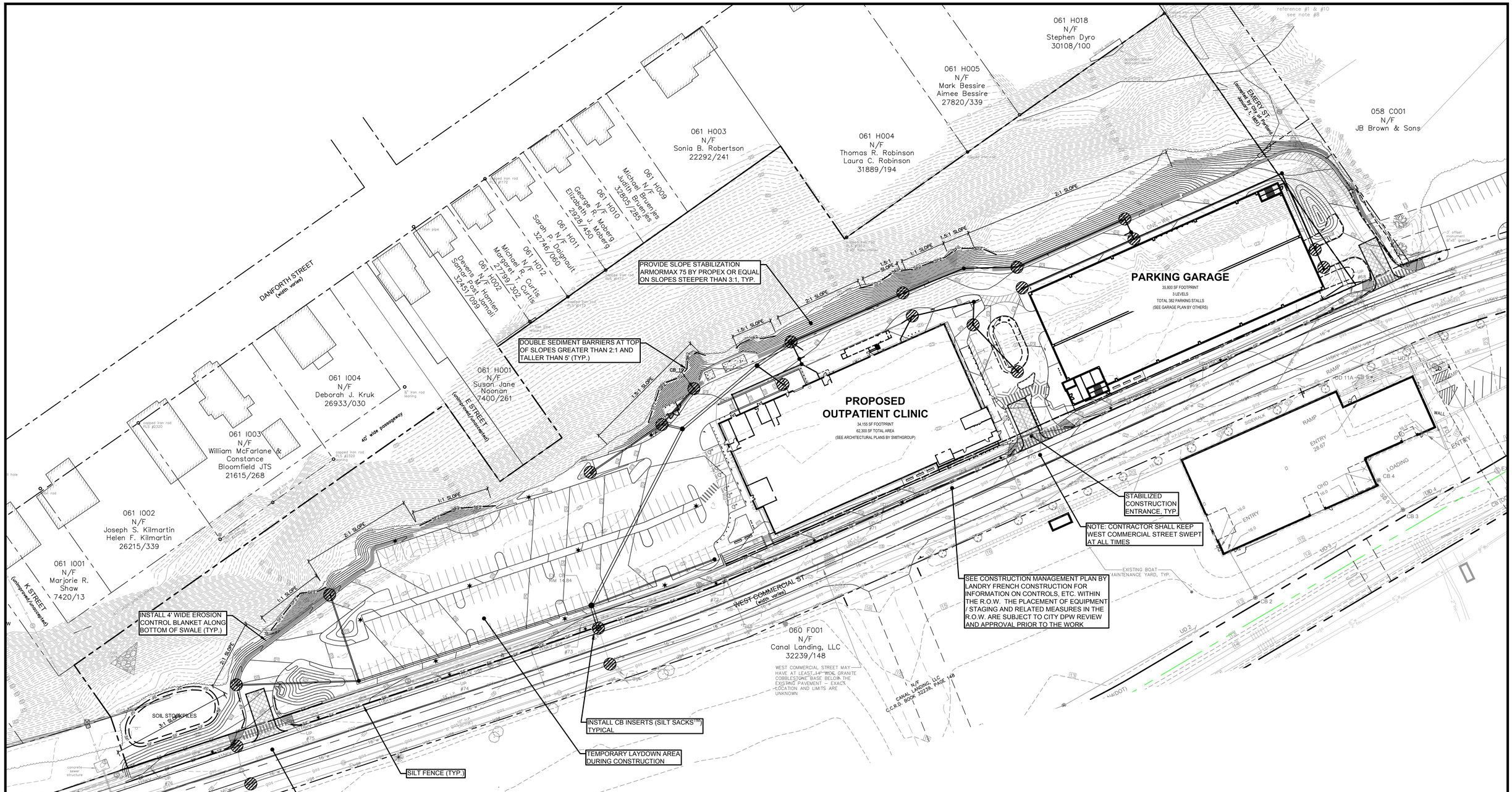
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Drawing Name: GRADING & DRAINAGE PLAN – EAST SIDE
Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine
Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C-5.2

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NOTES:

1. **Pollution Prevention -** Minimize disturbed areas and protect natural downgradient buffer areas to the extent practicable. Control stormwater volume and velocity within the site to minimize soil erosion. Minimize the disturbance of steep slopes. Control stormwater discharges, including both peak flow rates and volume, to minimize erosion at outlets.
2. **Sediment Barriers -** Prior to construction, properly install sediment barriers at the downgradient edge of any area to be disturbed and adjacent to any drainage channels within the disturbed area. Sediment barriers should be installed downgradient of soil or sediment stockpiles and stormwater prevented from running onto the stockpile. Maintain the sediment barriers by removing accumulated sediment, or removing and replacing the barrier, until the disturbed area is permanently stabilized.
3. **Stabilized Construction Entrance -** Prior to construction, properly install a stabilized construction entrance (SCE) at all points of egress from the site.
4. **Temporary Stabilization -** Within 7 days of the cessation of construction activities in an area that will not be worked for more than 7 days, stabilize any exposed soil with mulch, or other non-erodible cover.
5. **Removal of Temporary Measures -** Remove any temporary control measures, such as silt fence, within 30 days after permanent stabilization is attained. Remove any accumulated sediments and stabilize.
6. **Permanent Stabilization -** If the area will not be worked for more than one year or has been brought to final grade, then permanently stabilize the area within 7 days by planting vegetation, seeding, sod, or through the use of permanent mulch, riprap, or road subbase.
7. **Winter Construction -** "Winter Construction" is construction activity performed during the period from November 1 through April 15. If disturbed areas are not stabilized with permanent measures by November 1 or new soil disturbance occurs after November 1, but before April 15, then these areas must be protected and runoff from them must be controlled by additional measures and restrictions.
8. **Inspection and Maintenance During Construction -** The following standards must be met during construction:
   (a) Inspection and Corrective Action: Inspect disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. Inspect these areas at least once a week as well as before and within 24 hours after a storm event (rainfall), and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections.

   (b) Maintenance: If best management practices (BMPs) need to be repaired, the repair work should be initiated upon discovery of the problem but no later than the end of the next workday. If additional BMPs or significant repair of BMPs are necessary, implementation must be completed within 7 calendar days and prior to any storm event (rainfall). All measures must be maintained in effective operating condition until areas are permanently stabilized.

   (c) Documentation: Keep a log (report) summarizing the inspections and any corrective action taken. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicles access points to the parcel. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and location(s) where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken.

   The log must be made accessible to City staff and a copy must be provided upon request. The contractor shall provide a copy to the owner who shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.
9. **Construction dewatering -** The contractor shall not discharge sediment-laden water from trench / excavation dewatering activities to City sewer / drainage systems. Dewatering effluent shall be discharged to onsite measures including, but not limited to, Dirtbag™ sediment bags, rocklined sediment sumps, roll-off canister sand filters, or Frac tanks, at no extra expense to the owner. All dewatering measures shall be reviewed and approved by the City DPW / DRC prior to implementation.

NORTH

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 inch = 40 ft.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.20.20
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
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TMP APPLICATION	11.22.19	SRB

Design: SRB	Draft: CDD	Date: NOV. 2019
Checked: SRB	Scale: AS NOTED	Job No.: 3572
File Name: 3572-EROSION.dwg		

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Drawing Name: **EROSION & SEDIMENT CONTROL PLAN**

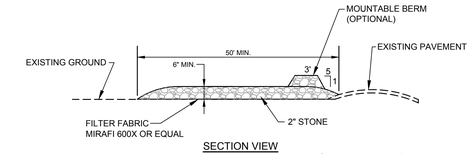
Project: **U.S. Department of Veterans Affairs – Community Based Outpatient Clinic**
133 West Commercial Street, Portland, Maine

Client: **FDS JBB PORTLAND, LLC**
10 Free Street, Portland, Maine 04101

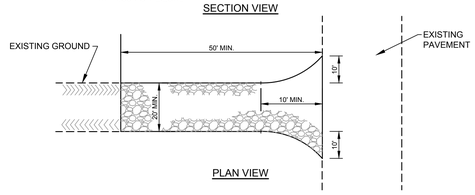
Drawing No. **C–5.3**

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NOTE:
CONTRACTOR SHALL ADD STONE TO OR REMOVE AND RECONSTRUCT THE STABILIZED CONSTRUCTION ENTRANCE AS MUD/SILT MATERIAL ACCUMULATES

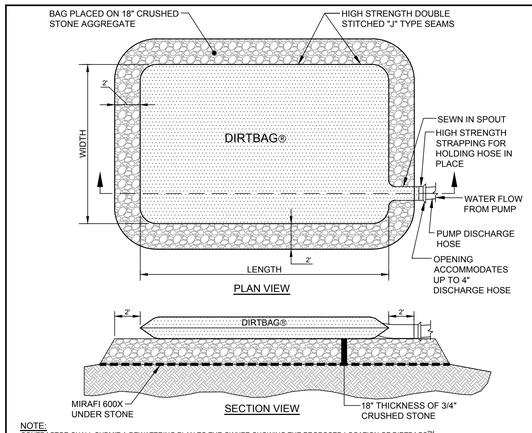


SECTION VIEW



PLAN VIEW

A STABILIZED CONSTRUCTION ENTRANCE DETAIL
N.T.S.



PLAN VIEW

SECTION VIEW

NOTE:
CONTRACTOR SHALL SUBMIT A DEWATERING PLAN TO THE OWNER SHOWING THE PROPOSED LOCATION OF DIRTBAGS™.

SPECIFICATIONS AND REQUIREMENTS FOR DEWATERING

THIS PROJECT WILL REQUIRE THE DISCHARGE OF CONSTRUCTION DEWATERING AND TURBID LADEN RUNOFF FROM THE SITE TO BE DIRECTED AND DISCHARGED THROUGH A DIRTBAG™. THIS DESCRIPTION ALSO CONTAINS APPENDED MATERIALS DESCRIBING THE **DIRTBAGS** REFERRED TO IN THIS NARRATIVE.

OVERVIEW:

DISCHARGE OF SEDIMENT-LADEN WATER FROM THE CONSTRUCTION SITE SHALL NOT BE ACCEPTABLE. TRADITIONALLY, MEDEP PERMITS HAVE HAD A STANDARD CONDITION WHICH STATES:

"THE APPLICANT SHALL TAKE ALL NECESSARY ACTIONS TO ENSURE THAT ITS ACTIVITIES OR THOSE OF ITS AGENTS DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS ON THE SITE DURING THE CONSTRUCTION AND OPERATION OF THE PROJECT COVERED BY THIS APPROVAL."

SUITABLE METHODS OF FILTERING WATER FROM DEWATERING OPERATIONS, OR CONSTRUCTION SITE RUNOFF, SHALL BE EMPLOYED PRIOR TO DISCHARGE TO THE STORM DRAIN SYSTEM. ACCEPTABLE METHODS OF FILTERING INCLUDE DIRTBAGS™, SAND BERM FILTERS, SEDIMENTATION PONDS OR OTHER APPROVED METHODS AS DETAILED IN THE CURRENT EDITION OF THE MDEP "MAINE EROSION AND SEDIMENT CONTROL PRACTICES FIELD GUIDE FOR CONTRACTORS".

REQUIREMENTS FOR DIRTBAGS:

THE SITE CONTRACTOR SHALL INCLUDE THE PRICE OF DEWATERING AND FILTERING OF THE CONSTRUCTION DEWATERING PRIOR TO DISCHARGE. REMOVAL OF **DIRTBAGS™** AND DISPOSAL OF SEDIMENT SHALL BE INCLUDED IN THE PRICE.

AT ALL TIMES THERE MUST BE AN UNUSED DIRTBAG AVAILABLE FOR EMERGENCY USE.

AT ALL TIMES (AFTER INITIAL SITE PREPARATION), THE CONTRACTOR SHALL HAVE ONE **DIRTBAG** ACTIVE OR READY FOR USE. THE **DIRTBAG** SHALL BE INSTALLED ON A PREPARED SUBGRADE. THIS SUBGRADE SHALL CONSIST OF THE INSTALLATION OF A LAYER OF MIRAFI 600X, AND 18 INCHES OF ¾ INCH CRUSHED STONE. THE PLAN DIMENSION OF THE CRUSHED STONE PAD SHALL EXCEED THE PLAN AREA OF THE **DIRTBAG** BY AT LEAST TWO FEET IN ALL DIRECTIONS. THE **DIRTBAG** SHALL NOT BE INSTALLED ON AN UNDERLYING SLOPE OF GREATER THAN 15 PERCENT.

CONSTRUCTION DEWATERING OPERATIONS:

ALL CONSTRUCTION-DEWATERING OPERATIONS ARE THE RESPONSIBILITY OF THE SITE CONTRACTOR. IT SHALL BE THE SITE CONTRACTOR WHO IS RESPONSIBLE FOR SELECTING THE SITE FOR THE **DIRTBAG.**

WINTER OPERATIONS:

IN THE EVENT THAT WINTER OPERATIONS ARE REQUIRED, THE CONTRACTOR SHALL "POLY", ENCLOSE, AND PROVIDE TEMPORARY HEAT TO PREVENT THE **DIRTBAG** FROM SUBSTANTIAL FREEZING.

RECORD KEEPING

THE WEEKLY EROSION-SEDIMENT CONTROL REPORTS PREPARED IN ACCORDANCE WITH THE NPDES PERMIT SHALL MAINTAIN A LOG OF THE LOCATION, USE, AND REMOVAL OF **DIRTBAGS.** IN THE EVENT THAT THE STONE UNDER THE **DIRTBAG** BECOMES HIGHLY CONTAMINATED WITH FINES, THE NEXT **DIRTBAG** SHALL BE INSTALLED IN A DIFFERENT LOCATION.

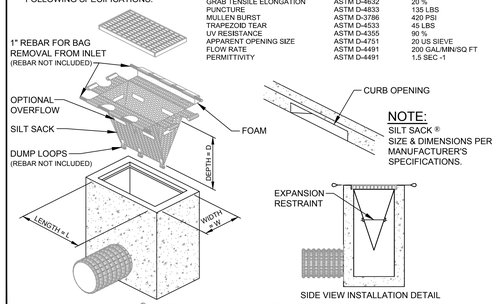
D DIRTBAG® DETAIL AND SPECIFICATIONS
N.T.S.

NOTE: THE SILT SACK ® WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

HIGH-FLOW SILT SACK ® (FOR USE IN LOW POINTS/SAGS)

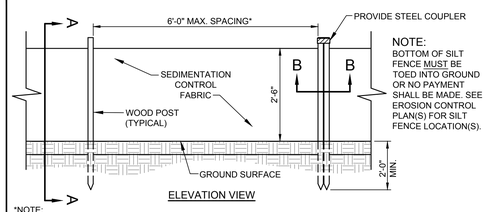
(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	1.5 SEC -1



NOTE:
SILT SACK ®
SIZE & DIMENSIONS PER MANUFACTURER'S SPECIFICATIONS.

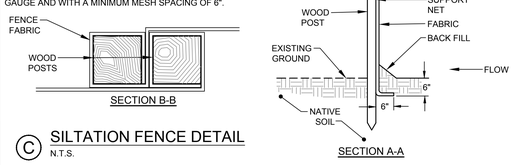
B SILT SACK® DETAIL & SPECIFICATIONS
N.T.S.



ELEVATION VIEW

NOTE:
BOTTOM OF SILT FENCE MUST BE TOED INTO GROUND OR NO PAYMENT SHALL BE MADE. SEE EROSION CONTROL PLAN(S) FOR SILT FENCE LOCATION(S).

*NOTE:
THE SILT FENCE SHOULD HAVE A MAXIMUM STAKING DISTANCE OF 6', UNLESS THE FENCE IS SUPPORTED BY WIRE FENCE REINFORCEMENT, A MAXIMUM 14 GAUGE AND WITH A MINIMUM MESH SPACING OF 6".

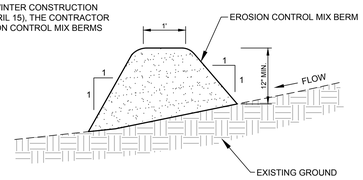


SECTION B-B

SECTION A-A

C SILTATION FENCE DETAIL
N.T.S.

NOTE:
DURING PERIODS OF WINTER CONSTRUCTION (NOV. 15 THROUGH APRIL 15), THE CONTRACTOR SHALL INSTALL EROSION CONTROL MIX BERMS IN LIEU OF SILT FENCE.



EROSION CONTROL MIX:
EROSION CONTROL MIX SHALL CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES & MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER. EROSION CONTROL MIX MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH. THE MIX COMPOSITION SHALL MEET THE FOLLOWING STANDARDS:

- THE ORGANIC MATTER CONTENT SHALL BE BETWEEN 80 AND 100%, DRY WEIGHT BASIS.
- PARTICLE SIZE BY WEIGHT SHALL BE 100% PASSING A 6" SCREEN AND A MINIMUM OF 70%, MAXIMUM OF 85%, PASSING A 0.75" SCREEN.
- THE ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED.
- LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX.
- SOLUBLE SALTS CONTENT SHALL BE < 4.0 mmhos/cm.
- PH SHALL FALL BETWEEN 5.0 AND 8.0.

E EROSION CONTROL MIX BERM DETAIL
N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
12.05.19
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	12.05.19	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB	Draft: CDD	Date: NOV. 2019
Checked: SRB	Scale: NTS	Job No.: 3572
File Name: 3572-DETAILS.dwg		

This plan shall not be modified without written permission from Gorrill Palmer Consulting Engineers, Inc.(GP). Any alterations, authorized or otherwise, shall be at the user's sole risk and without liability to GP.

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Drawing Name: EROSION CONTROL DETAILS

Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine

Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C–10.5

U:\3572_VA Clinic West Commercial St-Portland, ME\Z – CAD\DWG\3572-DETAILS.dwg 12/5/2019 10:34 AM

1.3.5 Erosion Control Measures and Site Stabilization

The primary emphasis of the erosion/sedimentation control plan, which will be implemented for this project, is as follows:

- Development of a careful construction sequence.
- Rapid revegetation of denuded areas to minimize the period of soil exposure.
- Rapid stabilization of drainage paths to avoid rill and gully erosion.
- The use of on-site measures to capture sediment (hay bales/ stone check dams/silt fence, etc.)

The following temporary and permanent erosion and sediment control devices will be implemented as part of the site development. These devices shall be installed as indicated on the plans or as described within this report. For further reference, see the latest edition of the Maine Erosion and Sediment Control Practices Field Guide for Contractors.

A. Dewatering

Water from construction trench dewatering shall pass first through a filter bag or secondary containment structure (e.g. hay bale lined pool) prior to discharge. The discharge site shall be selected to avoid flooding, icing, and sediment discharges to a protected resource. In no case shall the filter bag or containment structure be located within 50 feet of a protected natural resource. Dewatering discharge shall not be directed across adjacent properties in a concentrated manner.

B. Inspection and Monitoring

Maintenance measures shall be applied as needed during the entire construction season. After each rainfall, snow storm or period of thawing and runoff, the site contractor shall perform a visual inspection of all installed erosion control measures and perform repairs as needed to insure their continuous function. Following the temporary and/or final seeding and mulching, the contractor shall in the spring inspect and repair any damages and/or unestablished spots. Established vegetative cover means a minimum of 90% of areas vegetated with vigorous growth.

The following standards must be met during construction.

(a) **Inspection and corrective action**. Inspect disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. Inspect these areas at least once a week as well as before and within 24 hours after a storm event (rainfall), and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections.

(b) **Maintenance**. If best management practices (BMPs) need to be repaired, the repair work should be initiated upon discovery of the problem but no later than the end of the next workday. If additional BMPs or significant repair of BMPs are necessary, implementation must be completed within 7 calendar days and prior to any storm event (rainfall). All measures must be maintained in effective operating condition until areas are permanently stabilized.

(c) **Documentation**. Keep a log (report) summarizing the inspections and any corrective action taken. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicles access points to the parcel. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and location(s) where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken.

The log must be made accessible to City staff and a copy must be provided upon request. The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

C. Temporary Erosion Control Measures

Temporary erosion control measures shall be installed by the Contractor as required by this report and as shown on the plan set for the project. Additional erosion control measures shall be installed if deemed necessary by on-site inspections of the Owner, the City of Portland, MDEP, or their representatives at no additional cost to the Owner.

The following measures are planned as temporary erosion/sedimentation control measures during construction:

1. Crushed stone-stabilized construction entrance shall be placed at any truck entrance to the project site from West Commercial Street.

2. Siltation fence or wood waste compost berms shall be installed downstream of any disturbed areas to trap runoff- borne sediments until grass areas are revegetated. The silt fence and/or wood waste compost berms shall be installed per the details provided in this package and inspected at least once a week and before and immediately after a storm event of 0.5 inches or greater, and at least daily during prolonged rainfall. Repairs shall be made if there are any signs of erosion or sedimentation below the fence or berm line. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind the fence or berm, the barrier shall be replaced with a stone check dam. Wood waste compost berms are not to be used adjacent to wetland areas that are not to be disturbed.

3. Straw or hay mulch including hydroseeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulch placed between April 15th and October 15th on slopes of less then 15 percent shall be anchored by applying water; mulch placed on slopes of equal to or steeper than 15 percent shall be covered by a fabric netting and anchored with staples in accordance with manufacturer's recommendation. Mulch placed between October 15th and April 15th on slopes equal to or steeper than 8 percent shall be covered with a fabric netting and anchored with staples in accordance with the manufacturer's recommendations. Slopes steeper than 3:1 and equal to or flatter than 2:1, which are to be revegetated, shall receive curlex blankets by American Excelsior or equal. Slopes steeper than 2:1 shall receive riprap as noted on the plans. The mulch application rate for both temporary and permanent seeding is 75 lbs per 1000 sf as identified in the seeding plan. Mulch shall not be placed over snow.

4. Temporary stockpiles of stumps, grubbings, or common excavation will be protected as follows:

a) Temporary stockpiles shall not be located within 100 feet of any wetlands which will not be disturbed and shall be located away from drainage swales.

b) Stockpiles shall be stabilized within 7 days by either temporarily seeding the stockpile by a hydroseed method containing an emulsified mulch tackifier or by covering the stockpile with mulch, such as hay, straw, or erosion control mix.

c) Stockpiles shall be surrounded by sedimentation barrier at the time of formation.

5. For work, which is conducted between October 15th and April 15th of any calendar year, all denuded areas, shall be covered with hay mulch or erosion control mix, applied at twice the normal application rate and anchored with a fabric netting. The time period for applying mulch shall be limited to 2 days for all areas.

6. The paved access drives shall be swept to control mud and dust as necessary. Additional stone shall be added to the stabilized construction entrance to minimize the tracking of material off the site and onto the surrounding roadways.

7. During grubbing operations stone check dams shall be installed at any evident concentrated flow discharge points and as directed on the Erosion Control Plans.

8. Silt fencing with a maximum stake spacing of 6 feet shall be used, unless the fence is supported by wire fence reinforcement of minimum 14 gauge and with a maximum mesh spacing of 6 inches, in which case stakes may be spaced a maximum of 10 feet apart. The bottom of the fence shall be anchored. A double row of silt fence shall be used adjacent to wetlands.

9. Wood waste compost/bark berms may be used in lieu of siltation fencing. Berms shall be removed and spread in a layer not to exceed 3" thick once upstream areas are completed and a 90% catch of vegetation is attained.

10. Storm drain catch basin inlet protection shall be provided through the use of stone sediment barriers or approved sediment bags (such as Silt Sack). Installation details are provided in the plan set. The barriers shall be inspected after each rainfall and repairs made as necessary. Sediment shall be removed and the barrier restored to its original dimensions when the sediment has accumulated to ½ the design depth of the barrier. The barrier shall be removed when the tributary drainage area has been stabilized.

11. Water and/or calcium chloride shall be furnished and applied in accordance with MDOT specifications - Section 637 - Dust Control.

12. Loam and seed is intended to serve, as the primary permanent revegetative measure for all denuded areas not provided with other erosion control measures, such as riprap. Application rates are provided in the seeding plan. Seeding shall not occur over snow.

D. Permanent Erosion Control Measures

The following permanent erosion control measures have been designed as part of the Erosion/Sedimentation Control Plan:

1. All areas disturbed during construction, but not subject to other restoration (paving, riprap, etc.) will be loamed, limed, fertilized, mulched, and seeded. Fabric netting, anchored with staples, shall be placed over the mulch in areas as noted in Temporary Erosion Control Measures paragraph 3 of this report. Native topsoil shall be stockpiled and reused for final restoration when it is of sufficient quality.

2. Catch basins shall be provided with sediment sumps and inlet hoods (the Snout) for all outlet pipes that are 18" in diameter or less.

1.4 Implementation Schedule

The following construction sequence shall be required to ensure the effectiveness of the erosion and sedimentation control measures are optimized:

It is anticipated that construction of the VA Clinic, Parking Garage and related infrastructure will commence in Spring of 2020 and be completed by Winter of 2021.

Note: For all grading activities, the contractor shall exercise extreme caution not to overexpose the site, this shall be accomplished by limiting the disturbed area.

1. Install stabilized construction entrance at any truck entrance to the project site from West Commercial Street.
2. Install perimeter silt fence and/or wood waste berms prior to grubbing respective areas.
3. Remove and reset existing utilities in Right-of-Way.
4. Clear and grub site. Install stone check dams at any evident concentrated flow discharge points.
5. Commence cut slope installation of Retaining Wall. Install diversion berms at top of slopes.
6. Foundation area shall be excavated for installation of the building footings. Building work will be on going through the remainder of the project.
7. Commence installation of drainage appurtenances.
8. Commence earthwork and grading to subgrade.
9. Commence installation of water and sewer lines.
10. Continue earthwork and grading to subgrade as necessary for construction.
11. Complete installation of underground utilities to within 5' of the buildings.
12. Install light pole foundations and light poles.
13. Complete remaining earthwork operations.
14. Complete installation of catch basins and appurtenances.
15. Install sub-base and base gravel within parking fields, walkways, and all driveways.
16. Install curbing in parking fields, driveways, and along the streets as needed.
17. Install base course paving for access drive and parking area as well as concrete surfaces.
18. Loam, lime, fertilize, seed and mulch disturbed areas and complete all landscaping.
19. Install surface course paving for access drive and parking areas. Stripe per plan.
20. Once the site is stabilized and a 90% catch of vegetation has been obtained, remove all temporary erosion control measures.
21. Touch up loam and seed.

Note: All denuded areas not subject to final paving, riprap, or gravel shall be revegetated.

Prior to construction of the project, the contractor shall submit to the owner a schedule for the completion of the work, which will satisfy the following criteria:

1. The above construction sequence should generally be completed in the specified order; however, several separate items may be constructed simultaneously. Work must also be scheduled or phased to reduce the extent of the exposed areas as specified below. The intent of this sequence is to provide for erosion control and to have structural measures such as silt fence and construction entrances in place before large areas of land are denuded.

2. The work shall be conducted in sections which shall:

a) Limit the amount of exposed area to those areas in which work is expected to be undertaken during the proceeding 30 days.

b) Revegetate disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading or before a storm event.

c) Incorporate planned inlets and drainage system as early as possible into the construction phase. The ditches at the toe of cut slope shall be immediately lined or revegetated as soon as their installation is complete.

1.5 Erosion, Sedimentation and Stabilization Control Plan

The Erosion Control Plan is included in the plan set.

1.6 Details and Specifications

The Erosion Control details and specifications are included in the plan set.

1.7 Winter Stabilization Plan

The winter construction period is from November 1 through April 15. If the construction site is not stabilized with pavement, a road gravel base, 75% mature vegetation cover or riprap by November 15 then the site needs to be protected with over-winter stabilization. An area considered open is any area not stabilized with pavement; vegetation, mulching, erosion control mats, riprap or gravel base on a road, drive aisle, or parking lot.

Winter excavation and earthwork shall be completed such that any area left exposed can be controlled by the contractor. Limit the exposed area to those areas in which work is expected to be under taken during the proceeding 15 days and that can be mulched in one day prior to any snow event.

All areas shall be considered to be denuded until the subbase gravel is installed in roadway/parking areas or the areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch rate shall be a minimum of 150 lbs./1,000 s.f. (3 tons/acre) and shall be properly anchored.

The contractor shall install any added measures which may be necessary to control erosion/sedimentation from the site dependent upon the actual site and weather conditions. Continuation of earthwork operations on additional areas shall not begin until the exposed soil surface on the area being worked has been stabilized, in order to minimize areas without erosion control protection.

1. Soil Stockpiles

Stockpiles of soil or subsoil shall be mulched for over winter protection with hay or straw at twice the normal rate or at 150 lbs/1,000 s.f. (3 tons per acre) or with a four-inch layer of woodwaste erosion control mix. This shall be done within 24 hours of stocking and re-established prior to any rainfall or snowfall.

2. Natural Resource Protection

Any areas within 100 feet from any natural resources, if not stabilized with a minimum of 75% mature vegetation catch, shall be mulched by December 1 and anchored with plastic netting or protected with erosion control mats. During winter construction, a double line of sediment barriers (i.e. silt fence backed with hay bales or erosion control mix) shall be placed between any natural resource and the disturbed area. Projects crossing the natural resource shall be protected a minimum distance of 100 feet on either side from the resource. Existing projects not stabilized by December 1 shall be protected with the second line of sediment barrier to ensure functionality during the spring thaw and rains.

3. Sediment Barriers

During frozen conditions, sediment barriers shall consist of woodwaste filter berms as frozen soil prevents the proper installation of hay bales and sediment silt fences.

4. Mulching

An area shall be considered denuded until areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly anchored. Mulch shall not be spread on top of snow. The snow shall be removed down to a one-inch depth or less prior to application. After each day of final grading, the area shall be properly stabilized with anchored hay or straw or erosion control matting. An area shall be considered to have been stabilized when exposed surfaces have been either mulched with straw or hay at a rate of 150 lb. per 1,000 square feet (3 tons/acre) and adequately anchored that ground surface is not visible though the mulch.

Between the dates of November 1 and April 15, all mulch shall be anchored by peg line, mulch netting, asphalt emulsion chemical, or wood cellulose fiber. When ground surface is not visible through the mulch then cover is sufficient. After November 1st, mulch and anchoring of all bare soil shall occur at the end of each final grading workday.

5. Mulching on Slopes and Ditches

Slopes shall not be left exposed for any extended time of work suspension unless fully mulched and anchored with peg and netting or with erosion control blankets. Mulching shall be applied at a rate of 230 lbs/1,000 s.f. on all slopes greater than 8%.

Mulch netting shall be used to anchor mulch in all drainage ways with a slope greater than 3% for slopes exposed to direct winds and for all other slopes greater that 8%. Erosion control blankets shall be used in lieu of mulch in all drainage ways with slopes greater than 8%. Erosion control mix can be used to substitute erosion control blankets on all slopes except ditches.

6. Seeding

Between the dates of October 15 and April 1st, loam or seed will not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until such time as the final treatment can be applied. If the date is after November 1st and if the exposed area has been loamed, final graded with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched. Dormant seeding may be selected to be placed prior to the placement of mulch and fabric netting anchored with staples. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5 lbs/1,000 s.f. All areas seeded during the winter shall be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75% catch) shall be revegetated by replacing loam, seed and mulch. If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

Standards for Timely Stabilization of Construction Sites During Winter

1. Standard for the timely stabilization of ditches and channels -- The applicant shall construct and stabilize all stone-lined ditches and channels on the site by November 15. The applicant shall construct and stabilize all grass-lined ditches and channels on the site by September 1. If the applicant fails to stabilize a ditch or channel to be grass-lined by September 1, then the applicant will take one of the following actions to stabilize the ditch for late fall and winter.

Install a sod lining in the ditch -- The applicant shall line the ditch with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, watering the sod to promote root growth into the disturbed soil, and anchoring the sod with jute or plastic mesh to prevent the sod strips from sloughing during flow conditions.

Install a stone lining in the ditch --The applicant shall line the ditch with stone riprap by November 15. The applicant shall hire a registered professional engineer to determine the stone size and lining thickness needed to withstand the anticipated flow velocities and flow depths within the ditch. If necessary, the applicant shall regrade the ditch prior to placing the stone lining so to prevent the stone lining from reducing the ditch's cross-sectional area.

2. Standard for the timely stabilization of disturbed slopes -- The applicant shall construct and stabilize stone-covered slopes by November 15. The applicant shall seed and mulch all slopes to be vegetated by September 1. The department shall consider any area having a grade greater than 15% to be a slope. If the applicant fails to stabilize any slope to be vegetated by September 1, then the applicant shall take one of the following actions to stabilize the slope for late fall and winter.

Stabilize the soil with temporary vegetation and erosion control mats -- By September 1 the applicant shall seed the disturbed slope with winter rye at a seeding rate of 3 pounds per 1,000 square feet and apply erosion control mats over the mulched slope. The applicant shall monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 75% of the disturbed slope by November 1, then the applicant shall cover the slope with a layer of woodwaste compost as described in item iii of this standard or with stone riprap as described in item iv of this standard.

Stabilize the slope with sod -- The applicant shall stabilize the disturbed slope with properly installed sod by September 1. Proper installation includes the applicant pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The applicant shall not use late-season sod installation to stabilize slopes having a grade greater than 33% (3H:1V).

Stabilize the slope with woodwaste compost -- The applicant shall place a six-inch layer of woodwaste compost on the slope by November 15. Prior to placing the woodwaste compost, the applicant shall remove any snow accumulation on the disturbed slope. The applicant shall not use woodwaste compost to stabilize slopes having grades greater than 50% (2H:1V) or having groundwater seeps on the slope face.

Stabilize the slope with stone riprap -- The applicant shall place a layer of stone riprap on the slope by November 15. The applicant shall hire a registered professional engineer to determine the stone size needed for stability and to design a filter layer for underneath the riprap.

3. Standard for the timely stabilization of disturbed soils -- By September 15 the applicant shall seed and mulch all disturbed soils on areas having a slope less than 15%. If the applicant fails to stabilize these soils by this date, then the applicant shall take one of the following actions to stabilize the soil for late fall and winter.

Stabilize the soil with temporary vegetation -- By September 1 the applicant shall seed the disturbed soil with winter rye at a seeding rate of 3 pounds per 1000 square feet, lightly mulch the seeded soil with hay or straw at 75 pounds per 1000 square feet, and anchor the mulch with plastic netting. The applicant shall monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 75% of the disturbed soil before November 1, then the applicant shall mulch the area for over-winter protection as described below.

Stabilize the soil with sod -- The applicant shall stabilize the disturbed soil with properly installed sod by September 15. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

Stabilize the soil with mulch -- By November 15 the applicant shall mulch the disturbed soil by spreading hay or straw at a rate of at least 150 pounds per 1000 square feet on the area so that no soil is visible through the mulch. Prior to applying the mulch, the applicant shall remove any snow accumulation on the disturbed area. Immediately after applying the mulch, the applicant will anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

1.8 Maintenance of facilities

The stormwater facilities will be maintained by the Applicant, JB Brown or their assigned heirs. The contract documents will require the contractor to designate a person responsible for maintenance of the sedimentation control features during construction as required by the Erosion Control Report. Long-term operation/maintenance recommended for the stormwater facilities is presented below.

The responsible party may contract with such professionals, as may be necessary in order to comply with this provision and may rely on the advice of such professionals in carrying out its duty hereunder, provided, that the following operation and maintenance procedures are hereby established as a minimum for compliance with this section. A maintenance log of the inspections shall be kept by the responsible party.

Inspection and Maintenance Frequency and Corrective Measures:
The following areas, facilities, and measures will be inspected and the identified deficiencies will be corrected. Clean-out must include the removal and legal disposal of any accumulated sediments and debris.

Catch Basins:
Inspect catch basins 2 times per year (preferably in Spring and Fall) to ensure that the catch basins are working in their intended fashion and that they are free of debris. Clean structures when sediment depths reach 12" from invert of outlet. If the basin outlet is designed with a hood to trap floatable materials (i.e. Snout), check to ensure watertight seal is working. At a minimum, remove floating debris and hydrocarbons at the time of the inspection.

Inlet/Outlet Control Structures:
Inspect structures and piping 2 times per year (preferably in Spring and Fall) to ensure that the structures are working in their intended fashion and that they are free of debris. Remove any obstructions to flow; remove accumulated sediments and debris within the structure.

Stone Bermed Level Lip Spreaders:
Inspect 2 times per year (preferably in Spring and Fall) to ensure that they are free of debris and no undesirable growth is impeding water flow through the berm. In addition, the stone bermed level lip spreaders shall be inspected to ensure that runoff is not bypassing the bermed spreader.

Vegetated Areas:
Inspect slopes and embankments early in the growing season to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows. The facilities will be inspected after major storms and any identified deficiencies will be corrected.

Ditches, Swales and other Open Stormwater Channels:
Inspect 2 times per year (preferably in Spring and Fall) to ensure they are working in their intended fashion and that they are free of sediment and debris. Remove any obstructions to flow, including accumulated sediments and debris and vegetated growth. Repair any erosion of the ditch lining. Vegetated ditches will be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. Correct any erosion of the channel's bottom or sideslopes. The facilities shall be inspected after major storms and any identified deficiencies shall be corrected.

Roadways and Parking Surfaces: Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader. Repair potholes and other roadway obstructions and hazards. Plowing and sanding of paved areas shall be performed as necessary to maintain vehicular traffic safety.

Recertification

As part of the Stormwater Permit, the applicant is required to meet the standards in Appendix B of the Chapter 500 Rules. Appendix B states that a project must submit a certification of the following to the department within three months of the expiration of each five-year interval from the date of issuance of the permit.

(a) Identification and repair of erosion problems. All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.
(b) Inspection and repair of stormwater control system. All aspects of the stormwater control system have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the system, or portions of the system.
(c) Maintenance. The erosion and stormwater maintenance plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the department, and the maintenance log is being maintained.
(d) Proprietary Systems. All proprietary systems have been maintained according to the manufacturer's recommendations. Where required by the Department, the permittee shall execute a 5-year maintenance contract with a qualified professional for the coming 5-year interval. The maintenance contract must include provisions for routine inspections, cleaning, and general maintenance.

Housekeeping

As part of the Stormwater Permit, the applicant is required to meet the standards in Appendix C of the Chapter 500 Rules. The following procedures are hereby established as a minimum for compliance with this section. For further information on the procedures listed below, refer to Chapter 500 rules - Appendix C.

Spill Prevention:
Appropriate spill prevention, containment, and response planning/implementation shall be used to prevent pollutants from being discharged from materials on site.

Groundwater Protection:
During construction, hazardous materials with the potential to contaminate groundwater shall not be stored or handled in areas of the site which drain to an infiltration area.

Fugitive Sediment and Dust:
Appropriate measures shall be taken to ensure that activities do not result in noticeable erosion of the soils and water and/or calcium chloride shall be used to ensure that activities do not result in fugitive dust emissions during or after construction.

Debris and Other Materials:
Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.

Trench or Foundation De-watering:
Water collected through the process of trenching and/or de-watering must be removed from the ponded area, and must be spread through natural wooded buffers or other areas that are specifically designed to collect the maximum amount of sediment possible.

Non-stormwater Discharges:
Identify and prevent contamination by non-stormwater discharges.

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NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
12.05.19
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
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Rev.	Date	Revision
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LEVEL III SITE PLAN APPLICATION	12.05.19	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB | Draft: CDD | Date: NOV. 2019
Checked: SRB | Scale: NTS | Job No.: 3572
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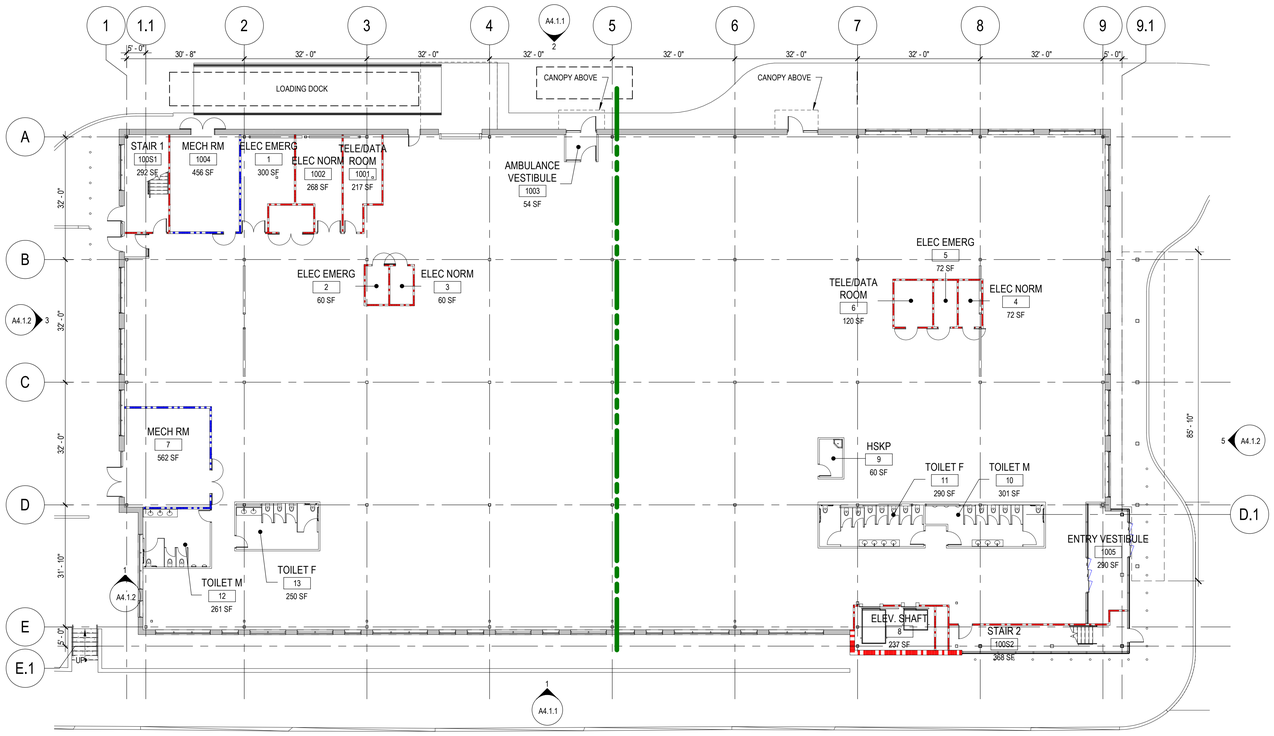
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Drawing Name: EROSION CONTROL NOTES & SEEDING PLAN
Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine
Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C–10.6

U:\3572_VA Clinic West Commercial St-Portland, ME\Z – CAD\DWG\3572-DETAILS.dwg 12/5/2019 10:33 AM



1 LEVEL 1 FLOOR PLAN - OVERALL
SCALE: 1/16" = 1'-0"

GENERAL SHEET NOTES

A. REFER TO THE A0.X SERIES SHEETS FOR ARCHITECTURAL GENERAL NOTES, DRAWING, REFERENCE AND MATERIAL SYMBOLS, ABBREVIATIONS, AS WELL AS DIMENSIONING CONVENTIONS USED ON THIS SHEET.

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SEALS AND SIGNATURES

NOT FOR CONSTRUCTION

KEYPLAN

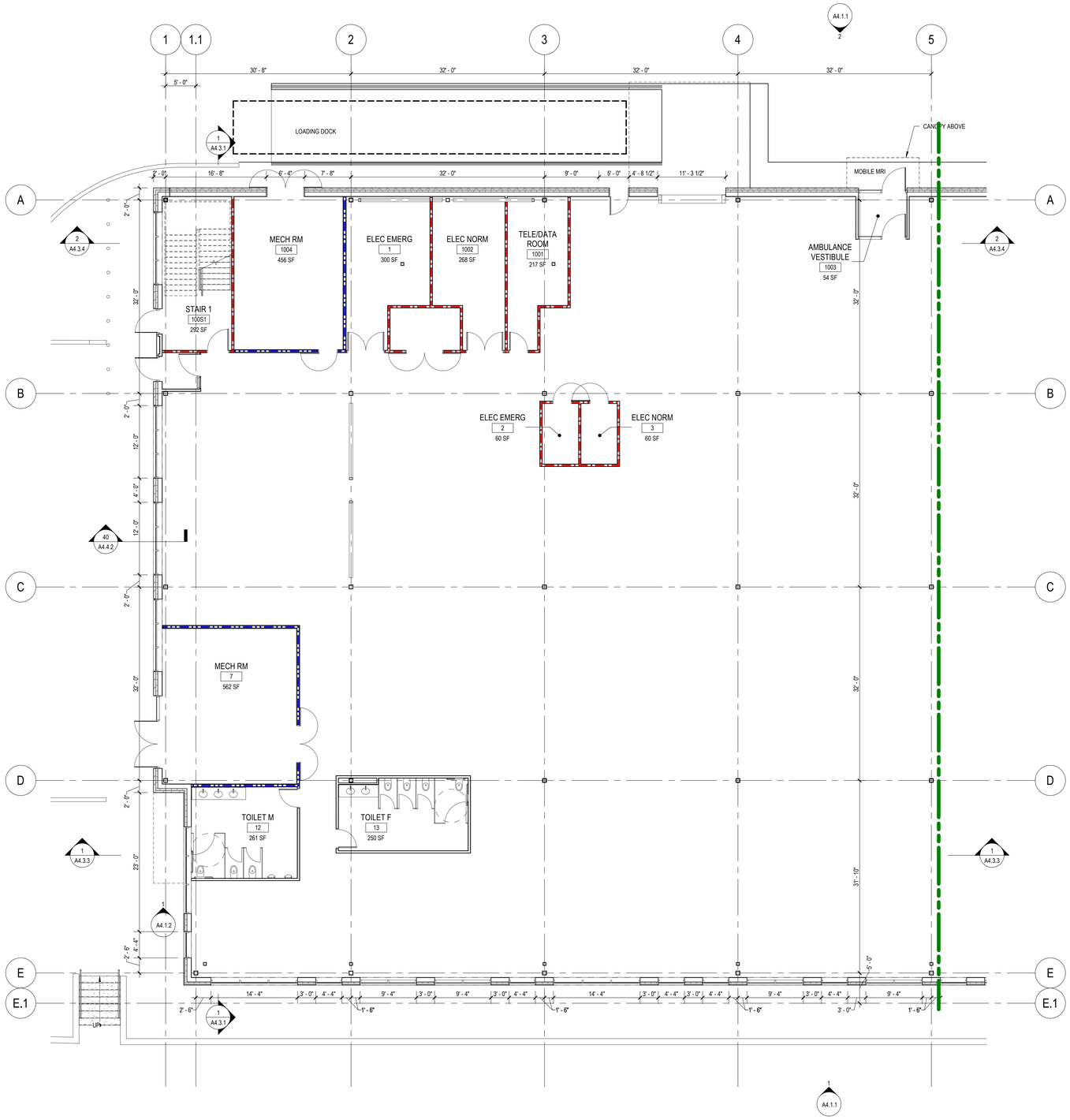
NORTH

SHEET TITLE
OVERALL LEVEL 1 FLOOR PLAN

[alt. project number] 11865
PROJECT NUMBER

A2.1.0
SHEET NUMBER

START Sheet
Plot Date: 11/15/2019 12:55:42 PM



1 LEVEL 1 FLOOR PLAN - 1/8" - SECTOR A
SCALE: 1/8" = 1'-0"

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GRAPHIC LEGEND

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REFERENCE KEYNOTES

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EXAMPLE:

076200.B02	SCUPPER
088000.IGU1	INSUL LAM GLAZING UNIT

SHEET KEYNOTES

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EXAMPLE:

A502	ACM PANEL JOINT
A503	ALIGN CANOPY CORNER WITH 1/2" JOINT SEALANT AT CURTAIN WALL MULLION

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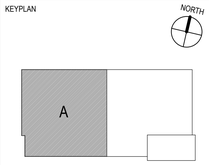
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WARM LIT SHELL & LEVEL 1 DID	1	11/01/2019

SEALS AND SIGNATURES

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KEYPLAN

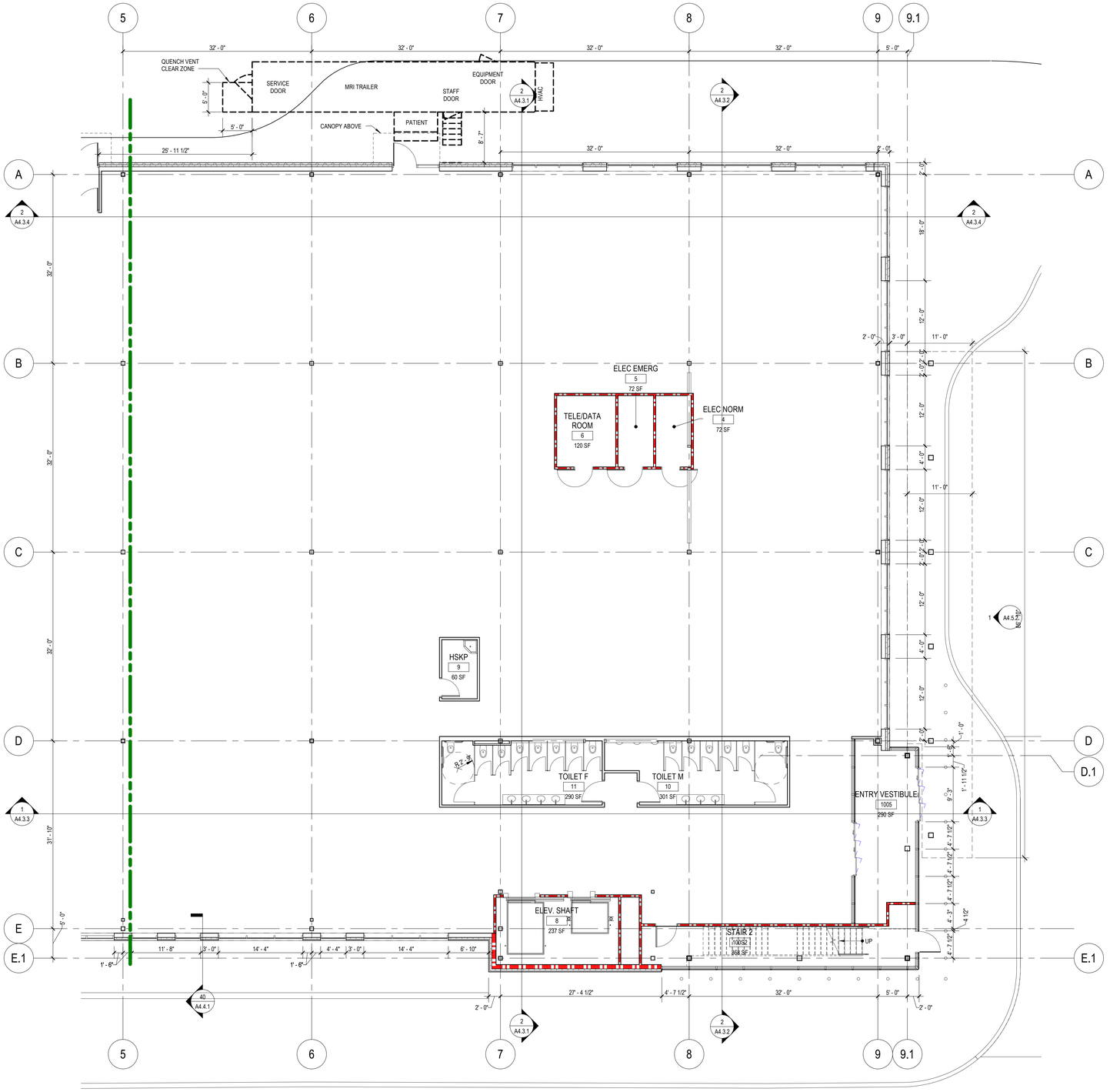


SHEET TITLE
LEVEL 1 FLOOR PLAN - SECTOR A

11865
PROJECT NUMBER

A2.1.1
SHEET NUMBER

Author
Plot Date: 11/15/2019 12:56:30 PM



1 LEVEL 1 FLOOR PLAN - 1/8" -SECTOR B
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

A. REFER TO THE A0.X SERIES SHEETS FOR ARCHITECTURAL GENERAL NOTES, DRAWING, REFERENCE AND MATERIAL SYMBOLS, ABBREVIATIONS, AS WELL AS DIMENSIONING CONVENTIONS USED ON THIS SHEET.

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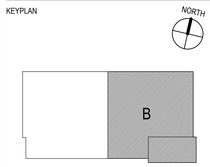
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SEALS AND SIGNATURES

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KEYPLAN

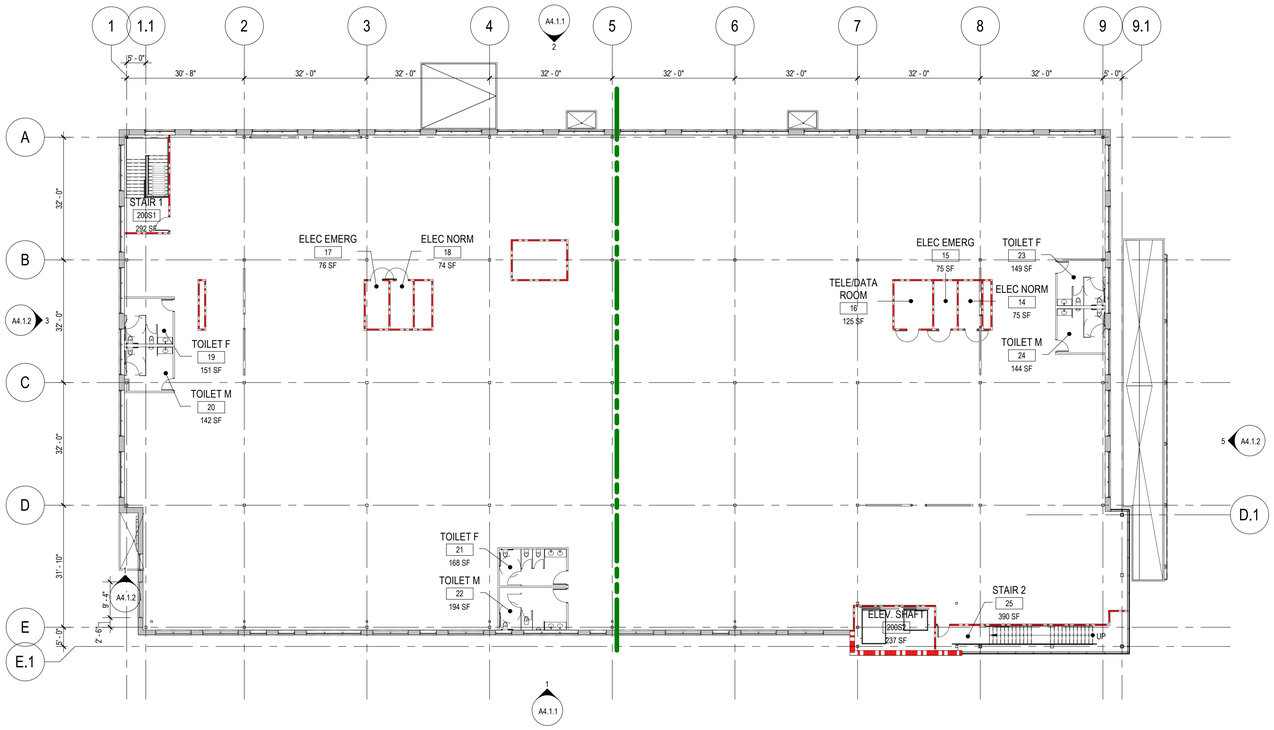


SHEET TITLE
LEVEL 1 FLOOR PLAN - SECTOR B

11865
PROJECT NUMBER

A2.1.2
SHEET NUMBER

Author
11/15/2019 12:57:05 PM
Plot Date:



1 LEVEL 2 - FLOOR PLAN - OVERALL
SCALE: 1/16" = 1'-0"

GENERAL SHEET NOTES

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SEALS AND SIGNATURES

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KEYPLAN



SHEET TITLE

OVERALL LEVEL 2 FLOOR PLAN

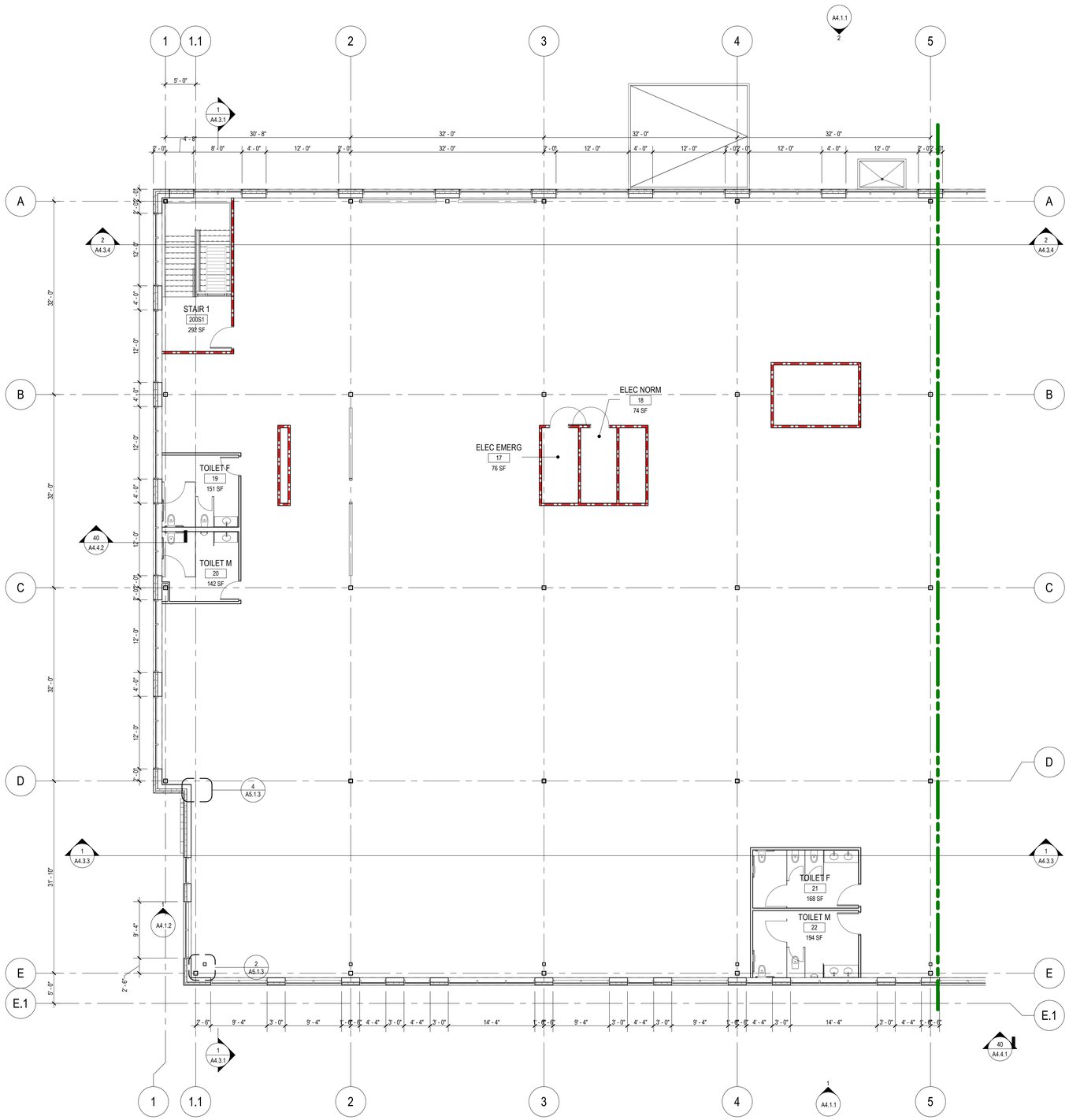
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PROJECT NUMBER

A2.2.0

SHEET NUMBER

Plot Date: 11/15/2019 12:57:36 PM Author



1 LEVEL 2 - FLOOR PLAN - 1/8" - SECTOR A
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

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GRAPHIC LEGEND

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EXAMPLE:
076200.B02 SCUPPER
088000.IGU1 INSUL LAM GLAZING UNIT

SHEET KEYNOTES

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EXAMPLE:
A502 ACM PANEL JOINT
A503 ALIGN CANOPY CORNER WITH 1/2" JOINT SEALANT AT CURTAIN WALL MULLION

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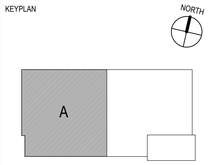
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SEALS AND SIGNATURES

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KEYPLAN

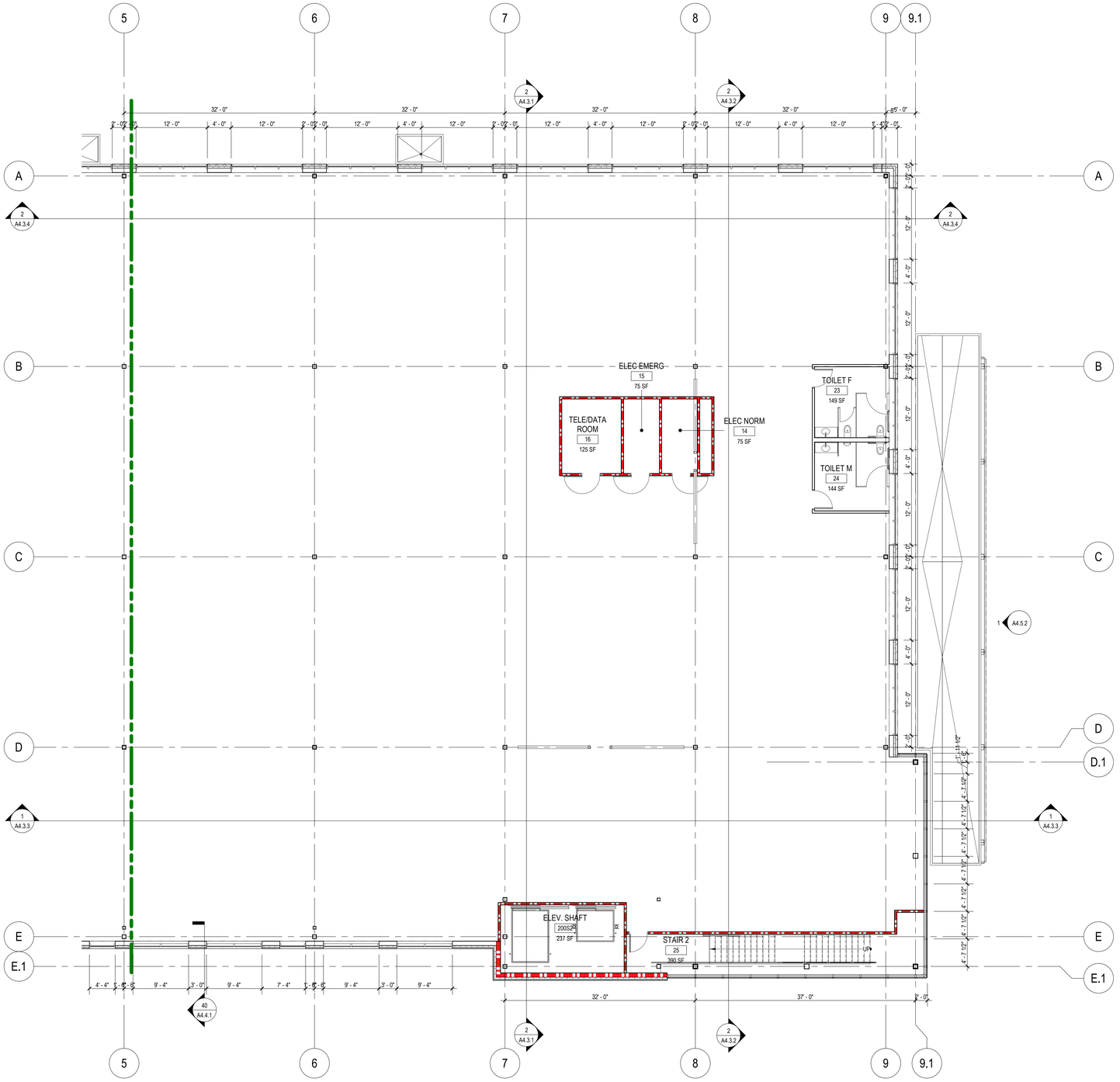


SHEET TITLE
LEVEL 2 FLOOR PLAN - SECTOR A

PROJECT NUMBER
11865

SHEET NUMBER
A2.2.1

Plot Date: 11/15/2019 12:58:02 PM Author



1 LEVEL 2 - FLOOR PLAN - 1/8" - SECTOR B
SCALE: 1/8" = 1'-0"

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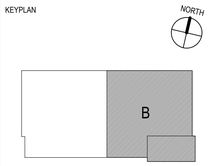
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KEYPLAN

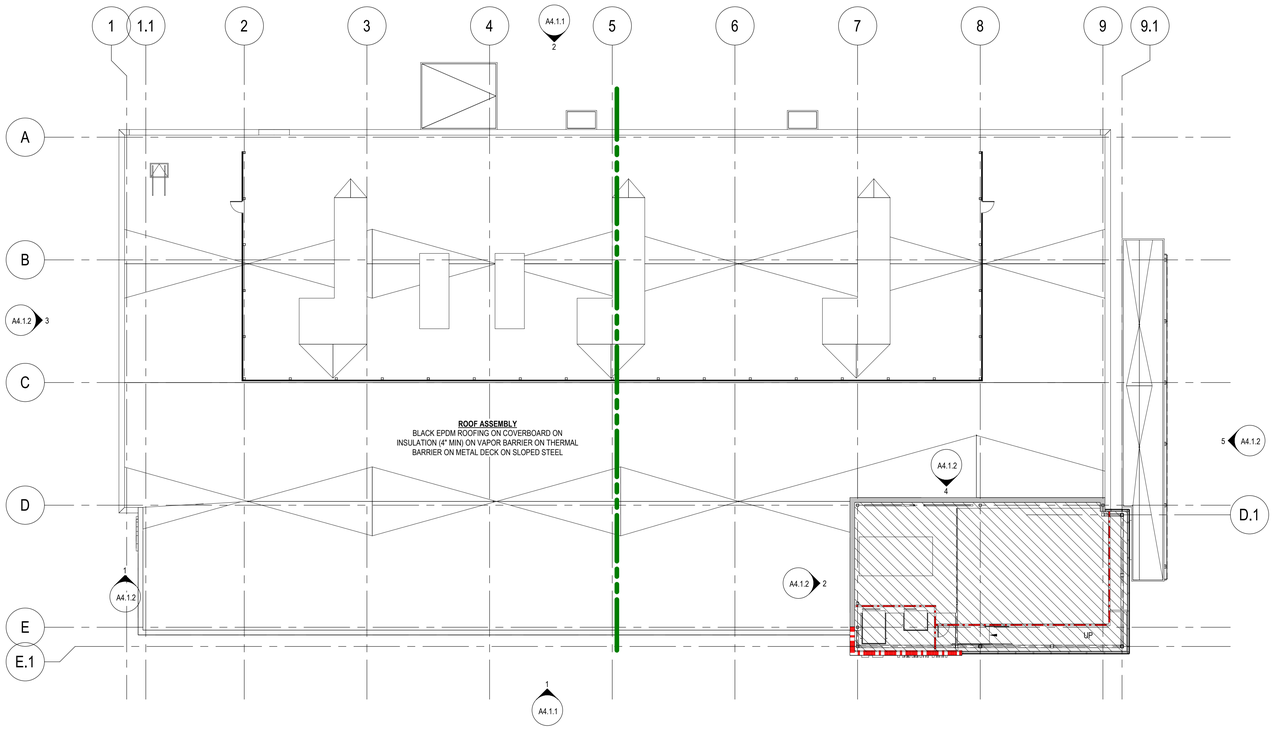


SHEET TITLE
LEVEL 2 FLOOR PLAN - SECTOR B

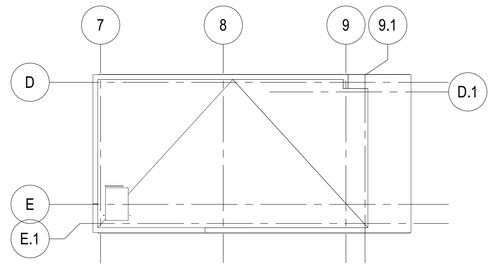
11865
PROJECT NUMBER

A2.2.2
SHEET NUMBER

Author
11/15/2019 12:59:57 PM
Plot Date:



1 ROOF PLAN - OVERALL
SCALE: 1/16" = 1'-0"



3 TOWER ROOF
SCALE: 1/16" = 1'-0"

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SEALS AND SIGNATURES

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KEYPLAN



SHEET TITLE

OVERALL ROOF PLAN

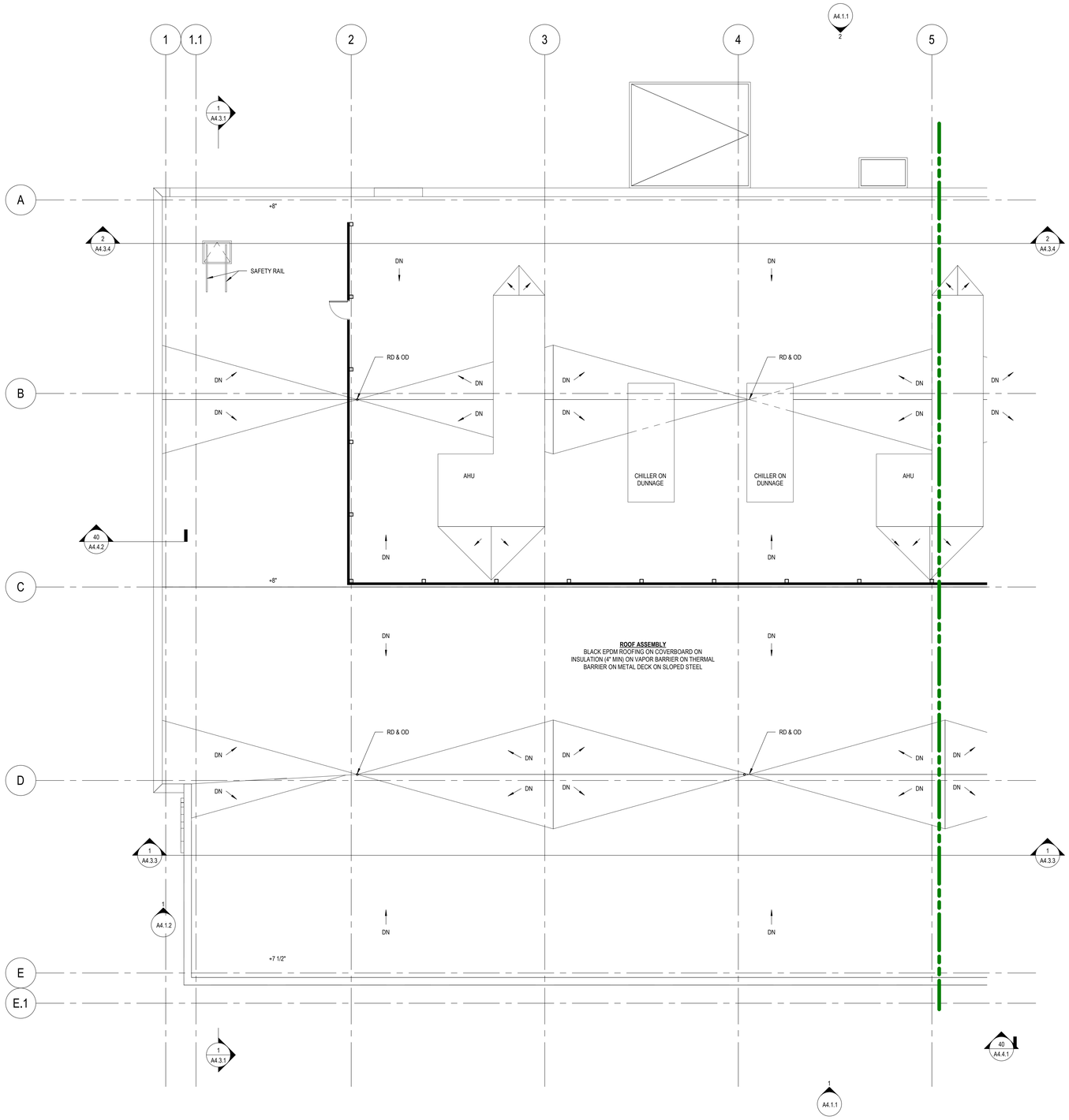
[alt. project number] 11865

PROJECT NUMBER

A2.3.0

SHEET NUMBER

Plot Date: 11/15/2019 1:00:41 PM START Sheet



1 ROOF PLAN - 1/8" - SECTOR A
SCALE: 1/8" = 1'-0"

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G. REFER TO THE "AI" SERIES SHEETS FOR INTERIOR FURNISHING INFORMATION.

GRAPHIC LEGEND

**ADD SPECIFIC INFORMATION HERE THAT SPECIFICALLY APPLIES TO THIS SHEET ONLY. DO NOT REPEAT SYMBOLS WHICH ARE REPRESENTED ON THE ARCHITECTURAL ABBREVIATIONS AND SYMBOLS SHEET.*

**IF THERE IS NO NEED TO ADD GRAPHIC INFORMATION TO THIS SHEET, THEN REMOVE THIS PORTION OF THE NOTE COLUMN AND SHIFT THE GENERAL SHEET NOTES TO THE TOP.*

REFERENCE KEYNOTES

**IF THERE ARE NO REFERENCE KEYNOTES ON THIS SHEET, THEN REMOVE THIS PORTION OF THE NOTE COLUMN AND REARRANGE THE NOTE COLUMN.*

EXAMPLE:
076200.B02 SCUPPER
088000.IGU1 INSUL LAM GLAZING UNIT

SHEET KEYNOTES

**IF THERE ARE NO SHEET KEYNOTES ON THIS SHEET, THEN REMOVE THIS PORTION OF THE NOTE COLUMN AND REARRANGE THE NOTE COLUMN.*

EXAMPLE:
A502 ACM PANEL JOINT
A503 ALIGN CANOPY CORNER WITH 1/2" JOINT SEALANT AT CURTAIN WALL MULLION

FDS JBB PORTLAND, LLC

c/o FD STONEWATER, LLC
1001 19th St N #1401
ARLINGTON, VA 22209
703.537.7650

VA PORTLAND CBOC

151 W. COMMERCIAL ST.
PORTLAND, MAINE 04102

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BOSTON, MA 02110
617.502.3400
www.smithgroup.com

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MEPFP
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BOSTON, MA 02110
617. 502.3400

GORRILL PALMER
CIVIL
707 SABLE OAKS DRIVE, SUITE 30
SOUTH PORTLAND, ME 04106
207.772.2515

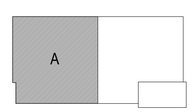
LJB Inc.
STRUCTURAL
2500 NEWMARK DRIVE
MIAMISBURG, OH 45342
937.259.5000

ISSUED FOR	REV	DATE
WARM LIT SHELL & LEVEL 1 DID	1	11/01/2019

SEALS AND SIGNATURES

NOT FOR CONSTRUCTION

KEYPLAN

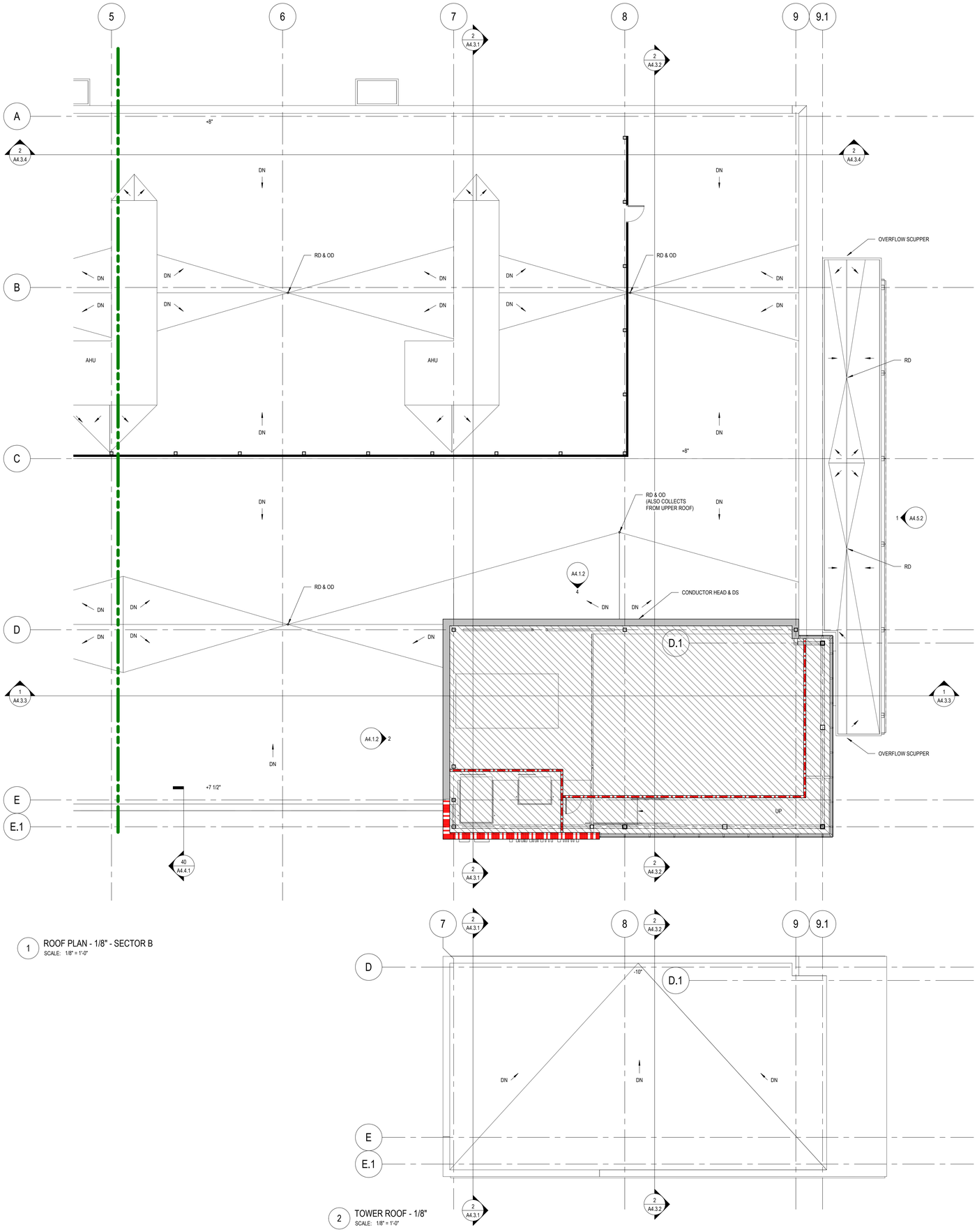


SHEET TITLE
ROOF PLAN - SECTOR A

11865
PROJECT NUMBER

A2.3.1
SHEET NUMBER

Author
11/15/2019 1:01:21 PM
Plot Date:



1 ROOF PLAN - 1/8" - SECTOR B
SCALE: 1/8" = 1'-0"

2 TOWER ROOF - 1/8"
SCALE: 1/8" = 1'-0"

GENERAL SHEET NOTES

A. REFER TO THE A0.X SERIES SHEETS FOR ARCHITECTURAL GENERAL NOTES, DRAWING, REFERENCE AND MATERIAL SYMBOLS, ABBREVIATIONS, AS WELL AS DIMENSIONING CONVENTIONS USED ON THIS SHEET.

B. FOR BASIC LIFE SAFETY AND CODE INFORMATION APPLYING TO THIS PROJECT, REFER TO THE G2.X SERIES SHEETS LOCATED PER THE PROJECT SHEET INDEX.

C. REFER TO THE A3.X SERIES SHEETS FOR THE REFLECTED CEILING PLANS.

D. REFER TO THE A9.2.X SERIES SHEETS FOR PARTITION SYSTEMS TYPES AND DETAILS.

E. REFER TO THE A9.3.X SERIES SHEETS FOR THE INTERIOR OPENING SCHEDULE(S), TYPES, AND DETAILS.

F. REFER TO THE 'AF' SERIES SHEETS FOR INTERIOR FINISH INFORMATION.

G. REFER TO THE 'AI' SERIES SHEETS FOR INTERIOR FURNISHING INFORMATION.

GRAPHIC LEGEND

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088000.IGU1 INSUL LAM GLAZING UNIT

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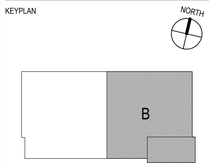
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ISSUED FOR	REV	DATE
WARM LIT SHELL & LEVEL 1 DID	1	11/01/2019

SEALS AND SIGNATURES

NOT FOR CONSTRUCTION

KEYPLAN

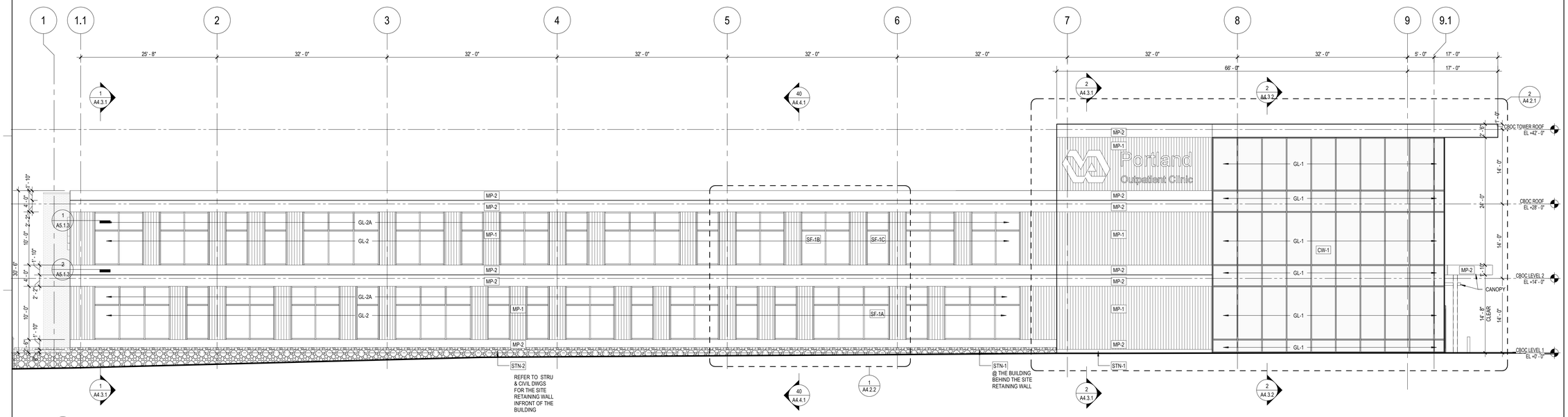


SHEET TITLE
ROOF PLAN - SECTOR B

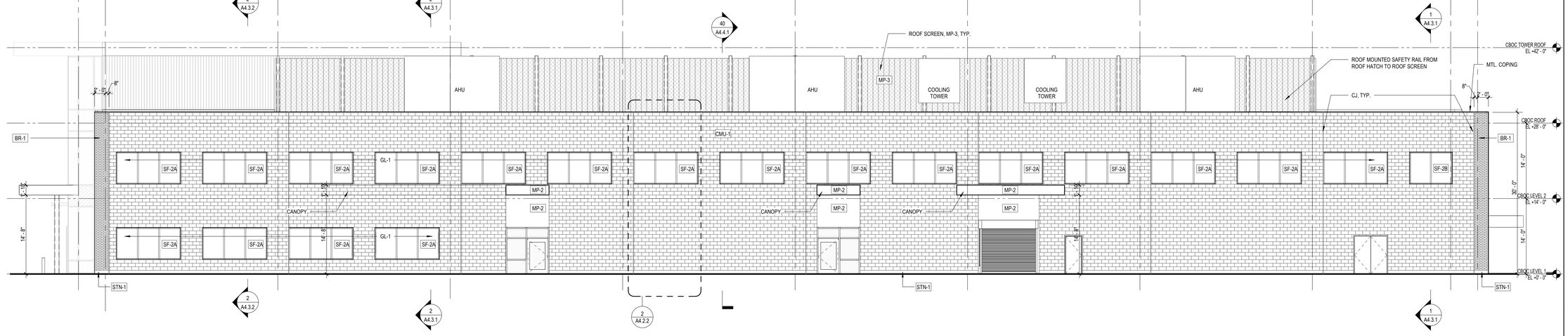
PROJECT NUMBER
11865

SHEET NUMBER
A2.3.2

Author
Plot Date: 11/15/2019 1:02:12 PM



1 SOUTH ELEVATION
SCALE: 1/8" = 1'-0"



2 NORTH ELEVATION
SCALE: 1/8" = 1'-0"

LEGENDS:

CURTAINWALL

CW-1	THERMALLY BROKEN UNITIZED CURTAIN WALL SYSTEM
CW-1A	UNITIZED CURTAIN WALL SYSTEM

STOREFRONT

SF-1	THERMALLY BROKEN STORE-FRONT SYSTEM, "PUNCHED" WINDOWS
SF-2	THERMALLY BROKEN STORE-FRONT SYSTEM, "PUNCHED" WINDOWS

GLASS

GL-1	STRUCTURALLY GLAZED, LOW E, CLEAR INSUL UNIT
GL-1A	STRUCTURALLY GLAZED, LOW E, SPRANDREL INSUL UNIT
GL-2	STRUCTURALLY GLAZED, LOW E, CLEAR INSUL UNIT
GL-2A	STRUCTURALLY GLAZED, LOW E, SPRANDREL INSUL UNIT

METAL

MP-1	COMPOSITE METAL PANEL - CORRUGATED, COLOR - 1
MP-2	COMPOSITE METAL PANEL - FLAT, COLOR - 2
MP-3	PERFORATED MTAL PANEL - CORRUGATED, COLOR - 3

MASONRY & STONE

BR-1	BRICK VENEER WALL, COMPOSITION - 1
CMU-1	CONCRETE MASONRY UNIT VENEER WALL, FINISH - 1
STN-1	GRANITE, FINISH - 1
STN-2	GRANITE, FINISH - 2

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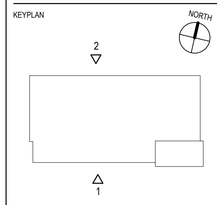
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ISSUED FOR	REV	DATE
WARM LIT SHELL & LEVEL 1 DID	1	11/01/2019

SEALS AND SIGNATURES

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KEYPLAN

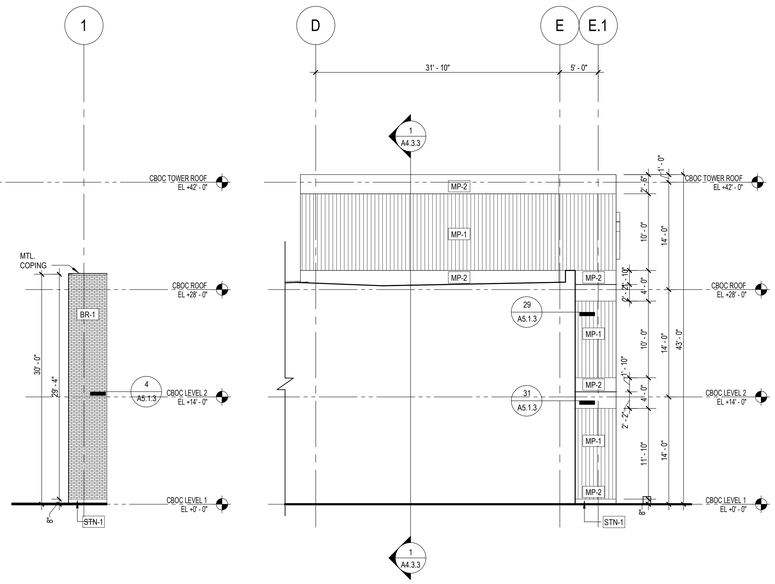


SHEET TITLE
EXTERIOR BUILDING ELEVATIONS

[alt. project number] 11865
PROJECT NUMBER

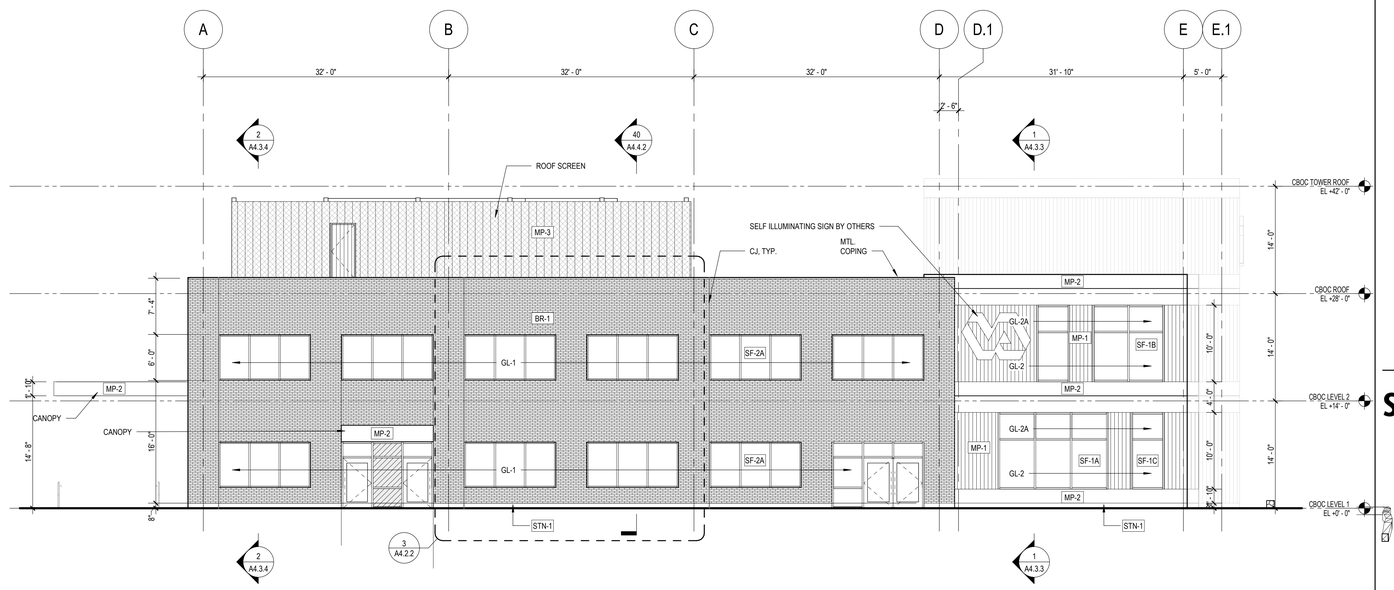
A4.1.1
SHEET NUMBER

START Sheet
Plot Date: 11/15/2019 1:02:50 PM

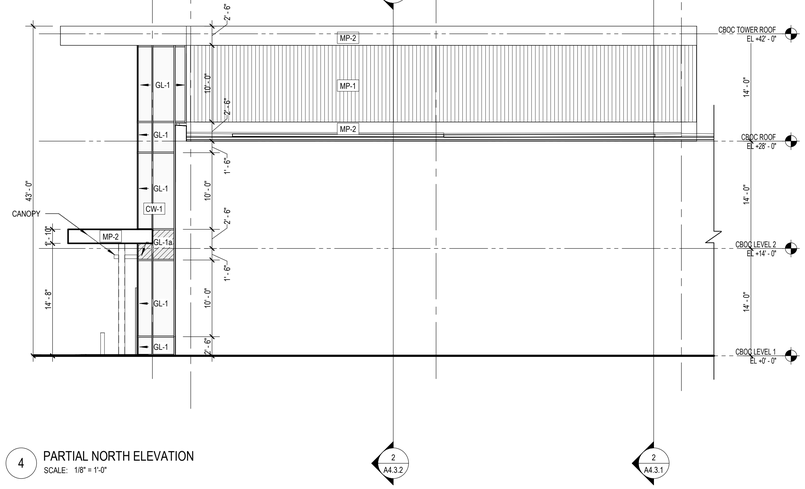


1 PARTIAL SOUTH ELEVATION
SCALE: 1/8" = 1'-0"

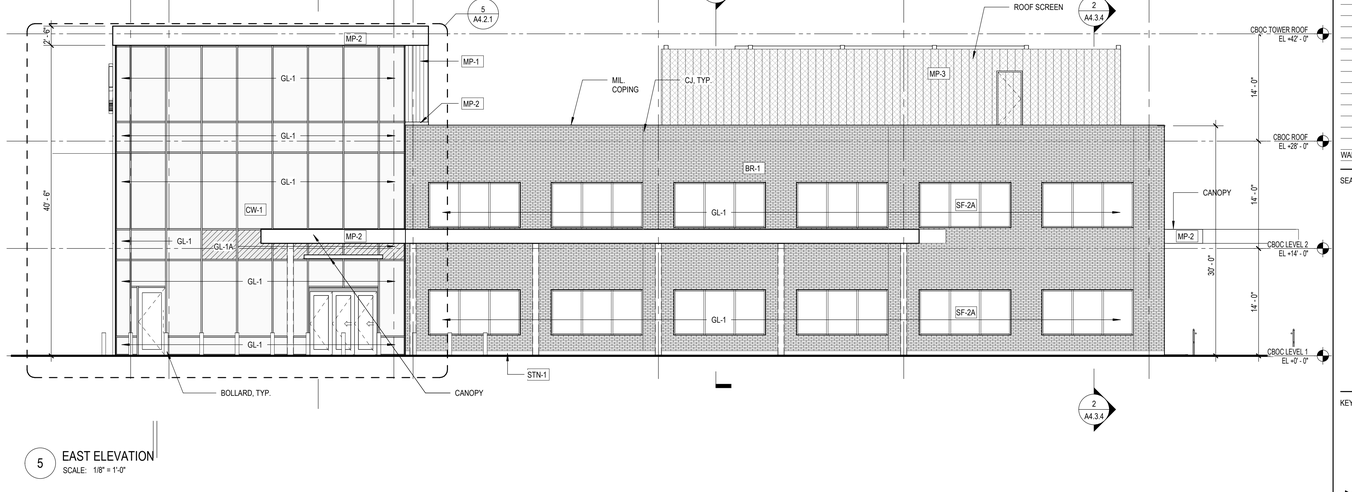
2 PARTIAL WEST ELEVATION
SCALE: 1/8" = 1'-0"



3 WEST ELEVATION
SCALE: 1/8" = 1'-0"



4 PARTIAL NORTH ELEVATION
SCALE: 1/8" = 1'-0"



5 EAST ELEVATION
SCALE: 1/8" = 1'-0"

LEGENDS:

CURTAINWALL

CW-1	THERMALLY BROKEN UNITIZED CURTAIN WALL SYSTEM
CW-1A	UNITIZED CURTAIN WALL SYSTEM

STOREFRONT

SF-1	THERMALLY BROKEN STORE-FRONT SYSTEM, "PUNCHED" WINDOWS
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MP-1	COMPOSITE METAL PANEL - CORRUGATED, COLOR - 1
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WARM LIT SHELL & LEVEL 1 DID	1	11/01/2019

SEALS AND SIGNATURES

NOT FOR CONSTRUCTION

KEYPLAN



SHEET TITLE
EXTERIOR BUILDING ELEVATIONS

[alt. project number] 11865
PROJECT NUMBER

A4.1.2
SHEET NUMBER

Plot Date: 11/5/2019 1:03:20 PM Author

061 H018
N/F
Stephen Dyro
30108/100

061 H005
N/F
Mark Bessire
Aimee Bessire
27820/339

061 H004
N/F
Thomas R. Robinson
Laura C. Robinson
31889/194

061 H003
N/F
Sonia B. Robertson
22292/241

061 H009
N/F
Michael Bruenjes
Judith Bruenjes
32805/295

061 H010
N/F
George R. Moberg
Elizabeth J. Moberg
2928/450

061 H011
N/F
Sarah P. Dignault
32746/060

061 H012
N/F
Michael R. Curtis
Margaret T. Curtis
27739/302

061 H002
N/F
Devens Post Hamlen
Somer Post Hamlen
32457/099

061 H001
N/F
Susan Jane
Noonan
7400/261

061 I004
N/F
Deborah J. Kruk
26933/030

061 I003
N/F
William McFarlane &
Constance
Bloomfield JTS
21615/268

061 I002
N/F
Joseph S. Kilmartin
Helen F. Kilmartin
26215/339

061 I001
N/F
...rie R.
...aw
...0/13

058 C001
N/F
JB Brown & Sons

060 F001
N/F
Canal Landing, LLC
32239/148

060 F002
N/F
Maine DOT

DANFORTH STREET
(width varies)

EMERY ST
(accepted as City Street January 11, 1937)

WEST COMMERCIAL ST.
(width varies)

E STREET
(unimproved/unaccepted)

40' wide passageway

PARKING GARAGE
35,800 SF FOOTPRINT
3 LEVELS
TOTAL 382 PARKING STALLS
(SEE GARAGE PLAN BY OTHERS)
F.F.E. 23.50

PROPOSED OUTPATIENT CLINIC
34,155 SF FOOTPRINT
62,305 SF TOTAL AREA
(SEE ARCHITECTURAL PLANS BY SMITHGROUP)
F.F.E. 22.50

WAYNFLETE BOAT STORAGE

FUTURE BOAT RAMP

EXISTING BOAT MAINTENANCE YARD, TYP.

EXISTING 16" WATER MAIN
EXISTING UNDERGROUND PRIMARY POWER (CMP)
EXISTING 115KVA OIL-ENCASED UNDERGROUND POWER

WEST COMMERCIAL ST MAY HAVE AT LEAST 14' WIDE GRANITE COBBLESTONE BASE BELOW THE EXISTING PAVEMENT – EXACT LOCATION AND LIMITS ARE UNKNOWN

POSSIBLE SEWER MANHOLE (NOT IDENTIFIED ON SURVEY) (INV. 11.36' (PLAN REF. 2))

EX. 16"x12" REDUCER

EX. CATCH BASINS – EXACT OUTLET CONDITIONS UNKNOWN

EX. CB RIM 14.84

EX. CB RIM 14.85 10" INV. OUT 11.00

SMH RIM 58.09 INV. IN 48.89 INV. OUT 48.19

SMH RIM 24.95 48" INV. IN 4.50 48" INV. OUT 4.50

SMH RIM 21.50 48" INV. IN 4.90 48" INV. OUT 4.90 (ADJUST TO GRADE)

SMH RIM 18.27 48" INV. IN 5.32 48" INV. OUT 5.32 (ADJUST TO GRADE)

SMH RIM 20.35 48" INV. IN 5.55 48" INV. OUT 5.55 (ADJUST TO GRADE)

SMH RIM 22.07 48" INV. IN 5.62 48" INV. OUT 5.62

CB 1 L=153.5 UD-M4(DOT)
CHORD N63°37'58"E 153.24'
R=725.74'

CB 2

CB 3

CB 4

CB 5

UD 1
UD-N3(DOT)*4'
CHORD S65°57'58"W 165.07'
L=165.42'
R=725.74'

UD 2
S09°28'10"W
495.19'

UD 3

UD 4
S26°10'E

UD 5

UD 11
UD 11A

CB (DOT)

N72°29'45"E
542.24'

S72°29'45"W
519.07'

N87°07'38"E
273.21'

S87°07'38"W
21.45'

CHORD S79°48'41"W 184.84'
L=185.34'
R=225.78'

S02°52'22"E
41'±

26'±

N71°39'48"E
854.35'

N66°06'18"E
793.06'

N73°

SIDEWALK
RAMP
ENTRY
WALL
LOADING
OHD
TEMP TRAILER
EX MH
CB (DOT)
SIDEWALK (DOT)

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 inch = 40 ft.

STATE OF MAINE
STEPHEN R. BUSHEY
12.05.19
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	12.05.19	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB	Draft: CDD	Date: NOV. 2019
Checked: SRB	Scale: AS NOTED	Job No.: 3572
File Name: 3572–UTILITY.dwg		

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207.772.2515

Drawing Name: OVERALL UTILITY PLAN

Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine

Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C–6.0

U:\3572_VA Clinic West Commercial St–Portland, ME\Z – CAD\DWG\3572–UTILITY.dwg 12/5/2019 11:05 AM

061 I004
N/F
Deborah J. Kruk
26933/030

½" iron rod leaning

061 I003
N/F
William McFarlane &
Constance
Bloomfield JTS
21615/268

capped iron rod PLS #2320

capped iron rod PLS #2320 leaning

061 I002
N/F
Joseph S. Kilmartin
Helen F. Kilmartin
26215/339

capped iron rod PLS #2273

40' wide passageway

061 H001
N/F
Susan Jane
Noonan
7400/261

E STREET
(unimproved/unaccepted)

9' x 9' REINFORCED CONCRETE 3-PHASE TRANSFORMER PAD

SECONDARY POWER TO BUILDING & GENERATOR

8" ROOF DRAIN

AMBUL. VESTIB.

TELE/ DATA ROOM

EMERG ELEC.

NORM. ELEC.

STAIR

PLUMBING

GAS CYL.

8" FIRE SERVICE ENTRY POINT

4" DOMESTIC WATER SERVICE ENTRY POINT

STAFF ENTRY

MATCH LINE

MECH. ROOM

TP-3

GAS SERVICE ENTRY POINT (COORDINATE LOCATION & SIZING WITH BUILDING PLANS AND GAS UTILITY COMPANY)

6" SAN

TP-2

CMP 38Y MANHOLE

4' x 6' COMM. PULL BOX

TWO 5" PVC CONDUITS FOR PRIMARY POWER

APPROX. LOCATION OF SITE LIGHTING, TYP. (SEE LIGHTING / PHOTOMETRICS PLAN(S) BY SWANEY LIGHTING)

8" GATE VALVE

8" x 4" TEE & 4" GATE VALVE

WEST COMMERCIAL ST.
(width varies)

CLINIC WATER SERVICE WILL CROSS OVER THE EXISTING UNDERGROUND OIL-ENCASED 115 KVA POWER TRANSMISSION LINE. HAND DIGGING IS REQUIRED. PERFORM TEST PIT AT LEAST TWO WEEKS PRIOR TO UTILITY INSTALLATION-CONTRACTOR TO PROVIDE COORDINATION/SCHEDULING WITH CMP AT NO EXTRA EXPENSE TO OWNER.

16" x 8" TAPPING SLEEVE & 8" GATE VALVE

TEST PIT

COORDINATE GAS SERVICE LOCATION WITH GAS UTILITY COMPANY

060 F001
N/F
Canal Landing, L
32239/148

SMH
RIM 18.27
48" INV. IN 5.32
48" INV. OUT 5.32
(ADJUST TO GRADE)

EX. CB
RIM 14.85
10" INV. OUT 11.00

EX. CATCH BASINS
EXACT OUTLET
CONDITIONS UNKNOWN

24" L.P. (ABANDONED)

10" H.P. (ACTIVE)

854.33'

N71°38'48"E

SMH
RIM 20.35
48" INV. IN 5.55
48" INV. OUT 5.55
(ADJUST TO GRADE)

SMH
RIM 22.07
48" INV. IN 5.62
48" INV. OUT 5.62

STOP

Stone wall

Tree/Bush

115KV UGE

gas

uge

NORTH

GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 inch = 20 ft.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
12.05.19
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–
		...TING 24" ...

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	12.05.19	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB	Draft: CDD	Date: NOV. 2019
Checked: SRB	Scale: AS NOTED	Job No.: 3572

File Name: 3572-UTILITY.dwg

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207.772.2515

Drawing Name: UTILITY PLAN – WEST SIDE

Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine

Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C–6.1

U:\3572_VA Clinic West Commercial St-Portland, ME\Z - CAD\DWG\3572-UTILITY.dwg 12/5/2019 11:06 AM

061 H004
N/F
Thomas R. Robinson
Laura C. Robinson
31889/194

058 C001
N/F
JB Brown & Sons

H003
/F
Robertson
2/241

WEST COMMERCIAL ST.
(width varies)
(Layout of Portland, 1851)

PROPOSED OUTPATIENT CLINIC
34,155 SF FOOTPRINT
62,300 SF TOTAL AREA
(SEE ARCHITECTURAL PLANS BY SMITHGROUP)
F.F.E. 22.50

PARKING GARAGE
35,800 SF FOOTPRINT
3 LEVELS
TOTAL 382 PARKING STALLS
(SEE GARAGE PLAN BY OTHERS)
F.F.E. 23.50

MATCH LINE

MOBILE MRI
AMBULANCE VESTIBULE
STAIR
PLUMBING
EMERG ELEC.
NORM. ELEC.
TELE/ DATA ROOM
GAS CYL.
STAFF ENTRY
MECH. ROOM
ELEV.
TURBINE ROOM
RAMP
SIDEWALK
ENTRY
WALL
CNTR

10' x 25' REINFORCED CONCRETE PAD FOR GENERATOR
SECONDARY POWER TO BUILDING & GENERATOR
8" ROOF DRAIN
8" FIRE SERVICE ENTRY POINT
4" DOMESTIC WATER SERVICE ENTRY POINT
GAS SERVICE ENTRY POINT (COORDINATE LOCATION & SIZING WITH BUILDING PLANS AND GAS UTILITY COMPANY)
2 COMPARTMENT OIL / WATER SEPARATOR (SEE DETAILS)
ALTER EXISTING MANHOLE TO ACCEPT NEW 12" DRAIN LINE
12" DRAIN
SMH RIM 24.95 48" INV. IN 4.50 48" INV. OUT 4.50
POSSIBLE SEWER MANHOLE (NOT IDENTIFIED ON SURVEY) (INV. 11.36' (PLAN REF. 2))
EX. 16"x12" REDUCER
3' offse monume 8"x8" s
EXISTING POLE TO BE RELOCATED BY CMP
PROP. SMH #1
RIM= 22.0'±
6" INV. IN= 16.5' (VERIFY WITH PLUMBING PLAN)
8" INV. OUT= 16.4'
6" SAN – TIE INTO 48" INTERCEPTOR BY A DROP CONNECTION INTO EXISTING SEWER PIPE
SMH RIM 21.50 48" INV. IN 4.90 48" INV. OUT 4.90 (ADJUST TO GRADE)
N66°06'18"E 793.06'
8" GATE VALVE
8" x 4" TEE & 4" GATE VALVE
16" x 8" TAPPING SLEEVE & 8" GATE VALVE
TEST PIT
EXISTING 16" WATER MAIN
EXISTING UNDERGROUND PRIMARY POWER (CMP)
EXISTING 115KV OIL-ENCASED UNDERGROUND POWER
24" L.P. (ABANDONED)
10" H.P. (ACTIVE)
UD 11
UD 11A
CB.5
OHD
TP-1
TP-2
TP-3
TP-6
TP-7
TP-8
capped iron rod
capped iron rod
capped iron rod PK-#1252 2.30' from corner

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
20 0 10 20 40
(IN FEET)
1 inch = 20 ft.

STATE OF MAINE
STEPHEN R. BUSHEY
12.05.19
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	12.05.19	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB | Draft: CDD | Date: NOV. 2019
Checked: SRB | Scale: AS NOTED | Job No.: 3572
File Name: 3572–UTILITY.dwg

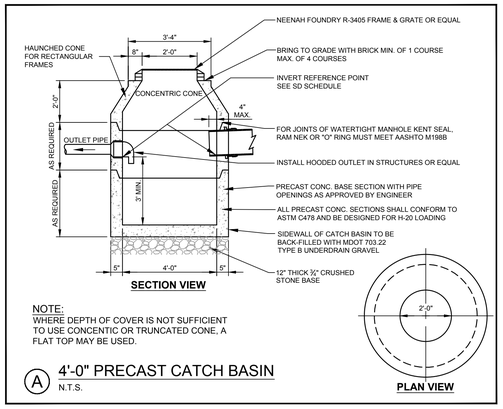
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Drawing Name: UTILITY PLAN – EAST SIDE
Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine
Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

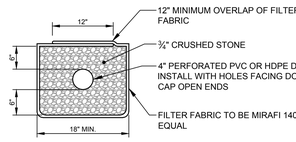
Drawing No. C–6.2

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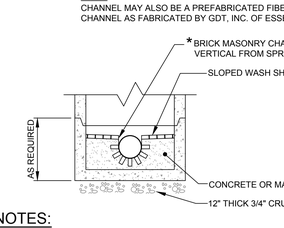
NOTE:
WHERE DEPTH OF COVER IS NOT SUFFICIENT TO USE CONCENTRIC OR TRUNCATED CONE, A FLAT TOP MAY BE USED.

(A) 4'-0" PRECAST CATCH BASIN
N.T.S.



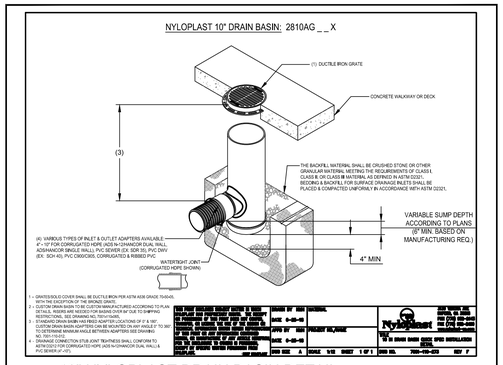
NOTE:
LOCATIONS AS NOTED ON PLANS - COORDINATE WITH ARCHITECTURAL AND / OR STRUCTURAL PLANS.

(D) TYPICAL FOUNDATION DRAIN DETAIL
N.T.S.

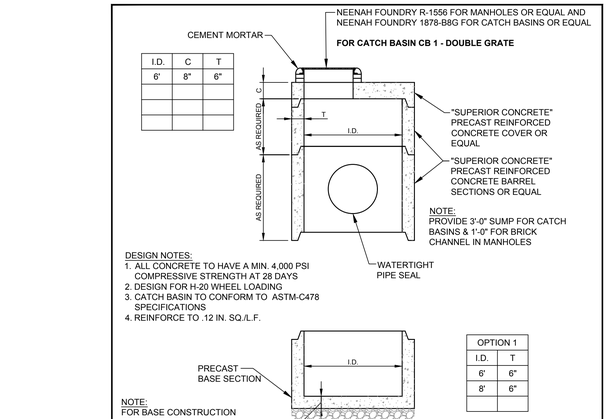


NOTES:
1. BRICK CHANNEL TO BE AASHTO M-91-42 GRADE SA SEWER BRICK.*
2. MANHOLE TEST TO BE ACCOMPLISHED AFTER CHANNEL INSTALLATION IS COMPLETE.
3. WHERE THE ALIGNMENT CHANGES OR SIDE FLOW ENTERS THE MANHOLE, CONSTRUCT CHANNEL WITH A SMOOTH RADIAL CHANNEL TO ACCOMPLISH ALL JUNCTIONAL CHANGE OF ALIGNMENT WITHIN MANHOLE.

(H) MANHOLE BRICK CHANNEL INSTALLATION DETAIL
N.T.S.



(L) 10" NYLOPLAST DRAIN BASIN DETAIL
N.T.S.



DESIGN NOTES:
1. ALL CONCRETE TO HAVE A MIN. 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS
2. DESIGN FOR H-20 WHEEL LOADING
3. CATCH BASIN TO CONFORM TO ASTM-C478 SPECIFICATIONS
4. REINFORCE TO .12 IN. SQ./L.F.

NOTE:
PROVIDE 3'-0" SUMP FOR CATCH BASINS & 1'-0" FOR BRICK CHANNEL IN MANHOLES

OPTION 1	
I.D.	T
6'	6"
8'	6"

NOTE:
FOR BASE CONSTRUCTION SEE BASE DETAIL

BASE DETAIL OPTION 1

OPTION 2	
I.D.	W
6'	9'
8'	11'-4"

BASE DETAIL OPTION 2

NOTE:
THE CONTRACTOR SHALL USE BASE OPTION 2 UNLESS ANTIFLOATATION COMPUTATIONS ARE PROVIDED BY THE CONTRACTOR DEMONSTRATING OPTION 1 CAN BE USED AT THIS SITE. APPROVAL IS SUBJECT TO REVIEW OF THE ENGINEER.

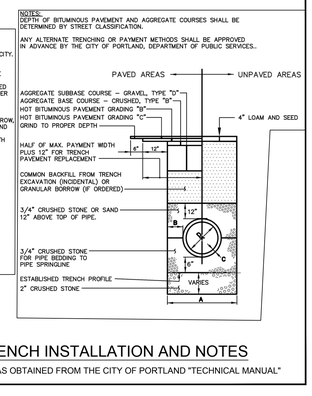
(B) LARGE DIAMETER STORM DRAIN MANHOLE AND CATCH BASIN WITH FLAT TOP
N.T.S.

NOTES
1. ALTERNATIVE CONSTRUCTION METHODS OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY.
2. IN PAVED AREAS, DEPTHS OF GRAVEL AND HOT MIX ASPHALT SHALL BE THE DEPTHS GREATER OF EXISTING CONDITIONS OR THE REQUIREMENTS FOR THE CORRESPONDING STREET CLASSIFICATION.
3. DIMENSION **B** SHALL BE SUFFICIENT TO ALLOW CRUSHED STONE BEDDING TO BE PLACED AND COMPACTED UNDER THE HAUNCHES OF THE PIPE, BUT IN ALL CASES DIMENSION **B** SHALL BE AT LEAST 8".
4. DIMENSION **A** IS THE MAXIMUM WIDTH ALLOWED FOR CALCULATING PAY QUANTITIES UNDER GRANULAR BORROW, CRUSHED STONE, STRUCTURAL EARTH EXCAVATION, AND STRUCTURAL ROCK EXCAVATION. DIMENSION **A** SHALL BE BASED ON PIPE DIAMETER **D**, AS SET FORTH IN THE FOLLOWING TABLE.

PIPE DIAMETER, D (INCHES)	MAX. TRENCH WIDTH, A (FEET)
4	4.0
6	4.0
8	4.0
10	4.0
12	5.0
15	5.0
18	5.0
21	5.0
24	6.0
27	6.0
30	6.0
36	6.0
42	7.0
48	7.0

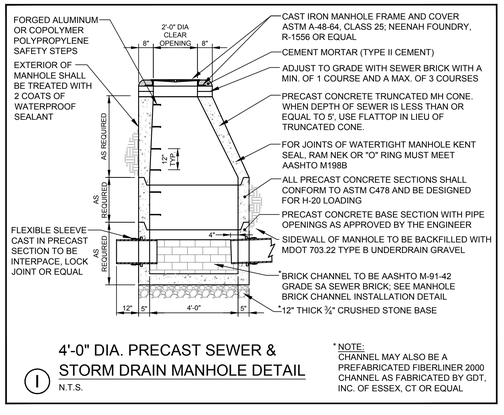
NOTE:
DEPTH OF BITUMINOUS PAVEMENT AND AGGREGATE COURSES SHALL BE DETERMINED BY STREET CLASSIFICATION.

ANY ALTERNATE TRENCHING OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY OF PORTLAND, DEPARTMENT OF PUBLIC SERVICES..



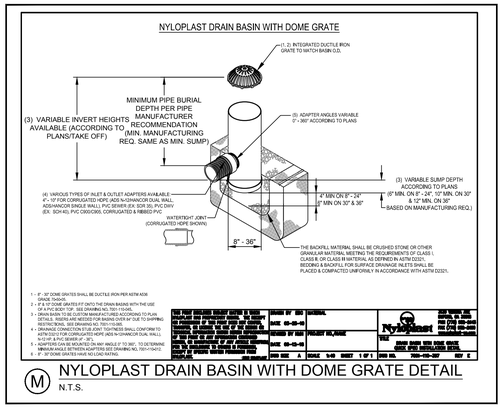
(E) TYPICAL PIPE TRENCH INSTALLATION AND NOTES
N.T.S.

AS OBTAINED FROM THE CITY OF PORTLAND "TECHNICAL MANUAL"

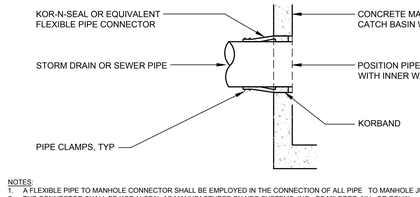


(I) 4'-0" DIA. PRECAST SEWER & STORM DRAIN MANHOLE DETAIL
N.T.S.

* NOTE:
CHANNEL MAY ALSO BE A PREFABRICATED FIBERLINER 2000 CHANNEL AS FABRICATED BY GDT, INC. OF ESSEX, CT OR EQUAL

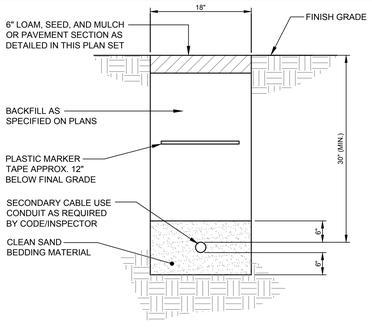


(M) NYLOPLAST DRAIN BASIN WITH DOME GRATE DETAIL
N.T.S.



NOTES:
1. A FLEXIBLE PIPE TO MANHOLE CONNECTOR SHALL BE EMPLOYED IN THE CONNECTION OF ALL PIPE TO MANHOLE JUNCTIONS.
2. THE CONNECTOR SHALL BE KOR-N-SEAL AS MANUFACTURED BY NPC SYSTEMS, INC., OF MILFORD, NH OR EQUAL.
3. THE CONNECTOR SHALL BE THE SOLE ELEMENT RELIED ON TO ASSURE A FLEXIBLE WATERTIGHT SEAL OF THE PIPE TO MANHOLE. NO ADHESIVES OR LUBRICANTS SHALL BE EMPLOYED IN THE INSTALLATION OF THE CONNECTOR TO THE MANHOLE. THE RUBBER FOR THE CONNECTOR SHALL COMPLY TO ASTM C443 AND ASTM C923 AND CONSIST OF EPDM AND ELASTOMERS KNOWN TO BE RESISTANT TO OZONE, WEATHER ELEMENTS, CHEMICALS, INCLUDING ACIDS, ALKALIS, ANIMAL AND VEGETABLE FATS, OILS AND PETROLEUM PRODUCTS FROM SPILLS.
4. ALL STAINLESS STEEL ELEMENTS OF THE CONNECTOR SHALL BE TOTALLY NON-MAGNETIC SERIES 304 STAINLESS, EXCLUDING THE WORM SCREW USED FOR TIGHTENING THE STEEL BAND AROUND THE PIPE WHICH SHALL BE SERIES 305 STAINLESS. THE WORM SCREW USED FOR TIGHTENING THE STEEL BAND SHALL BE TORQUED BY A BREAK-AWAY TORQUE WRENCH AVAILABLE FROM THE PRECAST MANHOLE SUPPLIER, AND SET AT 60/70 in/lbs.
5. THE CONNECTOR SHALL BE INSTALLED IN THE MANHOLE WALL BY ACTIVATING THE EXPANDING MECHANISM IN STRICT ACCORDANCE WITH THE RECOMMENDATION OF THE CONNECTOR MANUFACTURER.
6. THE CONNECTOR SHALL BE OF A SIZE SPECIFICALLY DESIGNED FOR THE PIPE MATERIAL AND SIZE BEING UTILIZED ON THE PROJECT.
7. ALL CONNECTORS WHICH ARE CAPPED AWAITING PIPE INSTALLATION AT A LATER DATE MUST BE RESTRAINED.

PIPE CONNECTION TO PRECAST CONCRETE (C) SANITARY SEWER AND STORM DRAINAGE STRUCTURE
N.T.S.



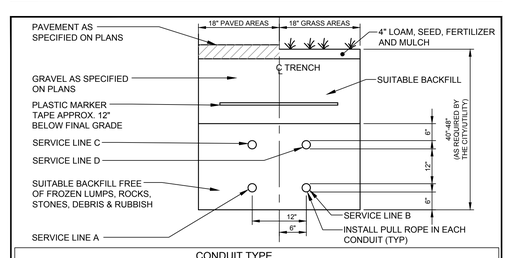
(G) SECONDARY ELECTRICAL TRENCH DETAIL
N.T.S.

(K) CLEANOUT DETAIL
N.T.S.

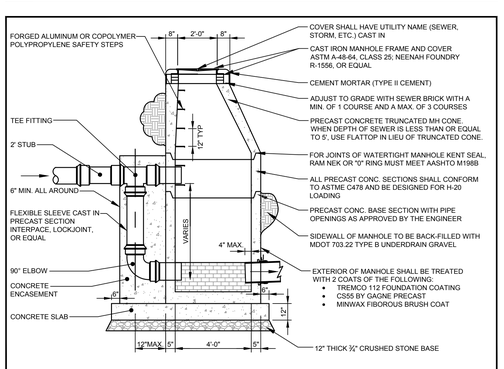
CONDUIT TYPE					
SERVICE	CONDUIT SIZE	GRASS AREAS	PAVED AREAS	UTILITY	REMARKS
A	2-6"	SCHEDULE 40 PVC ELECTRICAL GRADE	RIGID GALVANIZED STEEL, ASTM A120*	POWER	SEE NOTE
B	2-4"	SCHEDULE 40 PVC	RIGID GALVANIZED STEEL, ASTM A120*	TELEPHONE	SEE NOTE
C	2-4"	SCHEDULE 40 PVC	RIGID GALVANIZED STEEL, ASTM A120*	COMMUNICATION	SEE NOTE
D	2-4"	SCHEDULE 40 PVC	RIGID GALVANIZED STEEL, ASTM A120*	SPARES	SEE NOTE

*AS REQUIRED BY CITY /UTILITY

NOTES:
1. ONE CONDUIT CAPPED FOR SPARE, PROVIDE GALVANIZED STEEL LONG SWEEP AT RISER POLE AND EXTEND GALVANIZED CONDUIT TO 10' ABOVE GRADE AT POLE WITH STAND-OFF BRACKETS. COORDINATE WITH ELECTRICAL PLANS.
2. IN CITY RIGHT OF WAY, CONDUITS TO HAVE 36" MIN. COVER AND SHALL BE ENCASED WITH MIN. 3" CONCRETE ON ALL SIDES.



(F) UTILITY TRENCH - PRIMARY ELEC., TEL. & COMM.
N.T.S.

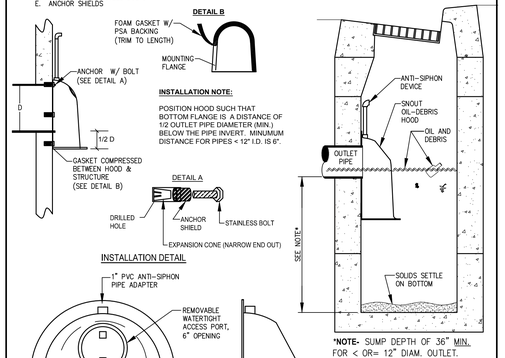


(J) 4'-0" DIA. DROP MANHOLE
N.T.S.

NOTES:
1. ALL HOODS AND TRAPS FOR CATCH BASINS AND WATER QUALITY STRUCTURES SHALL BE AS MANUFACTURED BY BEST MANAGEMENT PRODUCTS, INC. TOLL FREE: (800) 504- 8008 OR (888) 354- 7585 WEB SITE: www.bmpinc.com OR PRE-APPROVED EQUAL.
2. ALL HOODS SHALL BE CONSTRUCTED OF A GLASS REINFORCED RESIN COMPOSITE WITH ISO GEL COAT EXTERIOR FINISH WITH A MINIMUM 0.125" LAMINATE THICKNESS.
3. ALL HOODS SHALL BE EQUIPPED WITH A WATERTIGHT ACCESS PORT, A MOUNTING FLANGE, & AN ANTI-SIPHON VENT AS DRAWN. (SEE CONFIGURATION DETAIL)
4. THE SIZE AND POSITION OF THE HOOD SHALL BE DETERMINED BY OUTLET PIPE SIZE IN ACCORDANCE WITH THE FOLLOWING TABLE:

STRUCTURE OUTLET HOLE SIZE	SNOUT SIZE
11.9" O.D. OR LESS	12 F or R
12.0"–17.9" O.D.	18 F or R
18.0"–23.9" O.D.	24 F or R
24.0"–29.9" O.D.	30 F or R
30.0"–47.9" O.D.	48 F
48.0"–95.9" O.D.	96 F

5. THE BOTTOM OF THE HOOD SHALL EXTEND DOWNWARD A DISTANCE EQUAL TO 1/2 THE OUTLET PIPE DIAMETER WITH A MINIMUM DISTANCE OF 6" FOR PIPES <12" I.D.
6. THE ANTI-SIPHON VENT SHALL EXTEND ABOVE HOOD BY MINIMUM OF 3" AND A MAXIMUM OF 24" ACCORDING TO STRUCTURE CONFIGURATION.
7. THE SURFACE OF THE STRUCTURE WHERE THE HOOD IS MOUNTED SHALL BE FINISHED SMOOTH AND FREE OF LOOSE MATERIAL.
8. THE HOOD SHALL BE SECURELY ATTACHED TO STRUCTURE WALL WITH 3/8" STAINLESS STEEL BOLTS AND OIL-RESISTANT GASKET AS SUPPLIED BY MANUFACTURER. (SEE INSTALLATION DETAIL)
9. INSTALLATION INSTRUCTIONS SHALL BE FURNISHED WITH MANUFACTURER SUPPLIED INSTALLATION KIT, WHICH INCLUDES:
   A. INSTALLATION INSTRUCTIONS
   B. PVC ANTI-SIPHON VENT PIPE AND ADAPTER
   C. OIL-RESISTANT CRUSHED CELL FOAM GASKET WITH PSA BACKING
   D. 3/8" STAINLESS STEEL BOLTS
   E. ANCHOR SHIELDS



(N) SNOUT OIL–WATER–DEBRIS SEPARATOR DETAIL
N.T.S.

SNOUTS INSTALLED ON STORM DRAIN PIPES GREATER THAN 18" DIAMETER ARE REQUIRED TO BE INSTALLED PRIOR TO INSTALLATION OF CATCH BASIN FLAT TOP.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 12.05.19 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

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Rev.	Date	Revision
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Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	12.05.19	SRB
TMP APPLICATION	11.22.19	SRB

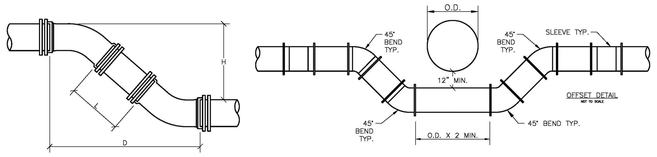
Design: SRB	Draft: CDD	Date: NOV. 2019
Checked: SRB	Scale: NTS	Job No.: 3572
File Name: 3572-DETAILS.dwg		

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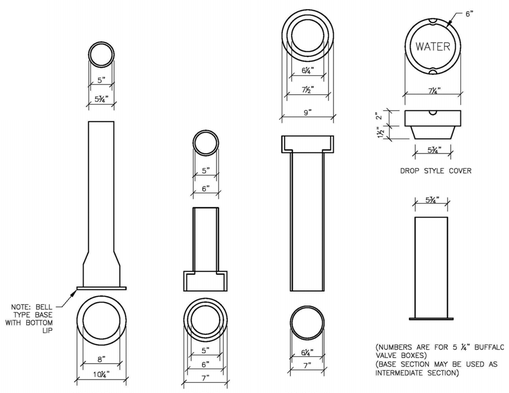
Drawing Name: STORM DRAIN & UTILITY DETAILS
Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine
Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C–10.2



TYPICAL MAIN OFFSET

	6" PIPE		8" PIPE		12" PIPE	
H	D	L	D	L	D	L
12"	1' 6-1/2"	0' 10-1/2"	1' 7-1/2"	0' 8-1/2"	1' 11-1/2"	0' 5-1/2"
13"	1' 7-1/2"	0' 11-7/8"	1' 8-1/2"	0' 10-7/8"	2' 0-1/2"	0' 8-7/8"
14"	1' 8-1/2"	1' 1-5/16"	1' 9-1/2"	1' 0-5/16"	2' 1-1/2"	0' 8-5/16"
15"	1' 9-1/2"	1' 2-11/16"	1' 10-1/2"	1' 1-11/16"	2' 2-1/2"	0' 9-11/16"
16"	1' 10-1/2"	1' 4-1/8"	1' 11-1/2"	1' 3-1/8"	2' 3-1/2"	0' 11-1/8"
17"	1' 11-1/2"	1' 5-9/16"	2' 0-1/2"	1' 4-9/16"	2' 4-1/2"	1' 0-9/16"
18"	2' 0-1/2"	1' 6-15/16"	2' 1-1/2"	1' 5-15/16"	2' 5-1/2"	1' 1-15/16"
19"	2' 1-1/2"	1' 8-3/8"	2' 2-1/2"	1' 7-3/8"	2' 6-1/2"	1' 3-3/8"
20"	2' 2-1/2"	1' 9-13/16"	2' 3-1/2"	1' 8-13/16"	2' 7-1/2"	1' 4-13/16"
21"	2' 3-1/2"	1' 11-3/16"	2' 4-1/2"	1' 10-3/16"	2' 8-1/2"	1' 6-3/16"
22"	2' 4-1/2"	2' 0-5/8"	2' 5-1/2"	1' 11-5/8"	2' 9-1/2"	1' 7-5/8"
23"	2' 5-1/2"	2' 2"	2' 6-1/2"	2' 1"	2' 10-1/2"	1' 9"
24"	2' 6-1/2"	2' 3-7/16"	2' 7-1/2"	2' 2-7/16"	2' 11-1/2"	1' 10-7/16"
25"	2' 7-1/2"	2' 4-7/8"	2' 8-1/2"	2' 3-7/8"	3' 0-1/2"	1' 11-7/8"
26"	2' 8-1/2"	2' 6-1/4"	2' 9-1/2"	2' 5-1/4"	3' 1-1/2"	2' 1-1/4"
27"	2' 9-1/2"	2' 7-11/16"	2' 10-1/2"	2' 6-11/16"	3' 2-1/2"	2' 2-11/16"
28"	2' 10-1/2"	2' 9-1/8"	2' 11-1/2"	2' 8-1/8"	3' 3-1/2"	2' 4-1/8"
29"	2' 11-1/2"	2' 10-1/2"	3' 0-1/2"	2' 9-1/2"	3' 4-1/2"	2' 5-1/2"
30"	3' 0-1/2"	2' 11-15/16"	3' 1-1/2"	2' 10-15/16"	3' 5-1/2"	2' 6-15/16"
31"	3' 1-1/2"	3' 1-5/16"	3' 2-1/2"	3' 0-5/16"	3' 6-1/2"	2' 8-5/16"
32"	3' 2-1/2"	3' 2-3/4"	3' 3-1/2"	3' 1-3/4"	3' 7-1/2"	2' 9-3/4"
33"	3' 3-1/2"	3' 4-3/16"	3' 4-1/2"	3' 3-3/16"	3' 8-1/2"	2' 11-3/16"
34"	3' 4-1/2"	3' 5-9/16"	3' 5-1/2"	3' 4-9/16"	3' 9-1/2"	3' 0-9/16"
35"	3' 5-1/2"	3' 7"	3' 6-1/2"	3' 6"	3' 10-1/2"	3' 2"
36"	3' 6-1/2"	3' 8-7/16"	3' 7-1/2"	3' 7-7/16"	3' 11-1/2"	3' 3-7/16"
37"	3' 7-1/2"	3' 9-13/16"	3' 8-1/2"	3' 8-13/16"	4' 0-1/2"	3' 4-13/16"
38"	3' 8-1/2"	3' 11-1/4"	3' 9-1/2"	3' 10-1/4"	4' 1-1/2"	3' 6-1/4"
39"	3' 9-1/2"	4' 0-11/16"	3' 10-1/2"	3' 11-11/16"	4' 2-1/2"	3' 7-11/16"
40"	3' 10-1/2"	4' 2-1/8"	3' 11-1/2"	4' 1-1/16"	4' 3-1/2"	3' 9-1/16"
41"	3' 11-1/2"	4' 3-1/2"	4' 0-1/2"	4' 2-1/2"	4' 4-1/2"	3' 10-1/2"
42"	4' 0-1/2"	4' 4-7/8"	4' 1-1/2"	4' 3-7/8"	4' 5-1/2"	3' 11-7/8"
43"	4' 1-1/2"	4' 6-5/16"	4' 2-1/2"	4' 5-5/16"	4' 6-1/2"	4' 1-5/16"
44"	4' 2-1/2"	4' 7-3/4"	4' 3-1/2"	4' 6-3/4"	4' 7-1/2"	4' 2-3/4"
45"	4' 3-1/2"	4' 9-1/8"	4' 4-1/2"	4' 8-1/8"	4' 8-1/2"	4' 4-1/8"
46"	4' 4-1/2"	4' 10-9/16"	4' 5-1/2"	4' 9-9/16"	4' 9-1/2"	4' 5-9/16"
47"	4' 5-1/2"	4' 11-15/16"	4' 6-1/2"	4' 10-15/16"	4' 10-1/2"	4' 6-15/16"
48"	4' 6-1/2"	5' 1-3/8"	4' 7-1/2"	5' 0-3/8"	4' 11-1/2"	4' 8-3/8"
49"	4' 7-1/2"	5' 2-13/16"	4' 8-1/2"	5' 1-13/16"	5' 0-1/2"	4' 9-13/16"
50"	4' 8-1/2"	5' 4-3/16"	4' 9-1/2"	5' 3-3/16"	5' 1-1/2"	4' 11-3/16"
51"	4' 9-1/2"	5' 5-5/8"	4' 10-1/2"	5' 4-5/8"	5' 2-1/2"	5' 0-5/8"
52"	4' 10-1/2"	5' 7-1/16"	4' 11-1/2"	5' 6-1/16"	5' 3-1/2"	5' 2-1/16"
53"	4' 11-1/2"	5' 8-7/16"	5' 0-1/2"	5' 7-7/16"	5' 4-1/2"	5' 3-7/16"
54"	5' 0-1/2"	5' 9-7/8"	5' 1-1/2"	5' 8-7/8"	5' 5-1/2"	5' 4-7/8"
55"	5' 1-1/2"	5' 11-5/16"	5' 2-1/2"	5' 10-5/16"	5' 6-1/2"	5' 6-5/16"

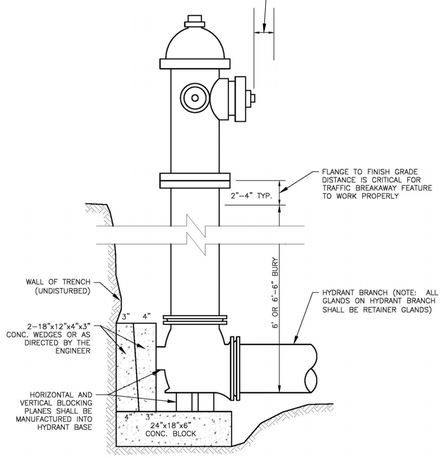


VALVE BOX & COVER

Ⓐ STANDARD WATER DETAILS
N.T.S.

FOR STATE ROADS
SETBACK SHALL CONFORM TO M.D.O.T. POLICY FOR ABOVE GROUND UTILITY LOCATIONS. FOR SPEED LIMITS >35MPH 6.5' FROM EDGE OF SHOULDER OR FACE OF CURB. FOR SPEED LIMITS <35MPH 3' FROM EDGE OF SHOULDER OR 1' FROM FACE OF CURB.

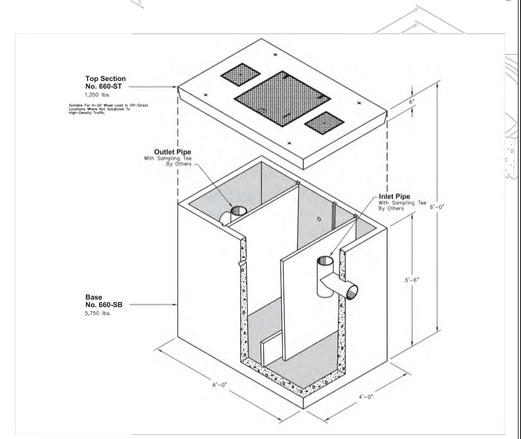
FOR CITY OR TOWN ROADS CHECK WITH MUNICIPALITY FOR REQUIREMENTS



Ⓔ HYDRANT INSTALLATION DETAIL
N.T.S.

Oldcastle Precast AUBURN — *Delivering Reliability*

660-SA OIL WATER SEPARATOR
450 Gallon Capacity



Non Skid Covers Available
FOR DETAILS, SEE REVERSE>>
Items Shown Are Subject To Change Without Notice
Issue Date: April 2016

134

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Mailing Address
PO Box 598
Auburn, WA 98071

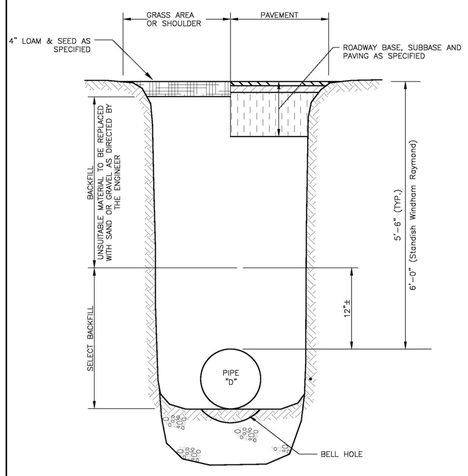
Phone: 800-892-1038
Fax: 253-735-4201
Email: opauburn@oldcastle.com

opauburn.com

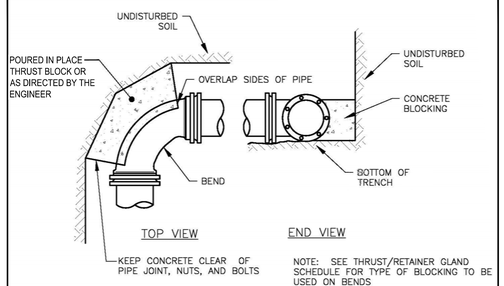
Ⓗ OIL / WATER SEPARATOR FOR GARAGE DRAINS DETAIL
N.T.S.

TRENCH NOTES

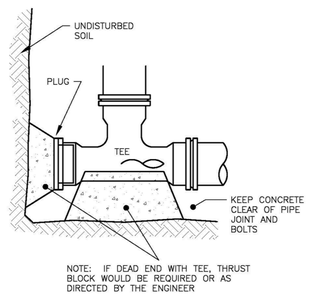
1. MAX PAY LIMITS SHALL BE 1.5 TIMES THE PIPE DIAMETER ON EACH SIDE OF PIPE
2. CLAY DAMS WILL BE INSTALLED IN LEDGE TRENCHES EVERY 100'± IN AREAS OF MORE THAN 3% SLOPE.



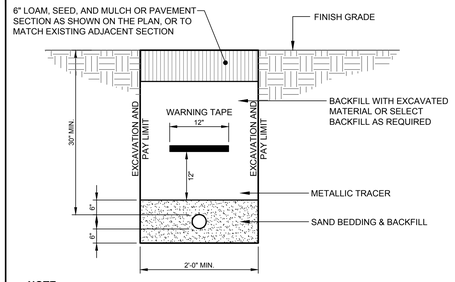
Ⓑ TYPICAL WATER TRENCH DETAIL
N.T.S.



Ⓒ STANDARD BEND BLOCKING
N.T.S.



Ⓓ STANDARD TEE THRUST BLOCK DETAIL
N.T.S.



NOTE:
GAS LINE TO BE INSTALLED BY OTHERS. GAS LINE INSTALLATION TO BE COORDINATED WITH THE LOCAL GAS UTILITY COMPANY, AND SHALL COMPLY WITH ITS STANDARDS. SITE CONTRACTOR IS RESPONSIBLE FOR EXCAVATION AND BACKFILL OF THE GAS LINE AND PLACEMENT OF THE WARNING TAPES AND TRACER.

Ⓕ GAS SERVICE TRENCH SECTION
N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 12.05.19 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	12.05.19	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB	Draft: CDD	Date: NOV. 2019
Checked: SRB	Scale: NTS	Job No.: 3572
File Name: 3572-DETAILS.dwg		

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Drawing Name: STORM DRAIN & UTILITY DETAILS
Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine
Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C–10.3

U:\3572_VA Clinic West Commercial St-Portland, ME\2 – CAD\DWG\3572-DETAILS.dwg 12/5/2019 10:36 AM

STORMWATER TREATMENT METHOD LEGEND

- TO FOCALPOINT SYSTEM
- TO POROUS PAVEMENT SYSTEM
- TO FILTER CARTRIDGE
- TO SUBSURFACE SAND FILTER
- UNTREATED AREA

VA Clinic - Stormwater Management Summary					01.10.20
					Designed By: KAB
					Checked By: SRB
Subarea ID	New Development			Treated New Impervious Area (sf)	Treated New Landscaped Area (sf)
	Impervious Area (sf)	Landscaped Area (sf)	Total Developed Area (sf)		
1S	0	0	0	0	0
2S-A	331	7,960	8,291	0	0
2S-B	766	1,740	2,506	766	1,740
2S-C	60,422	6,925	67,347	60,422	6,925
2S-D	1,445	0	1,445	1,445	0
2S-E	98,962	7,143	106,105	98,962	7,143
2S-F*	8,364	7,849	16,213	0	0
3S	1,705	1,962	3,667	0	0
Total (sf)	**171,995**	**25,730**	**205,574**	**161,595**	**15,808**
Total (ac)	**3.95**	**0.59**	**4.72**	**3.71**	**0.36**

Treatment Summary					
Subarea ID	Treatment Method	Water Quality Volume Required (cf)	Water Quality Volume Provided (cf)	BMP Surface Area Required (sf)	BMP Surface Area Provided (sf)
1S	N/A	0	0	0	0
2S-A	N/A	0	0	0	0
2S-B	FocalPoint (3'x6.67')	N/A	N/A	N/A	N/A
2S-C	Porous Pavement	5,266	12,314	13,469	37,728
2S-D	Filter Cartridge Insert	N/A	N/A	N/A	N/A
2S-E	Subsurface Sand Filter	8,485	8,788	5,091	5,096
2S-F	N/A	0	0	0	0
3S	N/A	0	0	0	0

Treatment Summary					
	Required	Provided			
Treated New Impervious (%)	95%	93.95%*			
Treated New Developed (%)	80%	86.30%			

*PER CH. 500, PART 4.C (C) (A) (II), THE POROUS PAVEMENT FILTER HAS BEEN DESIGNED TO PROVIDE WATER QUALITY VOLUME TO TREAT 2" OF IMPERVIOUS AREA AND 0.5" OF LANDSCAPED AREA THAT DRAINS TO THE POROUS PAVEMENT SYSTEM IN ORDER TO MITIGATE THE PERCENTAGE OF OVERALL IMPERVIOUS AREA TREATED.

DANFORTH STREET (width varies)

K STREET (Unaccepted)

E STREET (unimproved/undeveloped)

EMERY ST (accepted by City of Portland January 11, 1961)

WEST COMMERCIAL ST (width varies)

061 I001 N/F Marjorie R. Shaw 7420/13

061 I002 N/F Joseph S. Kilmartin Helen F. Kilmartin 26215/339

061 I003 N/F William McFarlane & Constance Bloomfield JTS 21615/268

061 I004 N/F Deborah J. Kruk 26933/030

40' wide passageway

061 H001 N/F Susan Devens Samp Post Jarrah 32451/099

061 H002 N/F Devens N. Hamen Samp Post Jarrah 32451/099

061 H012 N/F Michael R. Curtis Margaret T. Curtis 27799/302

061 H011 N/F Sarah P. Daignault 32746/060

061 H010 N/F George R. Moberg Elizabeth J. Moberg 2928/450

061 H009 N/F Michael Bruenjes Judith Bruenjes 32805/285

061 H003 N/F Sonia B. Robertson 22292/241

061 H004 N/F Thomas R. Robinson Laura C. Robinson 31889/194

061 H005 N/F Mark Bessire Aimee Bessire 27820/339

058 C001 N/F JB Brown & Sons

060 F001 N/F Canal Landing, LLC 32239/148

060 F002 N/F Maine DOT

STORMBASIN FILTER CARTRIDGE CATCH BASIN INSERT BY FABCO INDUSTRIES INC.

SUBSURFACE SAND FILTER BMP SURFACE AREA: 5,096 SF (SEE SHEET C-9.2 & C-9.3)

CONVEYANCE SYSTEM (ALSO COLLECTS UNDEVELOPED UPGRADIENT AREA)

POROUS PAVEMENT BMP SURFACE AREA: 37,728 SF (SEE SHEET C-9.1)

FOCALPOINT BMP SURFACE AREA: 20 SF (SEE SHEETS C-9.3 & C-9.4)

VA CLINIC

PARKING GARAGE

POI #1

POI #2

POI #3

N71°39'48"E 854.33'

N66°06'16"E 793.06'

N87°07'38"E 273.21'

S87°07'38"W 21.45'

N72°29'45"E 542.24'

S72°29'45"W 519.07'

S59°26'10"W 495.19'

CHORD S79°48'41"W 184.84'

CHORD N65°57'58"E 153.24'

CHORD S65°57'58"W 165.07'

L=185.34'

R=735.78'

L=153.5

L=165.42'

R=725.74'

24" CSO OUTFALL

SMH RIM 22.07 48" INV. IN 5.62 48" INV. OUT 5.62

SMH RIM 20.35 48" INV. IN 5.55 48" INV. OUT 5.05 (ADJUST TO GRADE)

EX. CATCH BASINS EXACT OUTLET CONDITIONS UNKNOWN

EX. CB RIM 14.85 10" INV. OUT 11.00

SMH RIM 18.27 48" INV. IN 5.32 48" INV. OUT 5.32 (ADJUST TO GRADE)

EXISTING 16" WATER MAIN

EXISTING UNDERGROUND PRIMARY POWER (CMP)

EXISTING 115kV OVERHEAD VIA ENCASED UNDERGROUND POWER

SMH RIM 21.58 48" INV. IN 4.90 48" INV. OUT 4.90 (ADJUST TO GRADE)

SMH RIM 14.94 48" INV. IN 4.50 48" INV. OUT 4.50

POSSIBLE SEWER MANHOLE (NOT IDENTIFIED ON SURVEY) (INV. 11.36' (PLAN REF. 2))

EX. 16"x12" REDUCER

3" offset in pipe joint

line as shown on plan reference #1 & #10 see note #8

SMH RIM 56.09 INV. IN 48.89 INV. OUT 48.19

CB (DOT)

CB 1

CB 2

CB 4

CB 5

UD 1

UD 2

UD 3

UD 4

UD 11A

UD 11

SD 5

RAMP

SIDEWALK

ENTRY 28.67

ENTRY

LOADING

OHD

FD

WALL

TEMP TRAIL

NORTH

GRAPHIC SCALE

40 0 20 40 80

(IN FEET)

1 inch = 40 ft.

STATE OF MAINE STEPHEN R. BUSHEY 01.20.20 LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
-	-	-

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	01.20.20	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB	Draft: CDD	Date: NOV. 2019	
Checked: SRB	Scale: AS NOTED	Job No.: 3572	
File Name: 3572-SWM PLAN.dwg			

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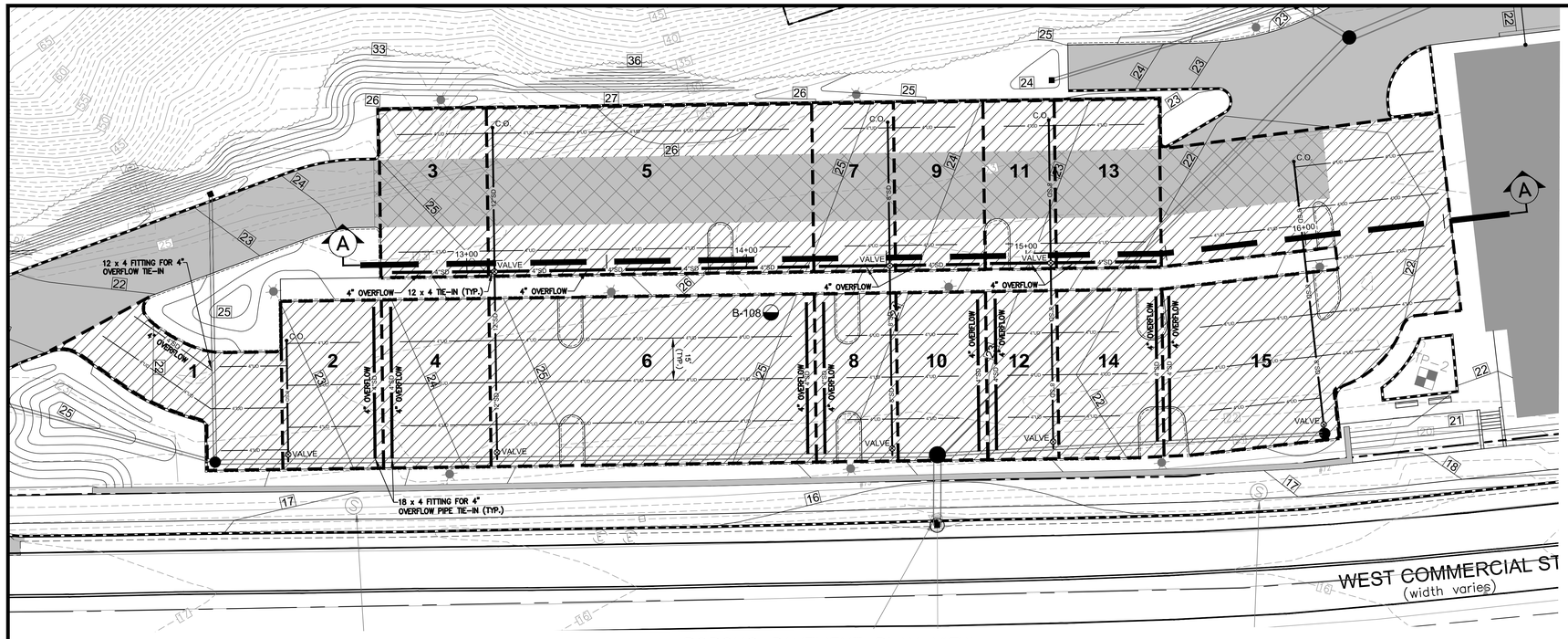
Drawing Name: STORMWATER MANAGEMENT PLAN

Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine

Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C-9.0

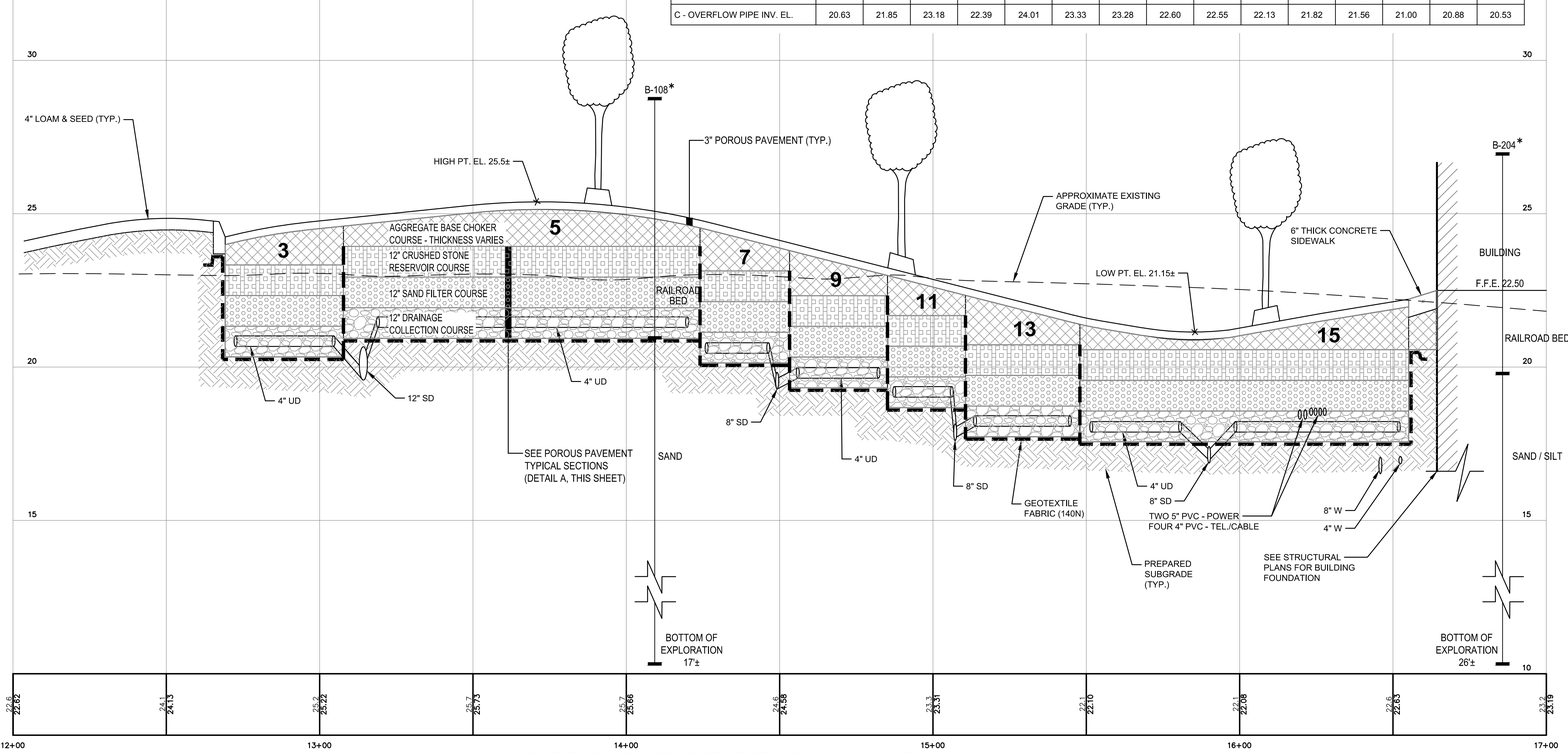
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POROUS PAVEMENT PLAN VIEW

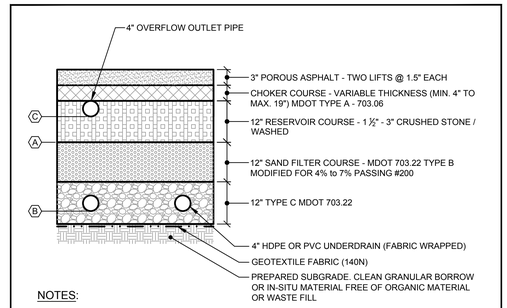
SCALE: 1" = 20'

POROUS PAVEMENT SECTION #	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
A - TOP OF FILTER COURSE EL.	19.97	21.19	22.52	21.73	23.35	22.67	22.62	21.94	21.89	21.47	21.16	20.90	20.34	20.22	19.87
B - UD INV. EL.	18.30	19.52	20.85	20.06	21.68	21.00	20.95	20.27	20.22	19.80	19.49	19.23	18.67	18.55	18.20
C - OVERFLOW PIPE INV. EL.	20.63	21.85	23.18	22.39	24.01	23.33	23.28	22.60	22.55	22.13	21.82	21.56	21.00	20.88	20.53



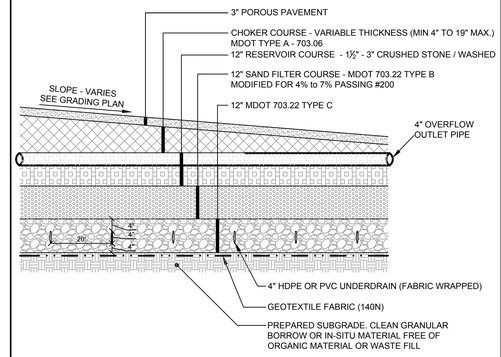
POROUS PAVEMENT SECTION A–A VIEW

SCALE: 1" = 20' HORZ. / 1" = 2' VERT.



NOTES:

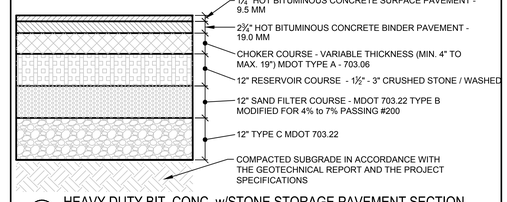
ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION. COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS AND THE GEOTECHNICAL REPORT.



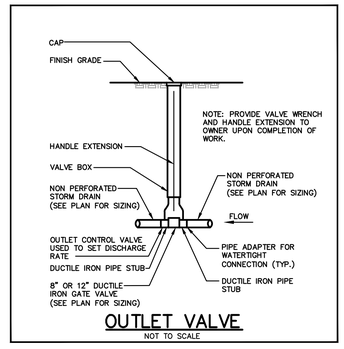
Ⓐ POROUS PAVEMENT TYPICAL SECTIONS
N.T.S.

NOTES:

1. SEE OVERALL SITE LAYOUT PLAN (SHEET C-4.0) FOR LOCATION(S) OF DIFFERENT PAVEMENT TYPES.
2. APPLY TACK COAT BETWEEN BINDER AND SURFACE COURSES ON REGULAR PAVEMENT ONLY.
3. ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION. COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS AND GEOTECHNICAL REPORTS PREPARED BY THE GEOTECHNICAL ENGINEER, WHICHEVER IS MORE STRINGENT.
4. CONTRACTOR SHALL BE REQUIRED TO PROTECT ALL BEARING SOILS FROM EXCESSIVE DISTURBANCE. SHOULD SUBGRADE BECOME YIELDING OR DIFFICULT TO WORK, DISTURBED AREAS SHOULD BE EXCAVATED AND COMPACTED WITH SELECT GRANULAR FILL OR CRUSHED STONE AT NO EXTRA EXPENSE TO THE OWNER. WOVEN GEOTEXTILE TENSILE FABRIC (MIRAFI 600X OR EQUAL) SHALL BE PLACED OVER UNSUITABLE SUBGRADE AS DIRECTED BY THE OWNER'S REPRESENTATIVE, AT NO EXTRA EXPENSE TO THE OWNER.
5. ALL GRAVELS SHALL EXTEND A MINIMUM OF 12" BEYOND THE EDGE OF PAVEMENT.



Ⓑ HEAVY DUTY BIT. CONC. w/STONE STORAGE PAVEMENT SECTION
N.T.S.



OUTLET VALVE
NOT TO SCALE

*SEE BORING LOGS BY S.W. COLE ENGINEERING PERFORMED ON 07/16/2019 THAT ARE MADE A PART OF THE GEOTECHNICAL REPORT – NEW VACOBC AND PARKING GARAGE BY SUMMIT GEOENGINEERING SERVICES, DATE 11/08/2019. INFORMATION PRESENTED ON THIS PLAN IS APPROXIMATE.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.20.20
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	01.20.20	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB	Draft: CDD	Date: NOV. 2019
Checked: SRB	Scale: AS NOTED	Job No.: 3572
File Name: 3572–SWM PLAN.dwg		

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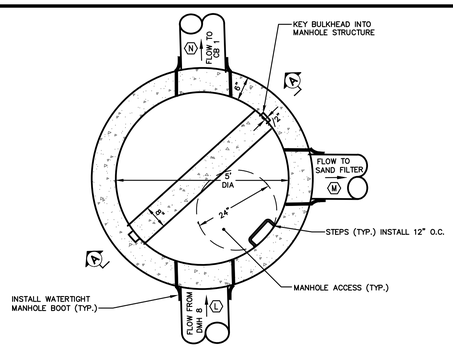
Drawing Name: STORMWATER MANAGEMENT DETAILS

Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine

Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C–9.1

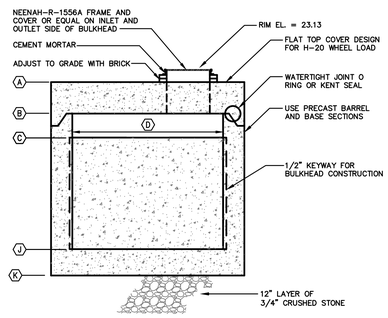
U:\3572_VA Clinic West Commercial St-Portland, ME\Z – CAD\DWG\3572-SWM PLAN.dwg 1/20/2020 5:55 PM



PLAN VIEW

OUTLET CONTROL STRUCTURE 1 (OCS 1) PLAN VIEW

SEE SCHEDULE



SECTION A-A

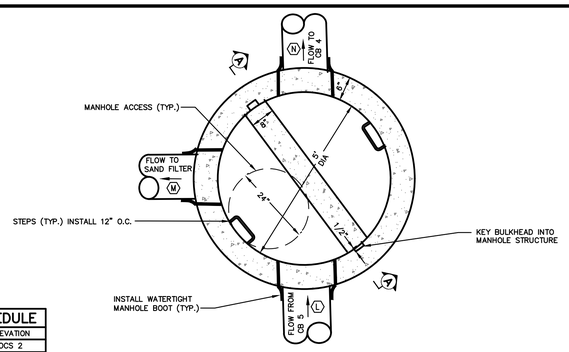
OUTLET CONTROL STRUCTURE 1 (OCS 1) SECTION VIEW

SEE SCHEDULE

Ⓐ OUTLET CONTROL STRUCTURE DETAILS
N.T.S.

OUTLET CONTROL STRUCTURE SCHEDULE

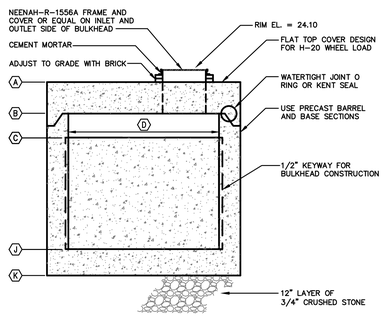
	ITEM DESCRIPTION	ELEVATION OCS 1	ELEVATION OCS 2
A	TOP OF STRUCTURE	22.63	23.60
B	UNDERSIDE TOP SLAB	21.96	22.93
C	TOP OF CONCRETE BULKHEAD	18.66	18.66
D	WEIR LENGTH	5'	5'
J	MANHOLE INVERT	16.68	16.62
K	BOTTOM OF STRUCTURE	16.01	15.95
L	PIPE DIAMETER	12"	18"
	INVERT IN	17.78	17.72
M	PIPE DIAMETER	12"	12"
	INVERT OUT	17.68	17.62
N	PIPE DIAMETER	12"	18"
	INVERT OUT	18.20	18.20



PLAN VIEW

OUTLET CONTROL STRUCTURE 2 (OCS 2) PLAN VIEW

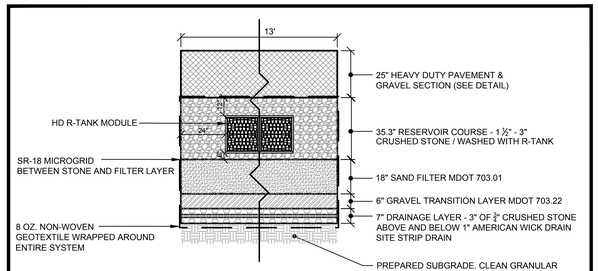
SEE SCHEDULE



SECTION A-A

OUTLET CONTROL STRUCTURE 2 (OCS 2) SECTION VIEW

SEE SCHEDULE



NOTES:

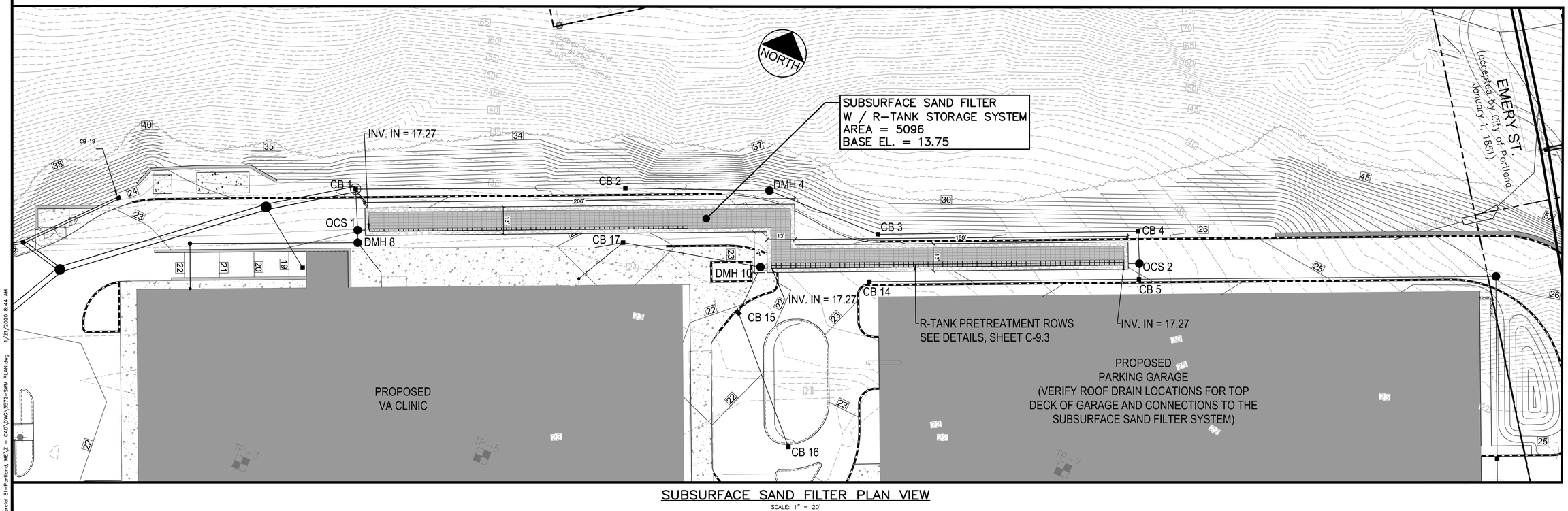
ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION. COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS AND THE GEOTECHNICAL REPORT.

SUBSURFACE SAND FILTER WITH R-TANK STORAGE SECTION

Ⓑ N.T.S.

SUBSURFACE SAND FILTER

	REQUIRED	PROVIDED
FILTER AREA	5,091 SF	5,096 SF
WATER QUALITY VOLUME	8,485 CF	8,788 CF
PRE-TREATMENT R-TANK MODULES	177	209
R-TANK MODULES	929	929



SUBSURFACE SAND FILTER PLAN VIEW

SCALE: 1" = 20'

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 01.20.20 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	01.20.20	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB | Draft: CDD | Date: NOV. 2019
Checked: SRB | Scale: AS NOTED | Job No.: 3572
File Name: 3572-SWM PLAN.dwg

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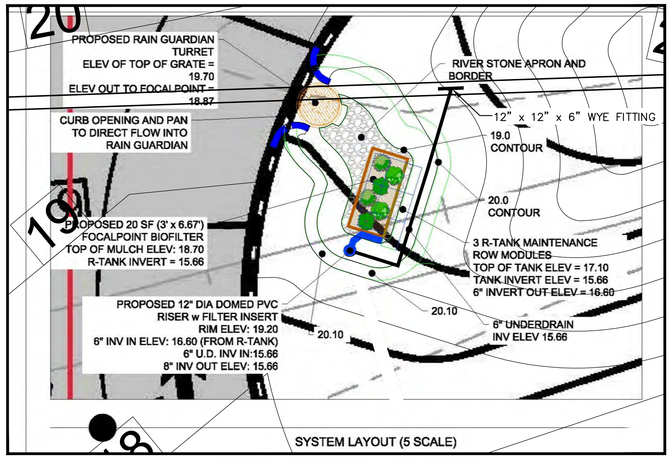
Drawing Name: STORMWATER MANAGEMENT DETAILS

Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine

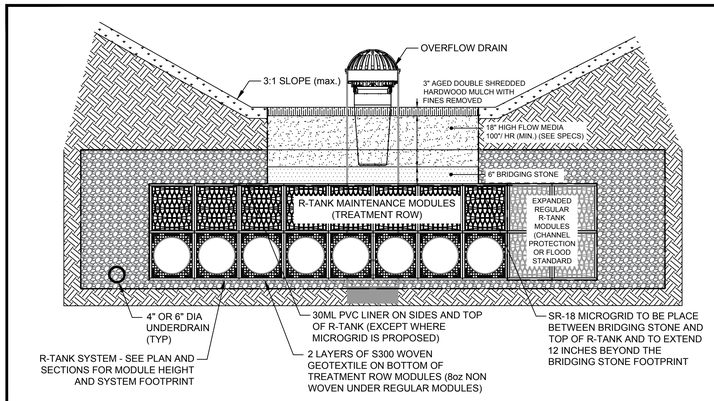
Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C–9.2

U:\3572_VA Clinic West Commercial St-Portland, ME\2 – CAD\DWG\3572-SWM PLAN.dwg 1/21/2020 8:44 AM

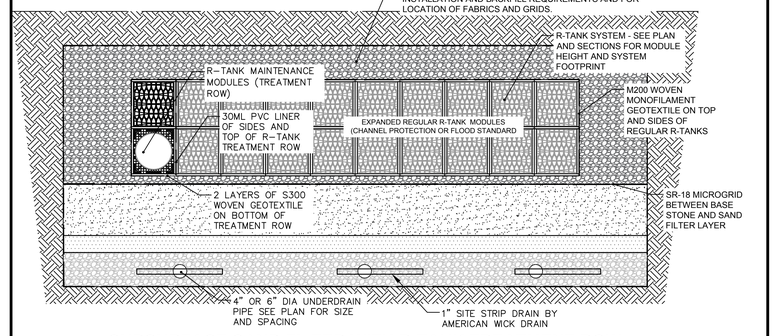


FOCALPOINT PLAN VIEW



FOCALPOINT WITH R-TANK TREATMENT ROW

N.T.S.



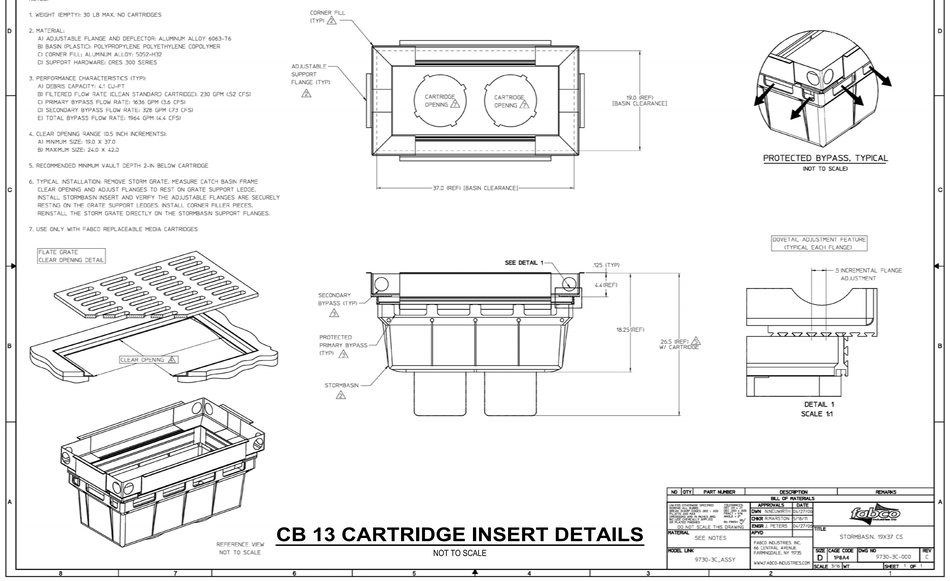
SUBSURFACE SAND FILTER WITH R-TANK TREATMENT ROW

N.T.S.

SCALE: 1" = 5'

NOTES:

1. WEIGHT (EMPTY): 30 LB MAX, NO CARTRIDGES
2. MATERIAL:
   - A) ADJUSTABLE FLANGE AND DEFLECTOR: ALUMINUM ALLOY 6063-T6
   - B) BASIN: PLASTIC: POLYPROPYLENE POLYETHYLENE COPOLYMER
   - C) CORNER FILL: ALUMINUM ALLOY: 5052-H32
   - D) SUPPORT HARDWARE: ORES 300 SERIES
3. PERFORMANCE CHARACTERISTICS (TYP):
   - A) DEBRIS CAPACITY: 4.1 CU/FT
   - B) FILTERED FLOW RATE (ELCAN STANDARD CARTRIDGE): 230 GPM (.52 CFS)
   - C) PRIMARY BYPASS FLOW RATE: 1636 GPM (3.6 CFS)
   - D) SECONDARY BYPASS FLOW RATE: 328 GPM (.73 CFS)
   - E) TOTAL BYPASS FLOW RATE: 1964 GPM (4.4 CFS)
4. CLEAR OPENING RANGE (3.5 INCH INCREMENTS):
   - A) MINIMUM SIZE: 15.0 X 37.0
   - B) MAXIMUM SIZE: 24.0 X 42.0
5. RECOMMENDED MINIMUM VAULT DEPTH 2-IN BELOW CARTRIDGE
6. TYPICAL INSTALLATION: REMOVE STORM GRATE, MEASURE CATCH BASIN FRAME CLEAR OPENING AND ADJUST FLANGES TO REST ON GRATE SUPPORT LEDGE. INSTALL STORMBASIN INSERT AND VERIFY THE ADJUSTABLE FLANGES ARE SECURELY RESTING ON THE GRATE SUPPORT LEDGES. INSTALL CORNER FILLER PIECES. REINSTALL THE STORM GRATE DIRECTLY ON THE STORMBASIN SUPPORT FLANGES.
7. USE ONLY WITH FABCO REPLACEABLE MEDIA CARTRIDGES



CB 13 CARTRIDGE INSERT DETAILS

NOT TO SCALE

REVISIONS			
REV	DESCRIPTION	DATE	APPROVED
C	9730-3C-000C	1/18/11	

NO	QTY	PART NUMBER	DESCRIPTION	REMARKS
BILL OF MATERIALS				

APPROVALS	DATE
DWN : NOEL/MARTIN	10/27/09
CHK'D: EVANSTON	10/ 30/09
ENGR : PETERS	10/ 27/09
APVD:	

MATERIAL: SEE NOTES

MODEL LINE: 9730-3C_ASSY

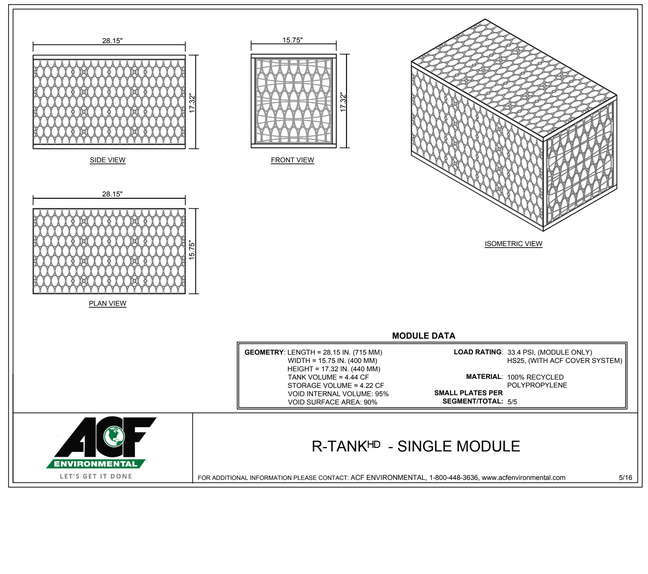
FABCO INDUSTRIES, INC. 56 LEONARD AVENUE FARMINGDALE, NY 11735 WWW.FABCO-INDUSTRIES.COM

TITLE: STORMBASIN, 19X37 CS

SIZE	CAGE CODE	DWG NO.	REV
D	97BA4	9730-3C-000	C

SCALE: 3/16 WT | SHEET 1 OF 1

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MODULE DATA

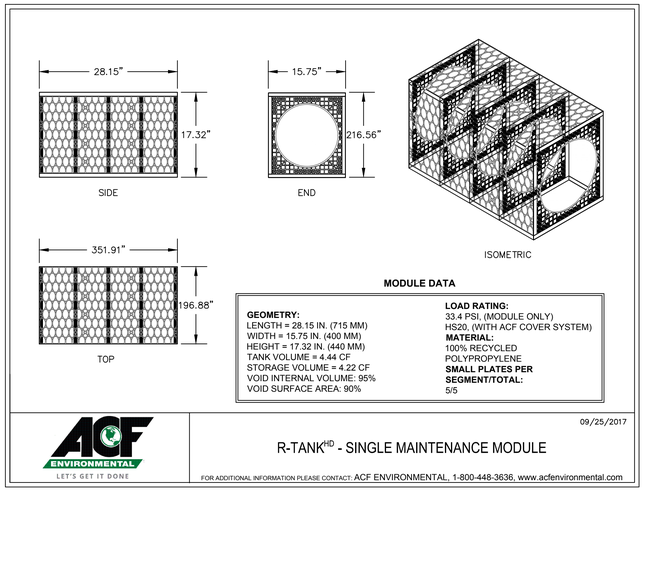
GEOMETRY: LENGTH = 28.15 IN. (715 MM)
WIDTH = 15.75 IN. (400 MM)
HEIGHT = 17.32 IN. (440 MM)
TANK VOLUME = 4.44 CF
STORAGE VOLUME = 4.22 CF
VOID INTERNAL VOLUME: 95%
VOID SURFACE AREA: 90%

LOAD RATING: 33.4 PSI, (MODULE ONLY)
HS25, (WITH ACF COVER SYSTEM)
MATERIAL: 100% RECYCLED POLYPROPYLENE
SMALL PLATES PER SEGMENT/TOTAL: 5/5

ACF ENVIRONMENTAL — LET'S GET IT DONE

R-TANK^{HD} - SINGLE MODULE

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com 5/16



MODULE DATA

GEOMETRY:
LENGTH = 28.15 IN. (715 MM)
WIDTH = 15.75 IN. (400 MM)
HEIGHT = 17.32 IN. (440 MM)
TANK VOLUME = 4.44 CF
STORAGE VOLUME = 4.22 CF
VOID INTERNAL VOLUME: 95%
VOID SURFACE AREA: 90%

LOAD RATING:
33.4 PSI, (MODULE ONLY)
HS20, (WITH ACF COVER SYSTEM)
MATERIAL:
100% RECYCLED POLYPROPYLENE
SMALL PLATES PER SEGMENT/TOTAL:
5/5

09/25/2017

ACF ENVIRONMENTAL — LET'S GET IT DONE

R-TANK^{HD} - SINGLE MAINTENANCE MODULE

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

ACF ENVIRONMENTAL — LET'S GET IT DONE

R-TANK^{HD} & HS-20 LOADS - SECTION VIEW

08/29/2018

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

ACF ENVIRONMENTAL — LET'S GET IT DONE

R-TANK TYPICAL INLET/OUTLET W/ GEOTEXTILE BOOT

07/26/19

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

ACF ENVIRONMENTAL — LET'S GET IT DONE

MAINTENANCE PORT FOR R-TANK^{LD}, R-TANK^{HD}, AND R-TANK^{SD}

02/06/19

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

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STATE OF MAINE — STEPHEN R. BUSHEY — 01.20.20 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

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Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	01.20.20	SRB
TMP APPLICATION	11.22.19	SRB

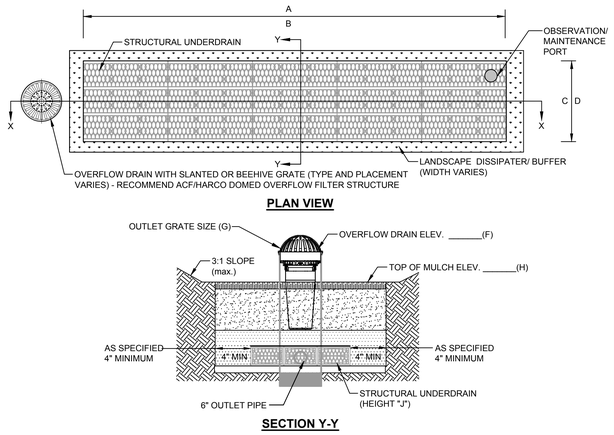
Design: SRB | Drafted: CDD | Date: NOV. 2019
Checked: SRB | Scale: AS NOTED | Job No.: 3572
File Name: 3572-SWM PLAN.dwg

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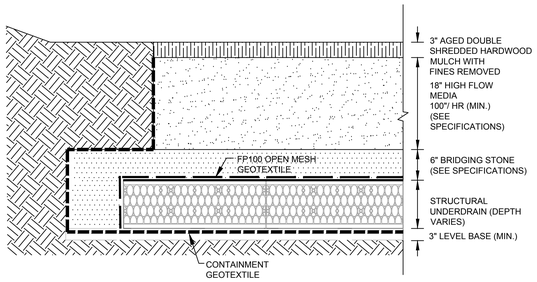
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Drawing Name: STORMWATER MANAGEMENT DETAILS
Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine
Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C–9.3



A FOCALPOINT CONSTRUCTION GUIDE
N.T.S.



FOCALPOINT HP PERFORMANCE SPECIFICATION:

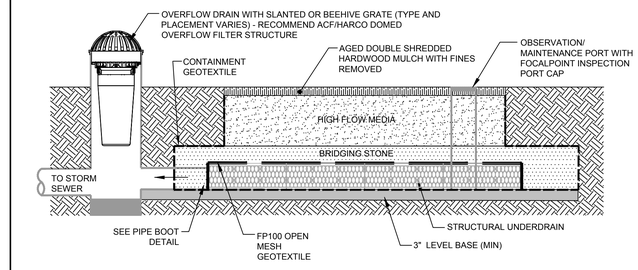
HIGH PERFORMANCE MEDIA

HIGH PERFORMANCE MEDIA MUST MEET A MINIMUM OF 100"PER HOUR INFILTRATION RATE.

HIGH PERFORMANCE STRUCTURAL UNDERDRAIN

MUST HAVE A MINIMUM OF 19 SQUARE INCHES OF ORIFICE OPENING PER SQUARE FOOT.
MUST MEET H20 LOADING REQUIREMENTS.
MUST BE MODULAR IN NATURE AND ASSEMBLED ON SITE.
MUST HAVE MINIMUM 90% INTERIOR VOID SPACE.

D FOCALPOINT DETAILED CROSS SECTION
N.T.S.



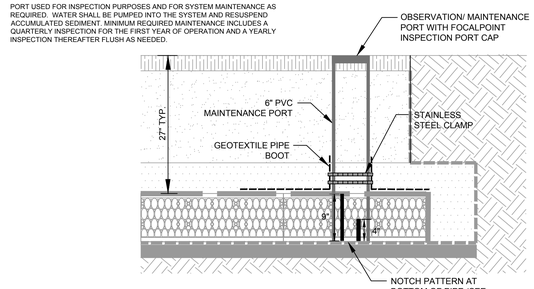
G FOCALPOINT SECTION X-X
N.T.S.

FOCALPOINT KEY DIMENSIONAL DATA		
FOCALPOINT ID		FP-1
A	FOCALPOINT LENGTH	6.67'
B	# UNDERDRAIN LONG	1
C	FOCALPOINT WIDTH	3.0'
D	# UNDERDRAIN WIDE	1
E	WATER QUALITY VOLUME	N / A
F	OVERFLOW ELEVATION	19.20
G	OUTLET GRATE SIZE	6"
H	TOP OF MULCH	18.70
J	UNDERDRAIN HEIGHT	SINGLE

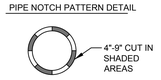
B FOCALPOINT KEY DIMENSIONAL DATA
N.T.S.

OBSERVATION/ MAINTENANCE PORT

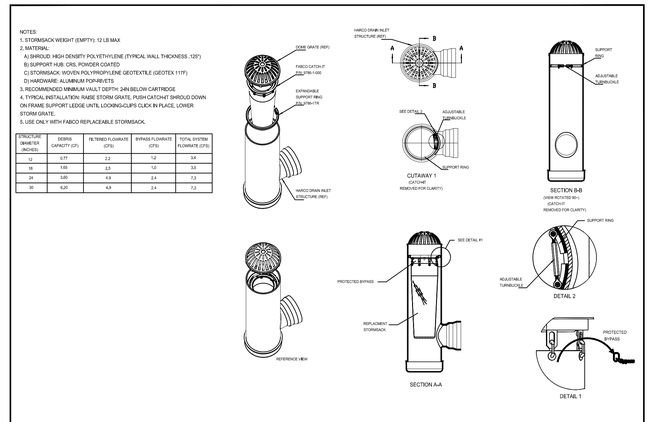
PORT USED FOR INSPECTION PURPOSES AND FOR SYSTEM MAINTENANCE AS REQUIRED. WATER SHALL BE PUMPED INTO THE SYSTEM AND RESUSPEND ACCUMULATED SEDIMENT. MINIMUM REQUIRED MAINTENANCE INCLUDES A QUARTERLY INSPECTION FOR THE FIRST YEAR OF OPERATION AND A YEARLY INSPECTION THEREAFTER FLUSH AS NEEDED.



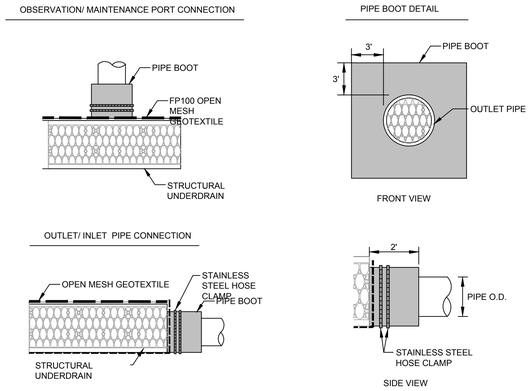
PIPE NOTCH PATTERN DETAIL



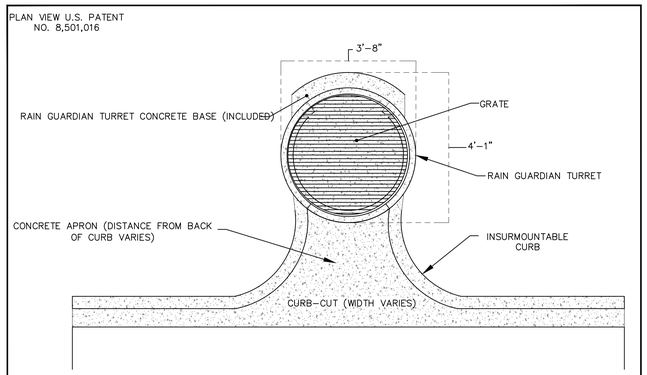
E FOCALPOINT OBSERVATION PORT DETAIL
N.T.S.



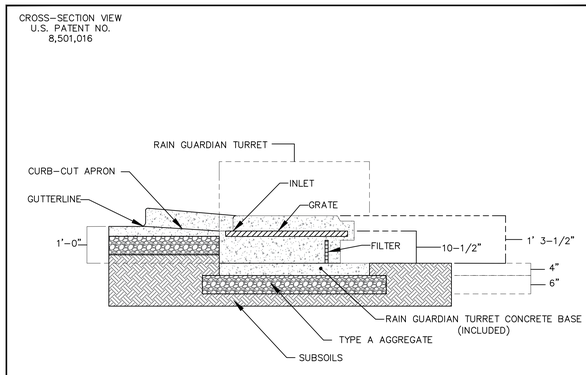
H ACF/HARCO DOMED OVERFLOW FILTER RISER
N.T.S.



C FOCALPOINT PIPE CONNECTION DETAIL
N.T.S.



F RAIN GUARDIAN TURRET - PLAN
N.T.S.



I RAIN GUARDIAN TURRET - SECTION
N.T.S.

NOTE: ENGINEER OF RECORD TO REVIEW, APPROVE AND ENDORSE FINAL SITE SPECIFIC DESIGN.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R BUSHEY
01.20.20
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
-	-	-

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	01.20.20	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB	Draft: CDD	Date: NOV. 2019
Checked: SRB	Scale: AS NOTED	Job No.: 3572
File Name: 3572-SWM PLAN.dwg		

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Drawing Name: STORMWATER MANAGEMENT DETAILS

Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine

Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

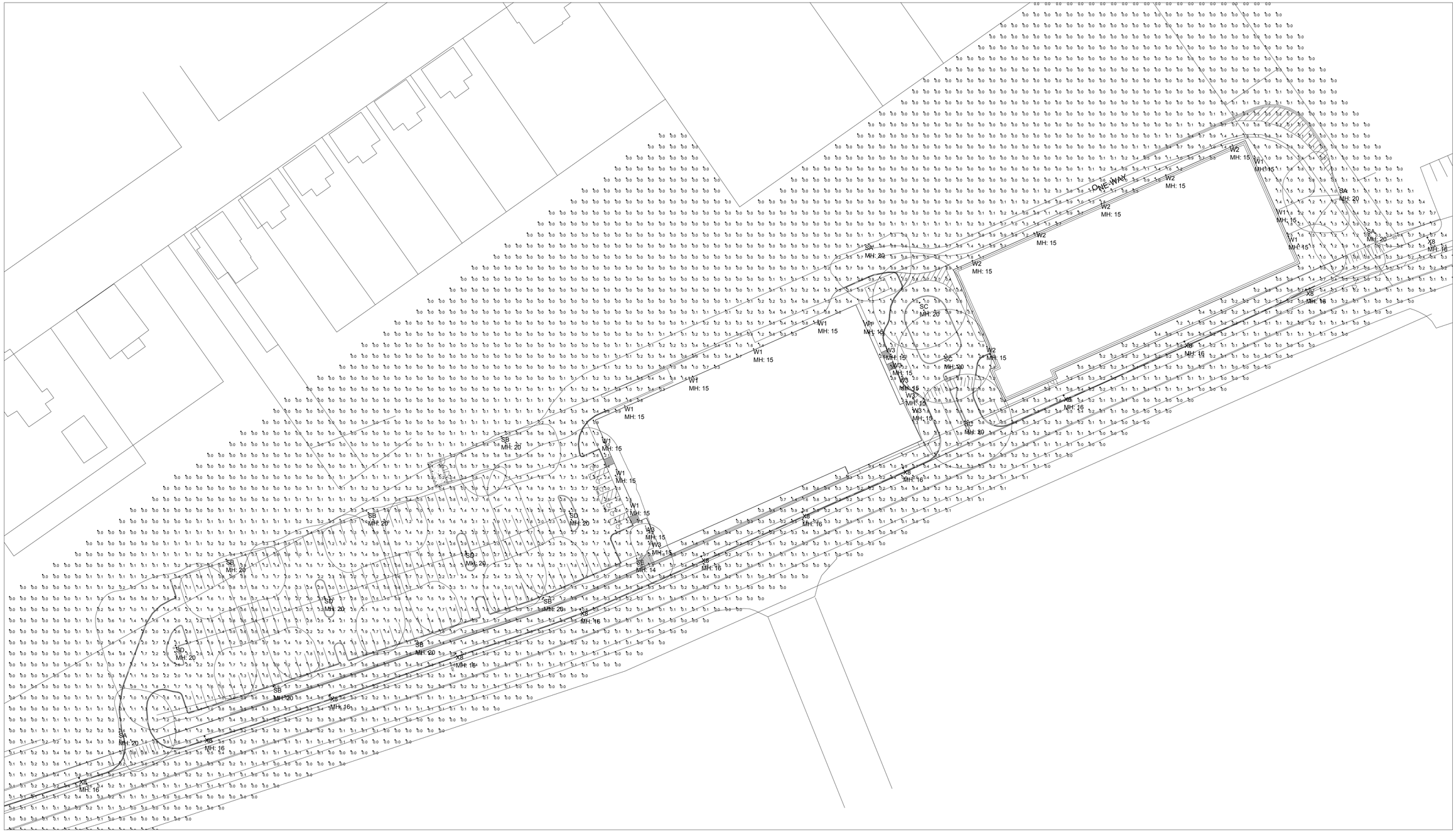
Drawing No. C-9.4

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Calculation Summary					
Label	**Avg**	**Max**	**Min**	**Avg/Min**	**Max/Min**
SITE	0.40	4.2	0.0	N.A.	N.A.
WEST PARKING	1.60	3.4	0.5	3.2	6.8

Luminaire Schedule (note fixture cataloge numbers are not complete)					
Type	**Qty**	**Lum. Lumens**	**LLF**	**Lum. Watts**	**Description**
SA	4	3428	0.630	38	ALT1-28L-40-3K9-4-BC prorated for 90cri
SB	6	4585	0.630	38	ALT1-28L-40-3k9-4W prorated for 90cri
SC	3	7144	0.630	60	ALT1-28L-60-3k9-5W prorated for 90cri
SD	4	16435	0.630	156	TWIN ALT1-54L-155-3k9-4W prorated for 90cri
SE	1	1674	0.630	22	ALT1-28L-20-3k9-4W-BC prorated for 90cri
W1	11	3289	0.630	29	WDS-D-24L-30-3K9-4W-UNV-WH prorated for 90cri
W2	6	3340	0.630	29	WDS-D-24L-30-3K9-3 prorated for 90cri
W3	7	1788	0.700	24	BLSD5-24C3-30KH-90-S-WH prorated for 90cri
X8	12	4074	0.780	52.6	GELB Hallbrook estimated distribution

NOTES:
1) EXACT MOUNTING DETAILS TO BE DETERMINED AT JOBSITE BY OTHERS.
2) CALCULATIONS MAY or MAY NOT SHOW THE EFFECT OF SHADOWING CAUSED BY BUILDINGS AND OBJECTS WITHIN THE CALCULATED SPACE OR IN THE SITE AREA.
3) READINGS SHOWN ARE INITIAL HORIZONTAL FOOTCANDLES ON A FLAT SITE WITHOUT REFLECTIONS OR OBSTRUCTIONS UNLESS OTHERWISE INDICATED.
4) THIS CALCULATION IS BASED ON LIMITED INFORMATION SUPPLIED BY OTHERS TO SWANEY LIGHTING ASSOCIATES AND STANDARD ASSUMPTIONS OF THE SPACE AND/OR SITE.
5) CONFORMANCE TO CODES AND OTHER LOCAL REQUIREMENTS AS DETERMINED BY THE AHJ ARE THE RESPONSIBILITY OF THE OWNER AND/OR THE OWNER'S REPRESENTATIVE.
6) THIS LAYOUT DRAWING MUST BE COORDINATED WITH THE SITE LOCATION FOR CORRECT FIXTURE ORIENTATION.
7) DOCUMENTS PRINTED OR PLOTTED FROM ELECTRONIC FILES MAY APPEAR AT OTHER THAN THE DESIRED OR ASSUMED GRAPHIC SCALES. IT IS THE RESPONSIBILITY OF THE RECIPIENT TO VERIFY THAT THE PRINTED OR PLOTTED-TO-SCALE DRAWING IS PRINTED TO SCALE.



PLAN VIEW

C-6.3

site 11-15-19.AGI

GENERATED BY SWANEY LIGHTING, SCARBOROUGH ME - 207-883-7100 - swaneylighting.com

TITLE
VETERANS AFFAIRS
PORTLAND, ME
SITE LIGHTING LAYOUT

GENERATED FOR:
GORRILL PALMER SMITH GROUP

SCALE NOT TO SCALE

Page 1 of 1

Date:11/15/2019

SWANEY LIGHTING ASSOCIATES, INC.

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NOTICE: THE LAYOUT OF THIS LIGHTING LAYOUT IS TO SUGGEST THE BEST UTILIZATION OF LIGHTING FIXTURES INCLUDED IN THIS DRAWING. IT IS PROVIDED USING FIXTURE PHOTOMETRICS FURNISHED BY THE MANUFACTURER. SWANEY LIGHTING ASSOCIATES MAKES NO WARRANTY AS TO PERFORMANCE SHOWN IN ES TILE IS NOT THE RESPONSIBILITY OF THE MANUFACTURER. IT'S USE FOR ANY OTHER PURPOSE IS NOT AUTHORIZED BY SWANEY LIGHTING ASSOCIATES.

061 I004
N/F
Deborah J. Kruk
26933/030

½" iron rod leaning

061 H001
N/F
Susan Jane Noonan
7400/261

E STREET
(unimproved/unaccepted)

061 I003
N/F
William McFarlane & Constance Bloomfield JTS
21615/268

capped iron rod PLS #2320

40' wide passageway

capped iron rod PLS #2320 leaning

capped iron rod PLS #2213

061 I002
N/F
Joseph S. Kilmartin
Helen F. Kilmartin
26215/339

40' wide passageway

Existing Tree Line

Edge of Gravel

Stone Wall

AF 1

AR 9

AR 5

AR 1

VC 5

CVM 46

CVM 19

CVM 32

PO 2

MEB 25

UA 7

AL 1

QBB 4

VC 5

ESL 62

FBB 58

LAWN

STAIR

PLUMBING

EMERG ELEC.

NORM. ELEC.

TELE/DATA ROOM

GAS CYL.

STAFF ENTR.

MATCH LINE

MECH. ROOM

AMBUL. VEST.

WEST COMMERCIAL ST.
(width varies)

060 F001
N/F
Canal Landing, L
32239/148

24" L.P. (ABANDONED)

10" H.P. (ACTIVE)

115KV uge

gas

ugw

ohw

ohe

uge

16"w

12"sd

NORTH

GRAPHIC SCALE

20 0 10 20 40

(IN FEET)
1 inch = 20 ft.

PLANT LIST

KEY	BOTANICAL NAME	COMMON NAME	SIZE
TREES			
AF	ABIES FRASERI	FRASER FIR	8'-10' HGT.
AR	ACER RUBRUM 'RED SUNSET'	RED SUNSET MAPLE	2-1/2" CAL.
AL	AMELANCHIER LAEVIS	ALLEGHENY SERVICEBERRY	8'-10' HGT. CLUMP
BP	BETULA PAPYRIFERA 'RENAISANCE REFLECTION'	WHITE BIRCH	8'-10' HGT. CLUMP
PO	PICEA OMORIKA	SERBIAN SPRUCE	7'-8' HGT.
QB	QUERCUS BICOLOR 'BEACON'	BONNIE AND MIKE SWAMP WHITE OAK	2-1/2" CAL.
UA	ULMUS AMERICANA 'PRINCETON'	PRINCETON AMERICAN ELM	2-1/2" CAL.
SHRUBS			
CVM	COREOPSIS VIRTICILLATA 'MOONBEAM'	MOONBEAM TICKSEED	15"-20" HGT.
RB	ROSA 'BONICA'	BONICA SHRUBROSE	2'-3' HGT.
VC	VIBURNUM CARLESI	CARLESI VIBRURNUM	24"-30" HGT.
PERENNIALS			
CFR	CIMICIFUGA RACEMOSA 'ATROPURPUREA'	BUGBANE	NO. 1 CONT.
EBB	ECHINOPS BANNATICUS 'BLUE GLOW'	BLUE GLOW GLOBE THISTLE	NO. 1 CONT.
ESL	ECHINACEA SOMBRERO LEMON YELLOW	SOMBRERO LEMON YELLOW CONE FLOWER	NO. 1 CONT.
PVH	PANICUM VIRGATUM 'RUBY RIBBONS'	RUBY RIBBONS SWITCH GRASS	NO. 1 CONT.
MDJ	MONARDA 'FIRE BALL'	FIRE BALL BEE-BALM	NO. 1 CONT.
RSL	RUDEBECKIA SULLIVANTII 'LITTLE GOLDSTAR'	LITTLE GOLDSTAR CONE FLOWER	NO. 1 CONT.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	12.05.19	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB | Draft: CDD | Date: NOV. 2019
Checked: SRB | Scale: AS NOTED | Job No.: 3572
File Name: 3572–LANDSCAPE.dwg

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Drawing Name: LANDSCAPE PLAN – WEST SIDE
Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine
Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C–7.0

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061 H004
N/F
Thomas R. Robinson
Laura C. Robinson
31889/194

058 C001
N/F
JB Brown & Sons

H003
/F
Robertson
2/241

WEST COMMERCIAL ST.
(width varies)

MATCH LINE

PROPOSED OUTPATIENT CLINIC
34,155 SF FOOTPRINT
62,300 SF TOTAL AREA
(SEE ARCHITECTURAL PLANS BY SMITHGROUP)

PARKING GARAGE
35,800 SF FOOTPRINT
5 LEVELS
TOTAL 382 PARKING STALLS
(SEE GARAGE PLAN BY OTHERS)

10' x 20' RAISED PLANTER WITH SURROUNDING SEAT WALL (SEE DETAILS)

40' x 10' SEATING AREA WITH SPECIALTY PAVERS AND BENCHES

40' x 11' SEATING AREA WITH SPECIALTY PAVERS AND BENCHES

FLAGPOLES, TYP.

STONE DUST

EDGE OF MULCH, TYP.

LAWN

MOBILE MRI

AMBULANCE VESTIBULE

STAIR 1
PLUMBING
EMERG ELEC.
NORM. ELEC.
TELE/ DATA ROOM
GAS CYL.
STAFF ENTRY
MECH. ROOM
ELEV.
EMERG. GENERATOR

RAMP
ENTRY
LOADING
SIDEWALK
WALL
OHD

24" L.P. (ABANDONED)
H.P. (ACTIVE)
115KV UGE
H15KVUGE
GAS
STRIPE (TYP.)

CB 2
CB 4
UD 11A
UD 3

RNH	EBB
100	130

RM	
3	

PVR	
3	

AF	
1	

PVR	
3	

RB	
3	

RSL	
48	

RSL	
32	

RSL	
37	

RB	(FRONT ROW)
18	
PVR	(REAR ROW)
19	

PVR	
7	

RB	(FRONT ROW)
12	
PVR	(REAR ROW)
13	

RB	
2	

RSL	(ALONG BACK OF CURB)
31	
RNH	
42	

RSL	(ALONG BACK OF CURB)
75	
RNH	
90	
PVR	
90	

AF	
2	

BP	
3	

AF	
2	

BP	
2	

QBB	
5	

CVM	
32	

VC	
5	

QBB	
4	

AL	
1	

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
0 5 10 20 40
(IN FEET)
1 inch = 20 ft.

Rev.	Date	Revision
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Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	12.05.19	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB	Draft: CDD	Date: NOV. 2019
Checked: SRB	Scale: AS NOTED	Job No.: 3572
File Name: 3572-LANDSCAPE.dwg		

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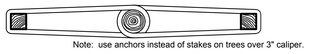
Drawing Name: **LANDSCAPE PLAN – EAST SIDE**

Project: **U.S. Department of Veterans Affairs – Community Based Outpatient Clinic**
133 West Commercial Street, Portland, Maine

Client: **FDS JBB PORTLAND, LLC**
10 Free Street, Portland, Maine 04101

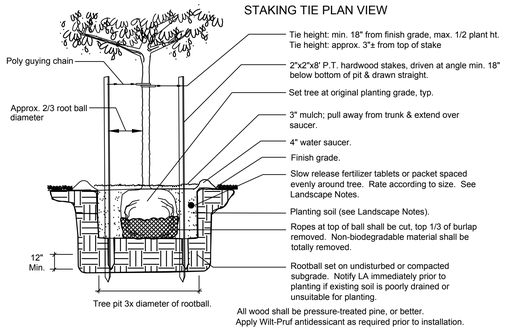
Drawing No. **C–7.1**

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Note: use anchors instead of stakes on trees over 3" caliper.

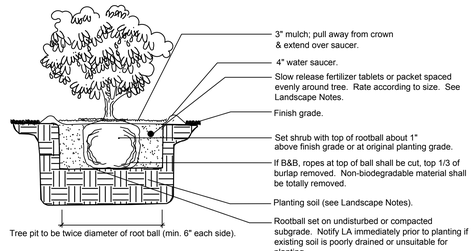
STAKING TIE PLAN VIEW



All wood shall be pressure-treated pine, or better.
Apply Wilt-Pruf antidessicant as required prior to installation.

A TREE INSTALLATION DETAIL - 3" CAL. AND UNDER

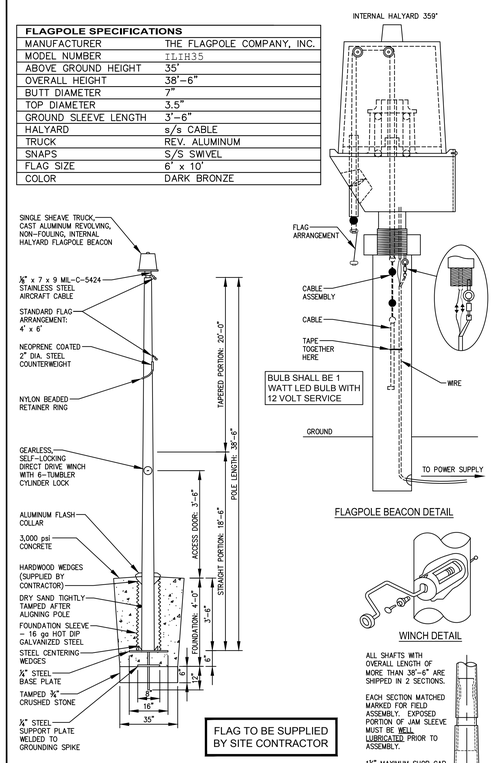
N.T.S.



C SHRUB INSTALLATION DETAIL

N.T.S.

FLAGPOLE SPECIFICATIONS	
MANUFACTURER	THE FLAGPOLE COMPANY, INC.
MODEL NUMBER	ILIH35
ABOVE GROUND HEIGHT	35'
OVERALL HEIGHT	38'-6"
BUTT DIAMETER	7"
TOP DIAMETER	3.5"
GROUND SLEEVE LENGTH	3'-6"
HALYARD	s/s CABLE
TRUCK	REV. ALUMINUM
SNAPS	S/S SWIVEL
FLAG SIZE	6' x 10'
COLOR	DARK BRONZE



FLAGPOLE BEACON DETAIL

WINCH DETAIL

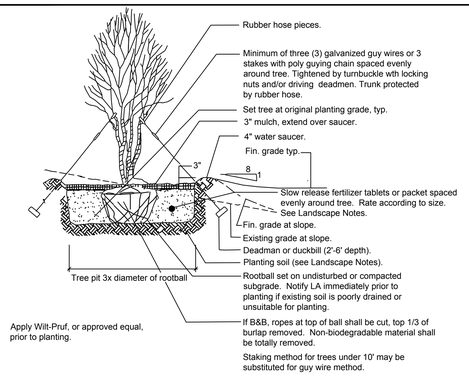
ALL SHAFTS WITH OVERALL LENGTH OF MORE THAN 38'-6" ARE SHIPPED IN 2 SECTIONS.

EACH SECTION MATCHED MARKED FOR FIELD ASSEMBLY. EXPOSED PORTION OF JAM SLEEVE MUST BE WELL LUBRICATED PRIOR TO ASSEMBLY.

1½" MAXIMUM SHOP GAP ALLOWED FOR FIELD FITTING (RAM FOR TIGHT JOINT)

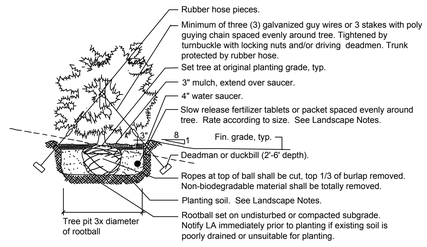
E ALUMINUM FLAG POLE DETAIL

N.T.S.



B TREE INSTALLATION DETAIL - MULTI-STEM

N.T.S.



D TREE INSTALLATION DETAIL - CONIFER

N.T.S.

LANDSCAPE NOTES

1. PLANTING OF TREES AND SHRUBS SHALL NOT OCCUR UNTIL ALL GRADING AND PAVING IS COMPLETED IN THE AREA.
2. ALL PLANTS SHALL HAVE A NORMAL HABIT OF GROWTH FOR THE SPECIES AND SHALL BE SOUND, HEALTHY AND FREE OF DISEASE AND INSECTS. THEY SHALL CONFORM TO THE SIZE SPECIFICATION INDICATED ON THE PLANT LIST AND SHALL CONFORM TO ANSI Z60.1 - NURSERY STOCK, LATEST REVISION.
3. ALL PLANTS SHALL HAVE ALL ROOTBALL WRAPPING MATERIALS (BURLAP, WIRE, STRING, ROPE, POTS, ETC.) REMOVED AT THE TIME OF PLANTING. REMOVE SOIL PLACED ABOVE ROOTS TO EXPOSE TRUNK FLARE AS NECESSARY TO DETERMINE SETTING LEVEL AND PIT DEPTH. CIRCLING ROOTS OR ROOTS THAT WOULD LATER GIRDLE THE PLANT SHALL BE STRAIGHTENED OR CUT OR THE ROOT BALL SHALL BE CUT UTILIZING THE "BUTTERFLY METHOD".
4. BACKFILL MIX FOR ALL PLANT MATERIAL, EXCEPT TREES, SHALL BE COMPOSED OF TWO PARTS EXISTING SOIL AMENDED WITH ONE PART COMPOST, OR WITH ONE PART SANDY FILL IF HEAVY SOILS. TREE PITS SHALL BE BACKFILLED WITH EXISTING SOIL. PLANTING PITS SHALL BE EXCAVATED TO TWICE THE DIAMETER AND TO THE SAME DEPTH OF THE PLANT ROOT BALL. BACKFILL 1/2 OF DEPTH OF PIT AT A TIME AND COMPACT. REFER TO FERTILIZER RATES AND INSTALL SLOW RELEASE FERTILIZER AFTER FIRST BACKFILL LIFT.
5. ALL PLANTINGS SHALL HAVE SLOW RELEASE FERTILIZER TABLETS INSTALLED. TABLETS SHALL BE AGRIFORM 21-GRAM 20-10-5 PLANTING TABLETS OR AN APPROVED EQUAL. APPLICATION RATE: PERENNIALS - 1 TABLET/PLANT, WOODY SHRUBS TO 3'-0" - 2 TABLETS/PLANT, SHRUBS AND TREES 3'-0" TO 6'-0"-3 TABLETS/PLANT AND TREES 6'-0" AND ABOVE - 4 TABLETS/PLANT. AFTER PLANTS ARE INSTALLED, LIQUID FEED ALL PLANTS WITH ROOTS OR AN APPROVED EQUAL. MIX ACCORDING TO MANUFACTURERS INSTRUCTIONS. APPLICATION RATE: PERENNIALS - 2 QT/PLANT, WOODY SHRUBS TO 4'-0" - 1.5 GAL/PLANT, TREES AND SHRUBS 4'-0" TO 10'-0" 3.0 GAL/PLANT AND TREES 10' AND ABOVE - 4.0 GAL/PLANT.
6. ALL TREES REQUIRE A MINIMUM OF 2 STAKES EACH AND ALL SHALL BE GUYED OR STAKED. TREE STAKING MATERIAL SHALL BE REMOVED BY THE LANDSCAPE CONTRACTOR AFTER ONE GROWING SEASON.
7. ALL PLANTINGS ARE IN MULCHED BEDS. ALL PLANTING BEDS SHALL BE FREE OF WEEDS OR GRASS PRIOR TO INSTALLATION OF MULCH. IF VEGETATION EXISTS, TREAT WITH HERBICIDE. MULCH SHALL BE MEDIUM SHREDDED BARK, 3" DEPTH. ALL PLANTINGS NOT IN BEDS OR ISLANDS SHALL HAVE MULCHED WATER RINGS ACCORDING TO THE DETAIL.
8. ALL PLANTS SHALL HAVE THEIR LOCATIONS STAKED AND APPROVED BY THE LANDSCAPE ARCHITECT OR OWNER PRIOR TO PLANT INSTALLATION. ALL PLANTS SHALL BE ORIENTED FOR BEST APPEARANCE.
9. PLANT SPECIES SUBSTITUTIONS WILL NOT BE ALLOWED UNLESS FIRST APPROVED BY THE LANDSCAPE ARCHITECT, OWNER, AND MUNICIPAL AUTHORITY (IF APPLICABLE). ANY CHANGE TO PLANT SPECIES, DUE TO LACK OF AVAILABILITY DURING CONSTRUCTION, SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT.
10. ALL PLANTS SHALL BE GUARANTEED FOR ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY THE OWNER. ANY PLANTS THAT DIE DURING THE GUARANTEE PERIOD SHALL BE REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER. A WRITTEN WARRANTY, WITH CONTRACTOR'S CONTACT INFORMATION, DATE OF ACCEPTANCE AND LENGTH OF GUARANTEE PERIOD SHALL BE SUBMITTED AS PART OF JOB CLOSEOUT.
11. ALL AREAS NOT IDENTIFIED WITH OTHER SURFACE TREATMENTS SHALL BE LAWN. THE LAWN AREA SHALL BE LOAMED, SEEDED AND STRAW MULCHED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LAWN MAINTENANCE. MAINTENANCE SHALL COMMENCE AT THE TIME OF PLANTING AND CONTINUE UNTIL GRASS IS FULL AND ESTABLISHED AND ACCEPTED BY THE OWNER. SEE SHEET C-7.7 FOR SEED MIX DETAILS.
12. ALLOW SHRUBS AND ORNAMENTAL GRASSES TO GROW TOGETHER TO FORM A NATURAL LOOKING PLANT MASS AND ALLOW EVERGREEN SHRUBS TO GROW TOGETHER TO FORM A SOLID GROUND COVER.
13. IF QUANTITIES OF PLANTS LISTED IN THE PLANT LIST DO NOT CORRELATE WITH THOSE INDICATED ON THE PLAN, THE QUANTITIES ON THE PLAN SHALL GOVERN.
14. REMOVE EXISTING GRASS AND WEEDS FROM ALL AREAS TO BE PLANTED PRIOR TO PLANT INSTALLATION. LOAM, SEED AND STRAW MULCH (OR OTHER SURFACE TREATMENT AS INDICATED) ALL AREAS DISTURBED BY CONSTRUCTION.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 12.05.19 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	12.05.19	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB	Draft: CDD	Date: NOV. 2019
Checked: SRB	Scale: AS NOTED	Job No.: 3572
File Name: 3572-LANDSCAPE.dwg		

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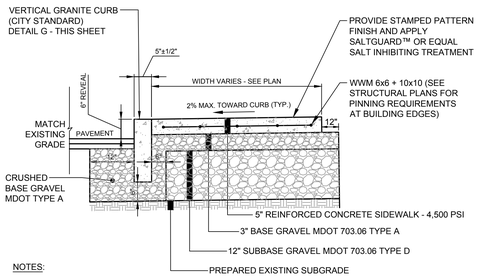
Drawing Name: LANDSCAPE DETAILS

Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine

Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C-7.2

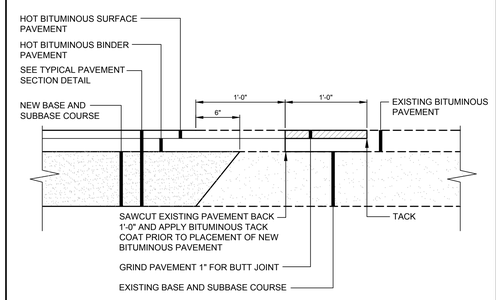
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NOTES:

1. INSTALL CONSTRUCTION JOINTS AT 12' SPACING.
2. PROVIDE ½" WIDE EXPANSION JOINT BETWEEN SIDEWALK AND ALL FIXED OBJECTS.
3. STAMPING PATTERN SHALL BE REVIEWED AND APPROVED BY OWNER PRIOR TO PLACEMENT.

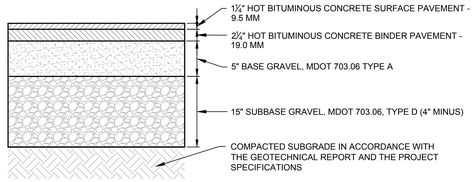
Ⓐ CONCRETE SIDEWALK DETAIL
N.T.S.



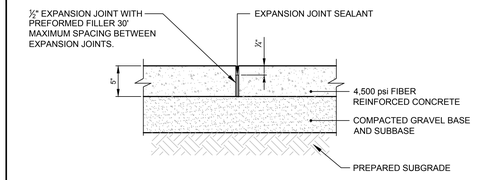
Ⓔ PAVEMENT SAWCUT DETAIL
N.T.S.

NOTES:

1. SEE OVERALL SITE LAYOUT PLAN (SHEET C-3.1) FOR LOCATION(S) OF DIFFERENT PAVEMENT TYPES.
2. APPLY TACK COAT BETWEEN BINDER AND SURFACE COURSES.
3. ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION. COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS AND GEOTECHNICAL REPORTS PREPARED BY THE GEOTECHNICAL ENGINEER, WHICHEVER IS MORE STRINGENT.
4. CONTRACTOR SHALL BE REQUIRED TO PROTECT ALL BEARING SOILS FROM EXCESSIVE DISTURBANCE. SHOULD SUBGRADE BECOME YIELDING OR DIFFICULT TO WORK, DISTURBED AREAS SHOULD BE EXCAVATED AND COMPACTED WITH SELECT GRANULAR FILL OR CRUSHED STONE AT NO EXTRA EXPENSE TO THE OWNER. WOVEN GEOTEXTILE TENSILE FABRIC (MIRAFI 600X OR EQUAL) SHALL BE PLACED OVER UNSUITABLE SUBGRADE AS DIRECTED BY THE OWNER'S REPRESENTATIVE, AT NO EXTRA EXPENSE TO THE OWNER.
5. ALL GRAVELS SHALL EXTEND A MINIMUM OF 12" BEYOND THE EDGE OF PAVEMENT.



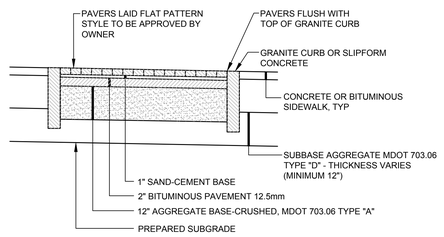
Ⓘ STANDARD DUTY BITUMINOUS CONCRETE PAVEMENT SECTION
N.T.S.



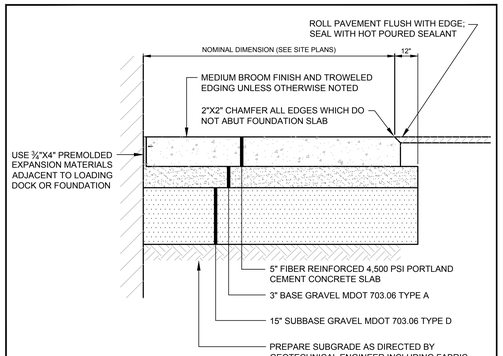
NOTE:
CONCRETE SIDEWALK TO HAVE FINE TO MEDIUM BROOM FINISH PERPENDICULAR TO CURB LINE.

PROVIDE 1/2" WIDE EXPANSION JOINT BETWEEN SIDEWALK AND ALL FIXED OBJECTS.

Ⓜ SIDEWALK EXPANSION JOINT
N.T.S.



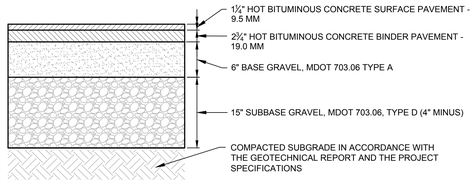
Ⓑ PAVER SIDEWALK OR ENTRY PLAZA DETAIL
N.T.S.



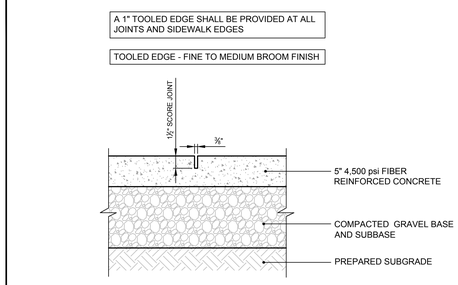
Ⓕ CONCRETE SLAB DETAIL
N.T.S.

NOTES:

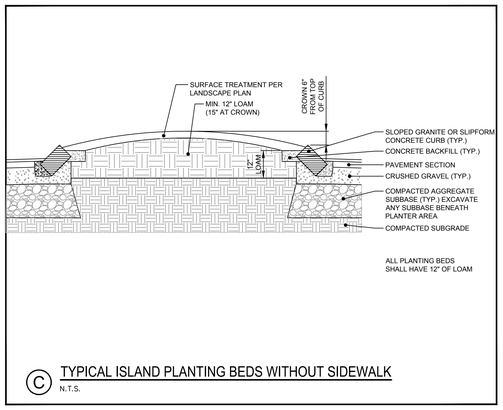
1. SEE OVERALL SITE LAYOUT PLAN (SHEET C-3.1) FOR LOCATION(S) OF DIFFERENT PAVEMENT TYPES.
2. APPLY TACK COAT BETWEEN BINDER AND SURFACE COURSES.
3. ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION. COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS AND GEOTECHNICAL REPORTS PREPARED BY THE GEOTECHNICAL ENGINEER, WHICHEVER IS MORE STRINGENT.
4. CONTRACTOR SHALL BE REQUIRED TO PROTECT ALL BEARING SOILS FROM EXCESSIVE DISTURBANCE. SHOULD SUBGRADE BECOME YIELDING OR DIFFICULT TO WORK, DISTURBED AREAS SHOULD BE EXCAVATED AND COMPACTED WITH SELECT GRANULAR FILL OR CRUSHED STONE AT NO EXTRA EXPENSE TO THE OWNER. WOVEN GEOTEXTILE TENSILE FABRIC (MIRAFI 600X OR EQUAL) SHALL BE PLACED OVER UNSUITABLE SUBGRADE AS DIRECTED BY THE OWNER'S REPRESENTATIVE, AT NO EXTRA EXPENSE TO THE OWNER.
5. ALL GRAVELS SHALL EXTEND A MINIMUM OF 12" BEYOND THE EDGE OF PAVEMENT.



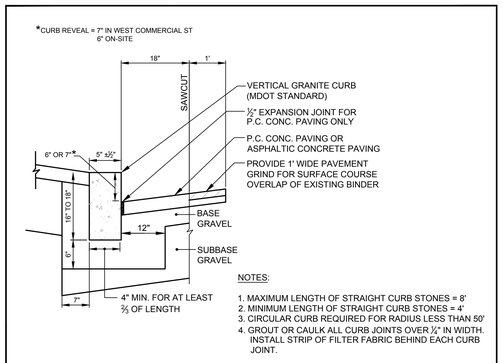
Ⓙ HEAVY DUTY BITUMINOUS CONCRETE PAVEMENT SECTION
N.T.S.



Ⓝ SIDEWALK SCORE JOINT
N.T.S.



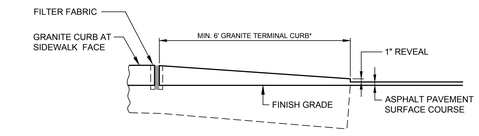
Ⓒ TYPICAL ISLAND PLANTING BEDS WITHOUT SIDEWALK
N.T.S.



NOTES:

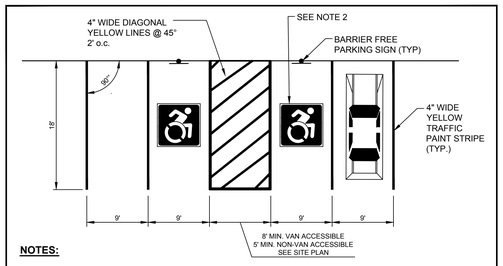
1. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 8'
2. MINIMUM LENGTH OF STRAIGHT CURB STONES = 4'
3. CIRCULAR CURB REQUIRED FOR RADIUS LESS THAN 50'
4. GROUT OR CAULK ALL CURB JOINTS OVER ¼" IN WIDTH. INSTALL STRIP OF FILTER FABRIC BEHIND EACH CURB JOINT.

Ⓖ VERTICAL GRANITE CURB DETAIL
N.T.S.



* 6'-0" IS MINIMUM - LENGTH MAY NEED TO BE EXTENDED TO MEET ADA REQUIREMENTS

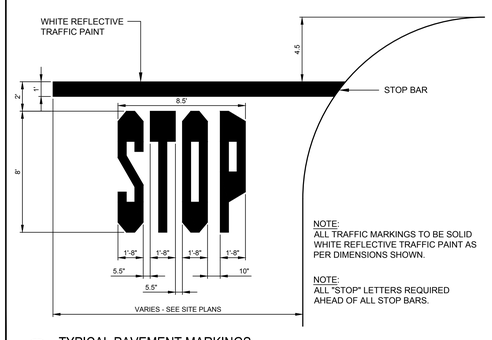
Ⓚ TERMINAL CURB DETAIL
N.T.S.



NOTES:

1. REFER TO ADA GUIDELINES FOR MINIMUM NUMBER OF STANDARD ACCESSIBLE SPACES AND MINIMUM NUMBER OF VAN ACCESSIBLE SPACES. REFER TO THE SITE LAYOUT PLAN FOR LOCATIONS.
2. INTERNATIONAL BARRIER FREE GRAPHIC SYMBOL (PAINTED WHITE) TO BE CENTERED IN PARKING STALL. SYMBOL TO BE PAINTED ON BLUE NON-SKID BACKGROUND. REFER TO STATE / LOCAL REGULATIONS FOR SPECIFIC TYPE OF SYMBOL TO BE USED.
3. WHEN PARKING IS ON CURVE, THE NARROWEST PORTION OF THE PARKING STALL SHALL MEET THE WIDTH SHOWN.

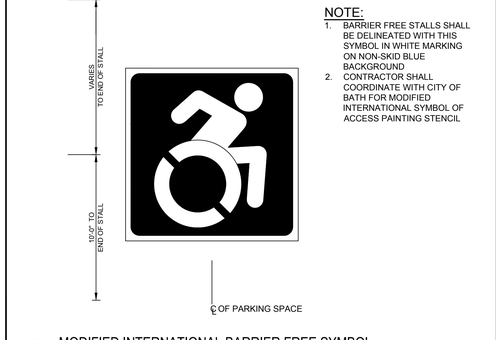
Ⓞ STANDARD PARKING STALL STRIPING
N.T.S.



NOTE:
ALL TRAFFIC MARKINGS TO BE SOLID WHITE REFLECTIVE TRAFFIC PAINT AS PER DIMENSIONS SHOWN.

NOTE:
ALL "STOP" LETTERS REQUIRED AHEAD OF ALL STOP BARS.

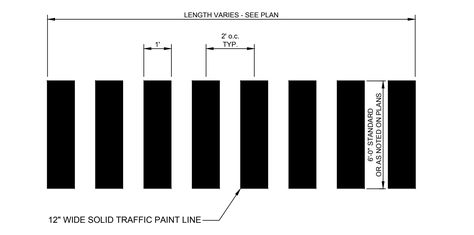
Ⓓ TYPICAL PAVEMENT MARKINGS
N.T.S.



NOTE:

1. BARRIER FREE STALLS SHALL BE DELINEATED WITH THIS SYMBOL IN WHITE MARKING ON NON-SKID BLUE BACKGROUND
2. CONTRACTOR SHALL COORDINATE WITH CITY OF BATH FOR MODIFIED INTERNATIONAL SYMBOL OF ACCESS PAINTING STENCIL

Ⓗ MODIFIED INTERNATIONAL BARRIER FREE SYMBOL
N.T.S.



NOTES:

1. ALL TRAFFIC MARKINGS TO BE SOLID TRAFFIC PAINT AS PER DIMENSIONS SHOWN.
2. PAINT COLOR TO BE SOLID WHITE TRAFFIC PAINT.

Ⓛ CROSSWALK STRIPING DETAIL
N.T.S.

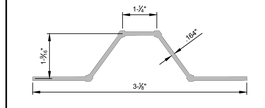
LENGTH: AS REQUIRED

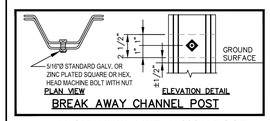
WEIGHT PER LINEAR FOOT: 2.50 LBS. MIN.

HOLES: ⅜" DIAMETER, 1" C-C FULL LENGTH

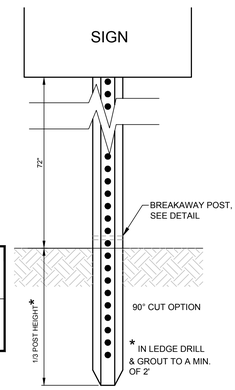
STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASSTM A-576 (GRADE 1070 - 1080)

FINISH: SHALL BE PAINTED WITH TWO COATS OF AN APPROVED MEDIUM GREEN BAKED ON OR AIR DRIED, PAINT OF WEATHER RESISTANT QUALITY. ALL FABRICATION SHALL BE COMPLETE BEFORE PAINTING.





BREAK AWAY CHANNEL POST



Ⓟ U-CHANNEL METAL SIGN POST
N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
12.05.19
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	12.05.19	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB	Draft: CDD	Date: NOV. 2019
Checked: SRB	Scale: NTS	Job No.: 3572
File Name: 3572-DETAILS.dwg		

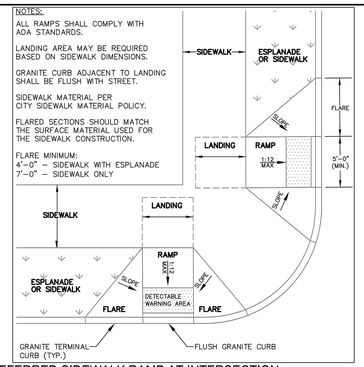
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Drawing Name: SITE DETAILS
Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine
Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C–10.0

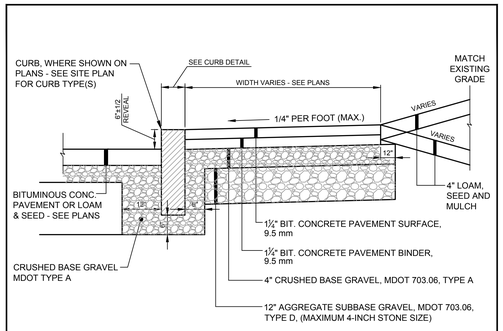
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A N.T.S.

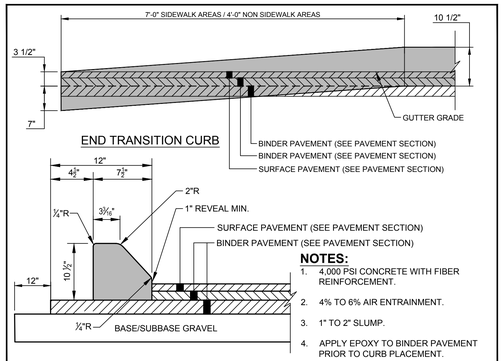
PREFERRED SIDEWALK RAMP AT INTERSECTION

AS OBTAINED FROM THE CITY OF PORTLAND "TECHNICAL MANUAL"



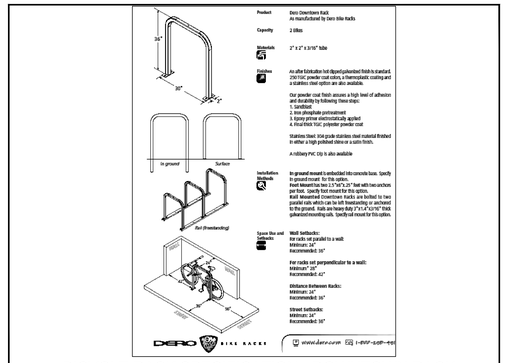
D N.T.S.

BITUMINOUS SIDEWALK WITH CURB DETAIL



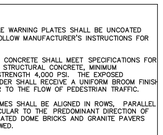
F N.T.S.

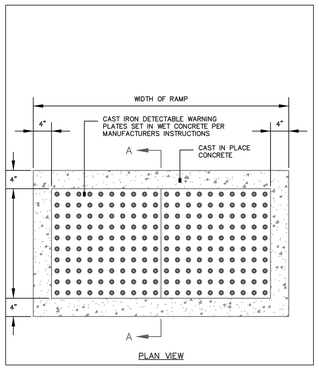
EXTRUDED SLIPFORM SLOPED CONCRETE CURB DETAIL



J N.T.S.

BICYCLE RACK SPECIFICATION - DOWNTOWN RACK

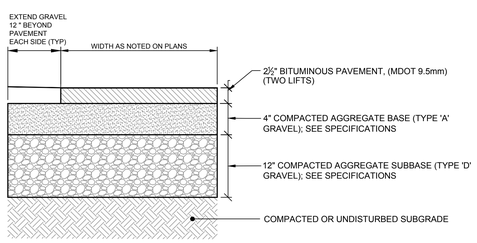




B N.T.S.

SIDEWALK RAMP DETECTABLE WARNING PANEL

AS OBTAINED FROM THE CITY OF PORTLAND "TECHNICAL MANUAL"

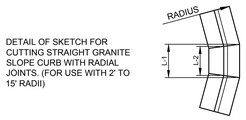


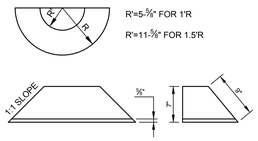
NOTES:

1. APPLY TACK COAT BETWEEN PAVEMENT COURSES.
2. ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION.
3. COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS AND THE GEOTECHNICAL REPORT.

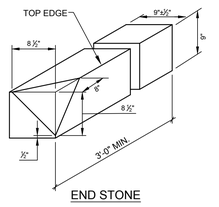
C N.T.S.

BITUMINOUS ASPHALT SIDEWALK



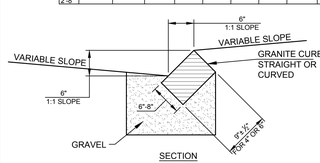


DETAIL FOR CUTTING CURVED CURB



END STONE

L-1	RADIUS 2'	2.5'	3'	3.5'	4'	5'	6'	8'	10'	12'	14'	15'
	L-2											
0'-9"	0'-8-1/2"											
1'-0"	0'-8-3/4"	0'-9-1/2"										
1'-1"	0'-9-1/2"	0'-10-1/4"										
1'-2"	0'-10-1/4"	0'-11"	0'-11-1/2"									
1'-3"	0'-11"	0'-11-3/4"	1'-0-1/4"									
1'-4"	0'-11-3/4"	1'-0-1/2"	1'-1-1/4"	1'-1-1/2"								
1'-5"	1'-0-1/2"	1'-1-1/2"	1'-2"	1'-2-1/2"	1'-2-3/4"	1'-3-1/4"	1'-3-1/2"	1'-4"	1'-4"	1'-4-1/4"	1'-4-1/4"	1'-4-1/4"
1'-6"	1'-1-1/4"	1'-2-1/4"	1'-2-3/4"	1'-3"	1'-3-1/2"	1'-4"	1'-4-1/2"	1'-4-3/4"	1'-5"	1'-5-1/4"	1'-5-1/4"	1'-5-1/4"
1'-7"	1'-2"	1'-3"	1'-3-3/4"	1'-4"	1'-4-1/2"	1'-5"	1'-5-1/4"	1'-5-3/4"	1'-6"	1'-6-1/4"	1'-6-1/4"	1'-6-1/4"
1'-8"	1'-2-3/4"	1'-3-3/4"	1'-4-1/2"	1'-5"	1'-5-1/4"	1'-6"	1'-6-1/4"	1'-6-3/4"	1'-7"	1'-7"	1'-7-1/4"	1'-7-1/4"
1'-9"							1'-7-1/4"	1'-7-1/2"	1'-8"	1'-8"	1'-8-1/4"	1'-8-1/4"
1'-10"							1'-8"	1'-8-1/2"	1'-8-3/4"	1'-9"	1'-9-1/4"	1'-9-1/4"
1'-11"							1'-9"	1'-9-1/2"	1'-9-3/4"	1'-10"	1'-10-1/4"	1'-10-1/4"
2'-0"							1'-10"	1'-10-1/2"	1'-10-3/4"	1'-11"	1'-11"	1'-11"
2'-1"											2'-0"	2'-0"
2'-2"											2'-0"	2'-1"
2'-3"											2'-1"	2'-2"
2'-4"											2'-2"	2'-3"
2'-5"											2'-3"	2'-3"
2'-6"											2'-4"	2'-4"
2'-7"											2'-5-3/4"	2'-5-3/4"
2'-8"											2'-6-3/4"	2'-6-3/4"



SECTION

RADIUS FOR STONES WITH SQUARE JOINTS	RADIUS FOR STONES WITH SQUARE JOINTS	MAXIMUM LENGTH
16'-28'	SEE DETAIL CHART	1'-6"
29'-41'		2'
42'-55'		3'
56'-68'		4'
69'-82'		5'
83'-96'		6'
97'-110'		7'
OVER 110'		8'

NOTE:
ADJOINING STONES OF STRAIGHT CURB LAID ON CURVES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.

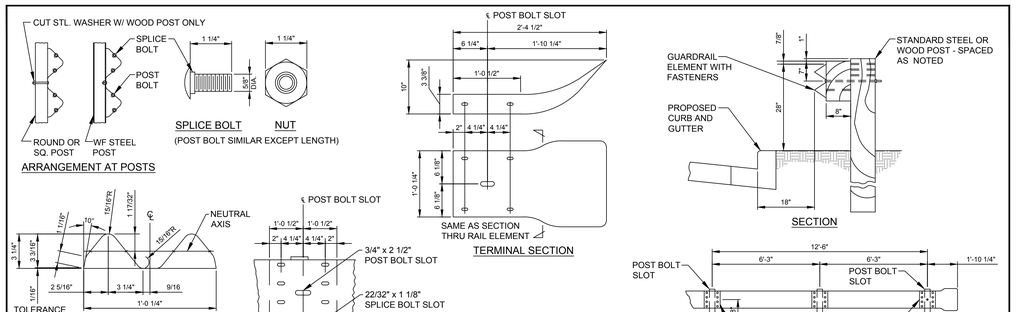
MINIMUM LENGTH OF STRAIGHT CURB STONES-18"

MAXIMUM LENGTH OF STRAIGHT CURB STONES-8'

MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES-SEE CHART

E N.T.S.

SLOPED GRANITE CURB DETAIL

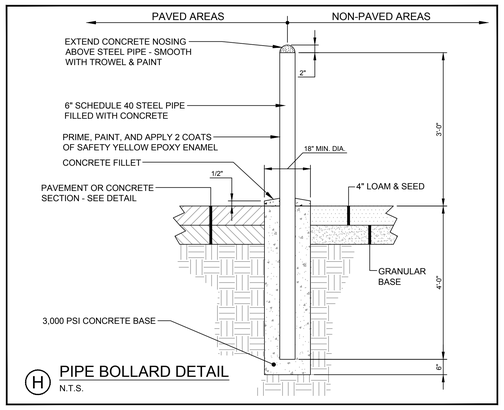


NOTES:

1. ALL DIMENSIONS SUBJECT TO MANUFACTURING TOLERANCE. RAIL ELEMENT MAY BE 12'-6" OR 25'-0" IN LENGTH.
2. CONTRACTOR SHALL FURNISH AND INSTALL GUIDERAIL, POSTS, FASTENERS, AND ALL NECESSARY PARTS REQUIRED TO COMPLETE THE INSTALLATION.

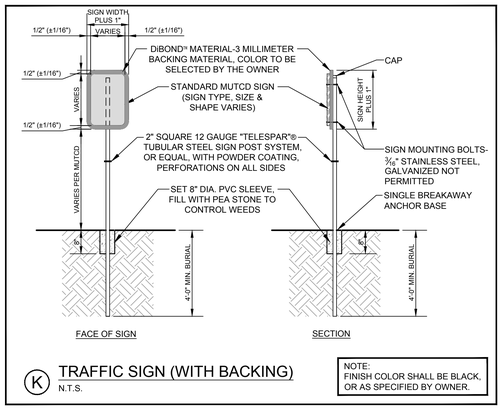
G N.T.S.

STANDARD METAL GUIDERAIL DETAIL



H N.T.S.

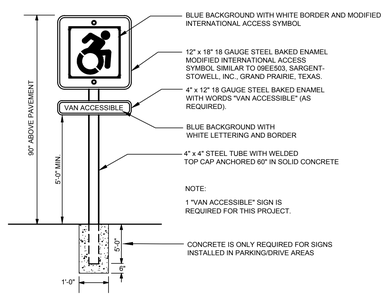
PIPE BOLLARD DETAIL



K N.T.S.

TRAFFIC SIGN (WITH BACKING)

NOTE:
FINISH COLOR SHALL BE BLACK, OR AS SPECIFIED BY OWNER.



I N.T.S.

BARRIER FREE PARKING SIGN

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
12.05.19
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	12.05.19	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB | Draft: CDD | Date: NOV. 2019
Checked: SRB | Scale: NTS | Job No.: 3572
File Name: 3572–DETAILS.dwg

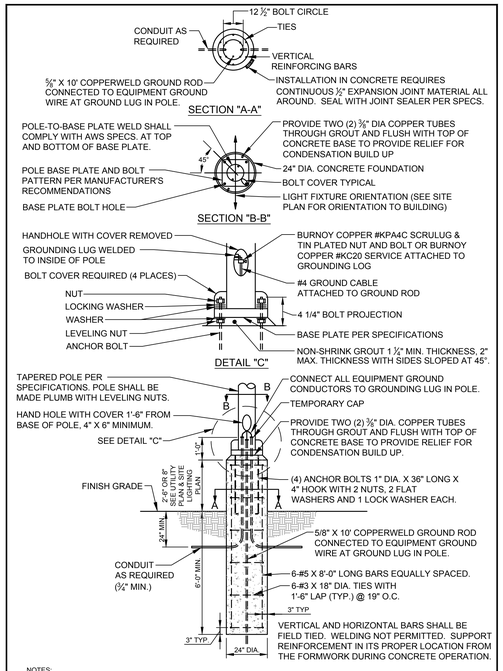
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Drawing Name: SITE DETAILS
Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine
Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

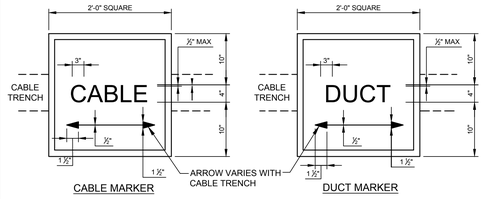
Drawing No. C–10.1

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NOTES:
1. 3500 P.S.I. MIN. 28 DAY COMPRESSIVE STRENGTH CONC. WITH GRADE 60 REINF. STEEL.
2. IF WATER IS PRESENT IN HOLE, REMOVE BEFORE POURING CONCRETE.
3. FOUNDATION EXCAVATION SHALL BE BY 24" AUGER IN UNDISTURBED OR PROPERLY COMPACTED FILL PER SPECIFICATIONS.
4. FOUNDATION SHALL HAVE A MINIMUM ALLOWABLE END BEARING OF 2000 PSF.
5. FOUNDATION HAS BEEN DESIGNED FOR A COHESIVE SOIL BASED ON A MINIMUM COHESIVE VALUE OF 1000 PSF.
6. FOUNDATION HAS BEEN DESIGNED FOR A GRANULAR SOIL BASED ON A MINIMUM LATERAL SOIL PRESSURE OF 1000 PSF,
7. UTILIZING AASHTO FIGURE 1.8.2(C4) OF "EMBEDMENT OF POSTS WITH OVERTURNING LOADS".
8. DETAIL FOR MAX. 39' POLE WITH MAX. FIXTURE EPA 4.6 S.F.
9. CONFIRM ANCHOR BOLT PLACEMENT AND PATTERN WITH LIGHT POLE MANUFACTURER BEFORE PREPARING FOUNDATION.
10. EXCAVATION WILL LIKELY BE BELOW WATER TABLE - DO NOT LEAVE EXCAVATION OPEN FOR EXTENDED PERIODS.

(A) TYPICAL PARKING LOT LIGHTING POLE FOUNDATION
N.T.S.

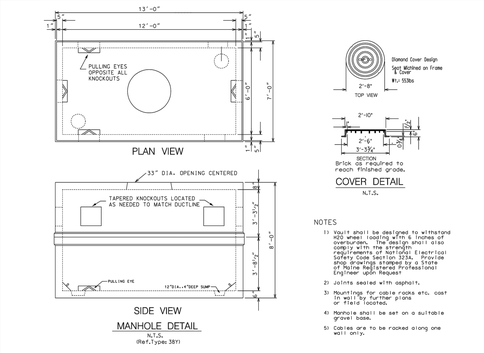


CABLE MARKER

DUCT MARKER

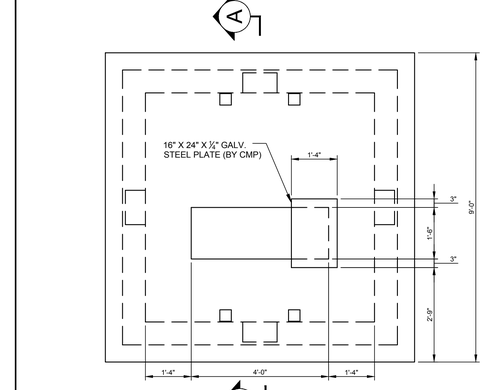
MARKER NOTES:
1. HAND LETTERING NOT ALLOWED ON MARKERS. LETTERING IS TO BE IMPRESSED.
2. ARROW ON CABLE MARKER INDICATE DIRECTION OF CABLES.
3. NO SEPARATE PAYMENT WILL BE MADE FOR CABLE OR SPLICE MARKERS.
4. ALL CONCRETE MARKERS ARE TO BE AT LEAST 4" IN THICKNESS.

(B) ELECTRICAL MARKERS
N.T.S.

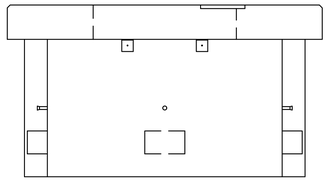


NOTES
1) Vault shall be designed to withstand H20 wheel loading with 6 inches of overburden. The design shall also comply with the strength requirements of Section 301 Electrical Manholes and Handholes. Provide shop drawings stamped by a State of Maine Registered Professional Engineer upon Request
2) Joints sealed with asphalt.
3) Mountings for cable racks etc. cast in wall by further plans or field located.
4) Manhole shall be set on a suitable gravel base.
5) Cables are to be racked along one wall only.

(C) PRECAST CONCRETE 38Y MANHOLE
N.T.S.



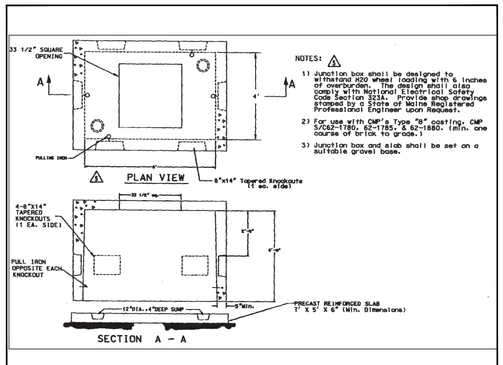
SECTION VIEW



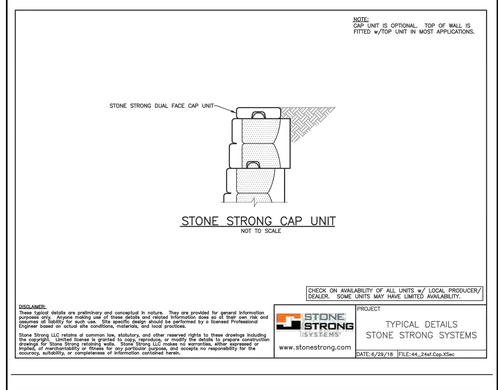
END VIEW

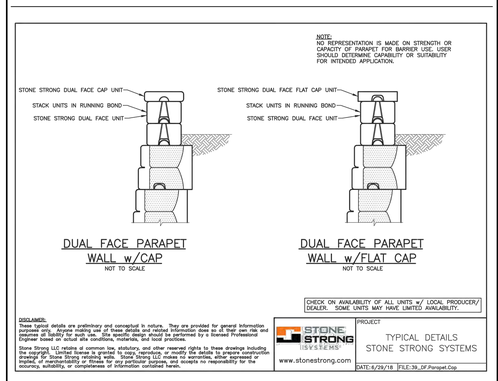
NOTES:
1. CONCRETE MINIMUM COMPRESSIVE STRENGTH 4,000 PSI @ 28 DAYS WITH STEEL REINFORCEMENT.
2. AS PER CENTRAL MAINE POWER COMPANY SPECIFICATIONS, AS MANUFACTURED BY SUPERIOR CONCRETE OR EQUAL.
3. FINAL SIZING TO BE BY ELECTRICAL DESIGNER.
4. ONE 8" x 24" KNOCKOUT PROVIDED EACH WALL.
5. FOR 750 - 5000 KVA THREE PHASE TRANSFORMER.
6. FINISH GRADE SHALL BE GRADED TO ALLOW SURFACE WATER TO FLOW AWAY FROM THE PAD.

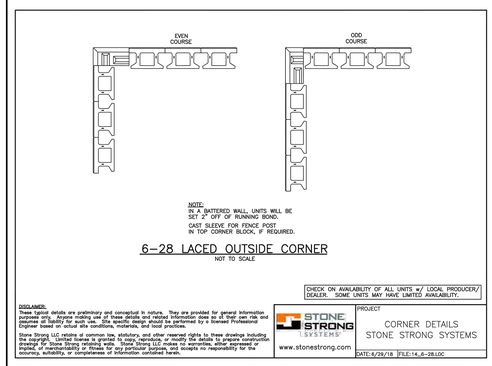
(D) 9'-0" TRANSFORMER PAD
N.T.S.

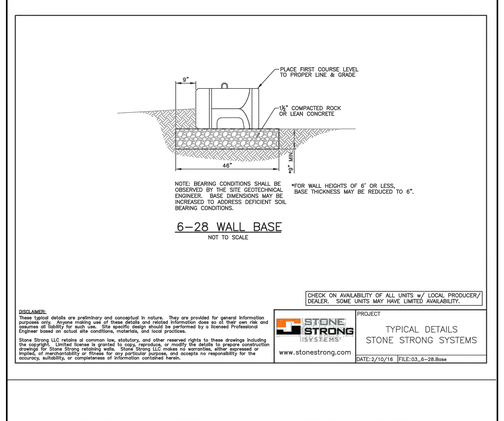


(E) 4' x 6' PULL BOX DETAIL
N.T.S.









(F) LARGE BLOCK RETAINING WALL TYPICAL DETAILS
N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
12.05.19
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7423

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Rev.	Date	Revision
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Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	12.05.19	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB	Draft: CDD	Date: NOV. 2019
Checked: SRB	Scale: NTS	Job No.: 3572

File Name: 3572-DETAILS.dwg

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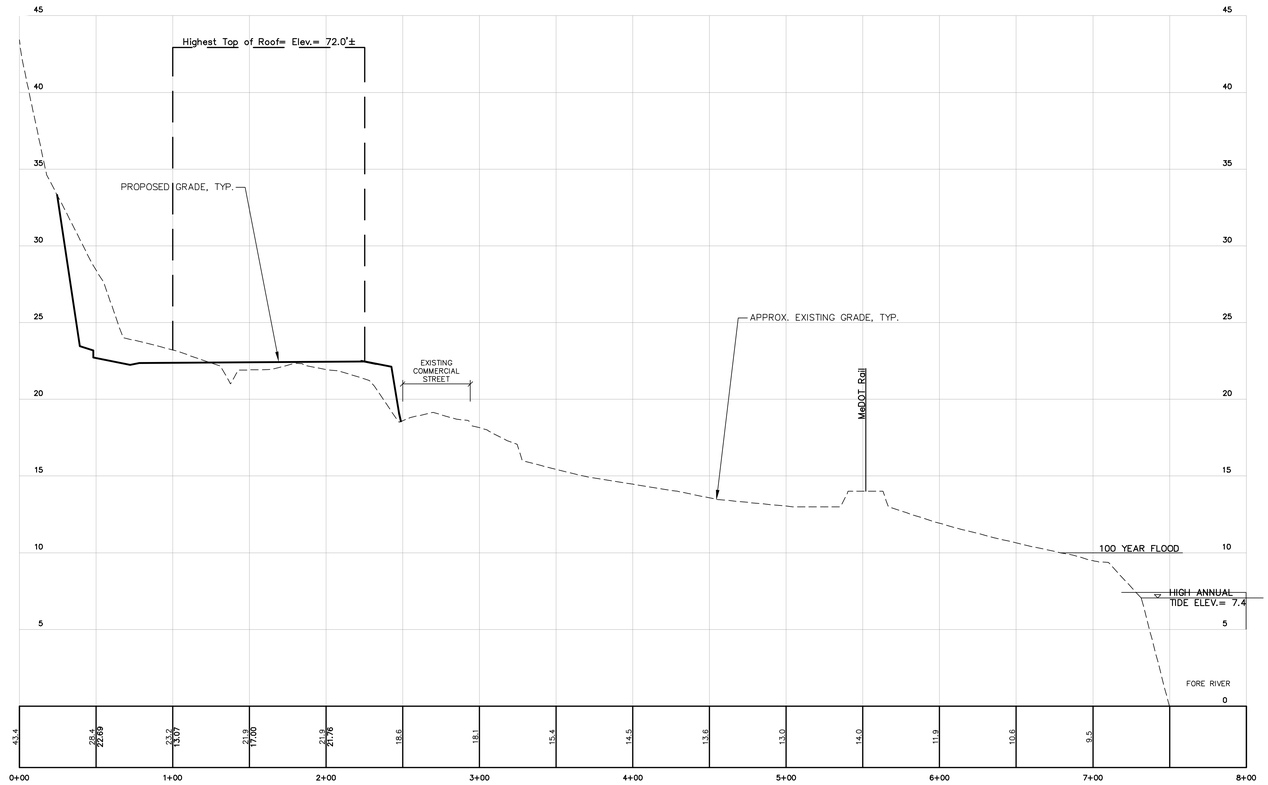
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Drawing Name: MISCELLANEOUS DETAILS

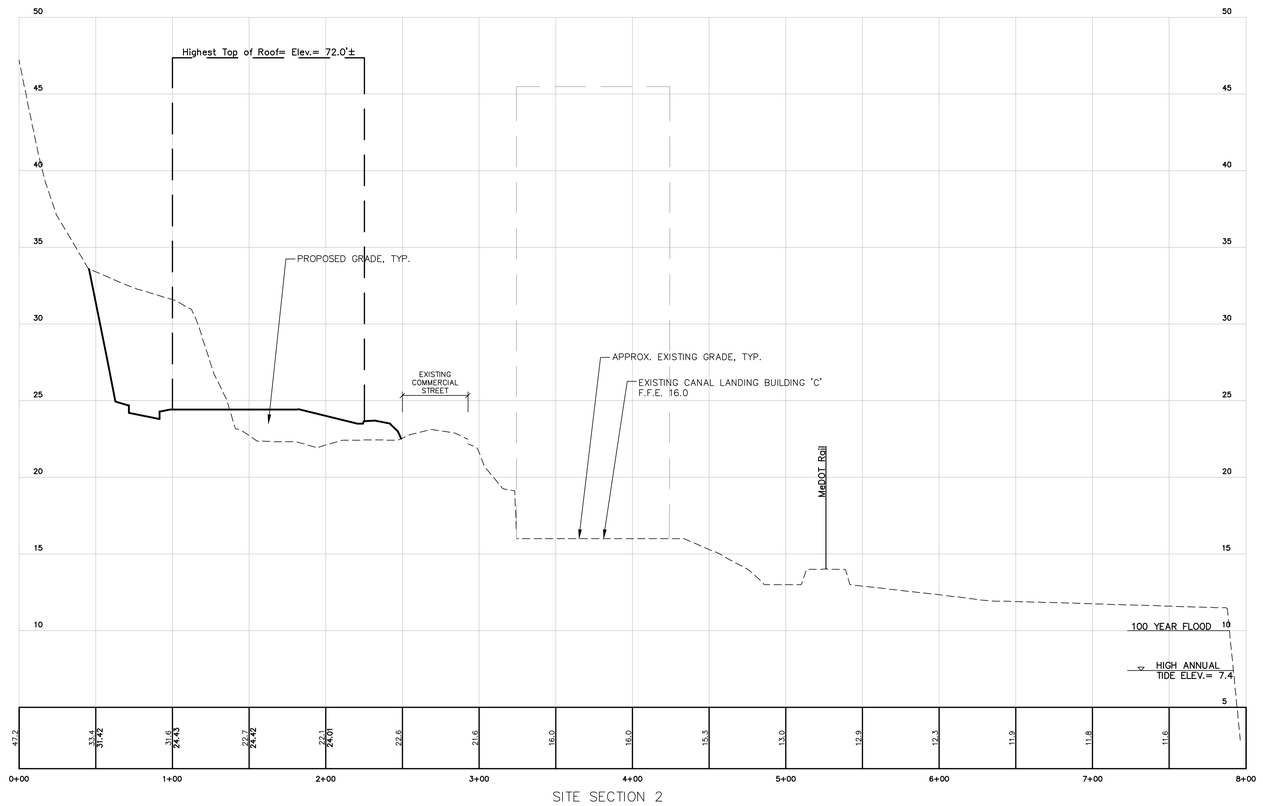
Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine

Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. C–10.4



SITE SECTION 1



SITE SECTION 2

40'
4'

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STEPHEN R. BUSHEY
12.05.19
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

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Issued For	Date	By
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TMP APPLICATION	11.22.19	SRB

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Checked: SRB | Scale: AS NOTED | Job No.: 3572
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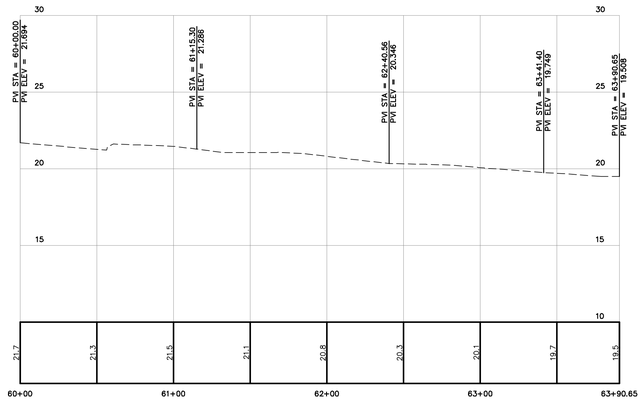
Drawing Name: SITE SECTIONS – TO FORE RIVER

Project: **U.S. Department of Veterans Affairs – Community Based Outpatient Clinic**
133 West Commercial Street, Portland, Maine

Client: **FDS JBB PORTLAND, LLC**
10 Free Street, Portland, Maine 04101

Drawing No. C–8.2

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RETAINING WALL 1 PROFILE

SCALE: 1" = 40' HORZ.
1" = 4' VERT.

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STATE OF MAINE
STEPHEN R. BUSHEY
12.05.19
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
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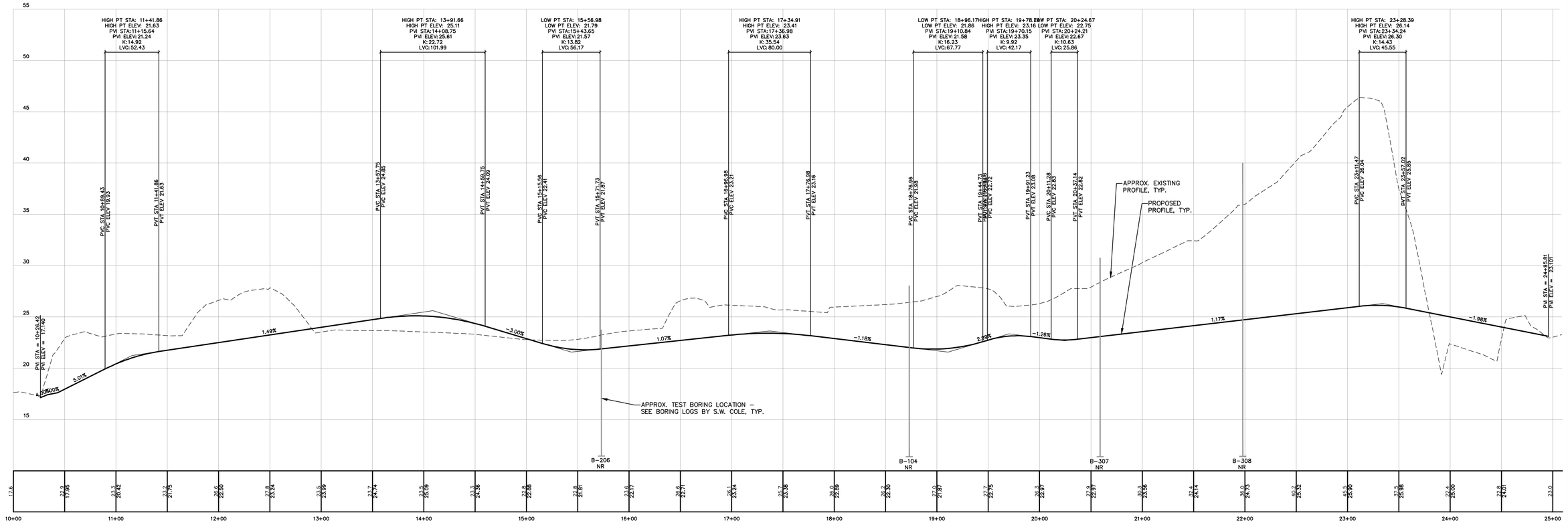
Drawing Name: RETAINING WALL PROFILES

Project: **U.S. Department of Veterans Affairs – Community Based Outpatient Clinic**
133 West Commercial Street, Portland, Maine

Client: **FDS JBB PORTLAND, LLC**
10 Free Street, Portland, Maine 04101

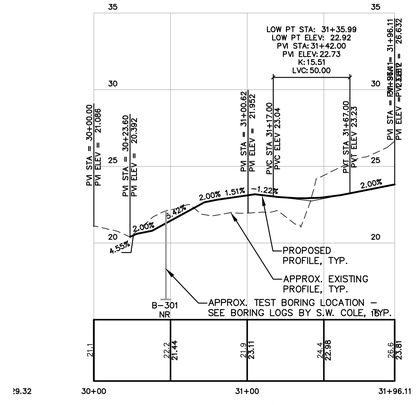
Drawing No. C–8.1

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ACCESS DRIVE 1 PROFILE

SCALE: 1" = 40' HORZ.
1" = 4' VERT.



ACCESS DRIVE 2 PROFILE

SCALE: 1" = 40' HORZ.
1" = 4' VERT.

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STATE OF MAINE
STEPHEN R. BUSHEY
12.05.19
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

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LEVEL III SITE PLAN APPLICATION	12.05.19	SRB
TMP APPLICATION	11.22.19	SRB

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Checked: SRB	Scale: AS NOTED	Job No.: 3572
File Name: 3572–GRADING.dwg		

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Drawing Name: ACCESS DRIVE PROFILES

Project: **U.S. Department of Veterans Affairs – Community Based Outpatient Clinic**
133 West Commercial Street, Portland, Maine

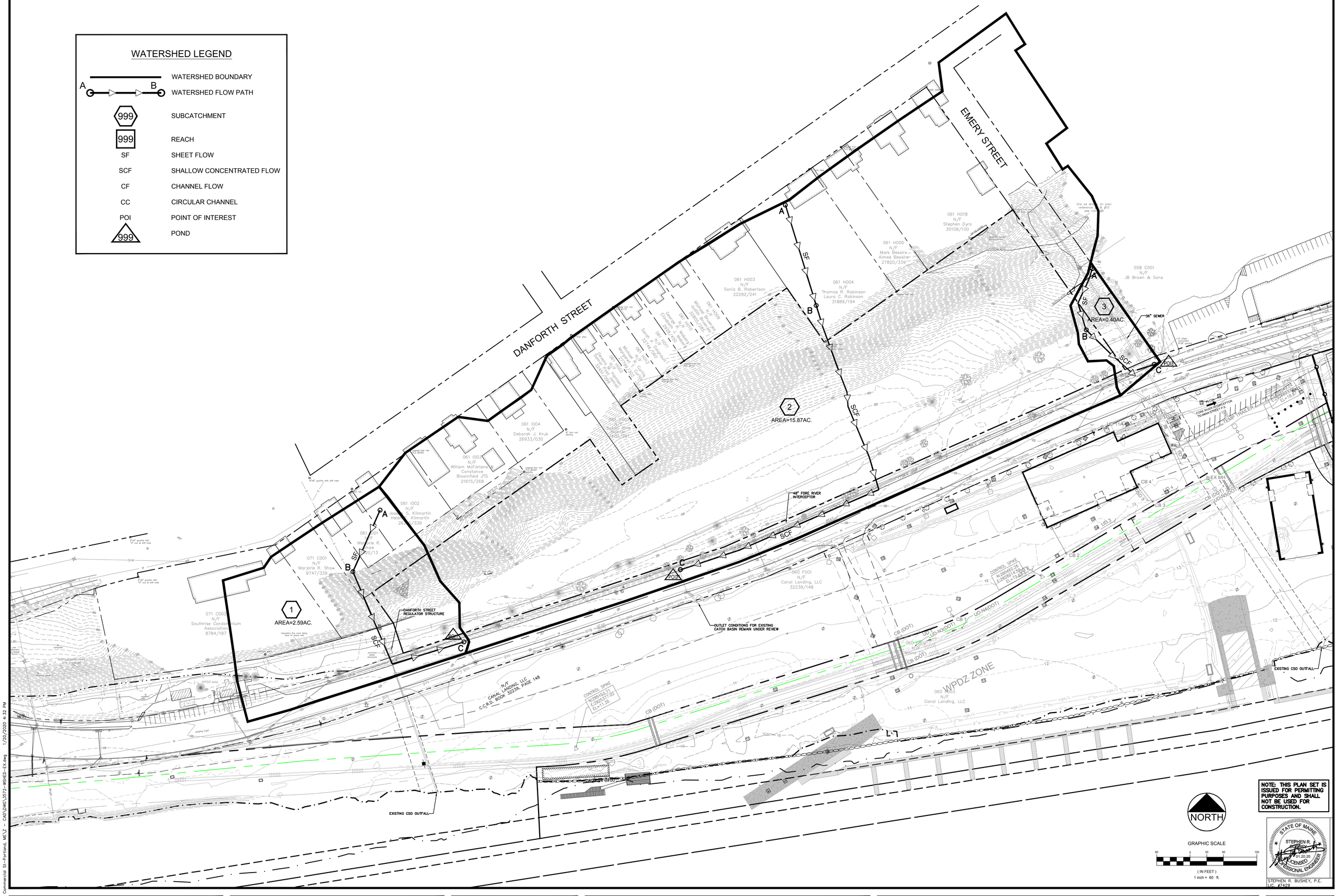
Client: **FDS JBB PORTLAND, LLC**
10 Free Street, Portland, Maine 04101

Drawing No. C–8.0

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WATERSHED LEGEND

A — B	WATERSHED BOUNDARY
A → B	WATERSHED FLOW PATH
999	SUBCATCHMENT
999	REACH
SF	SHEET FLOW
SCF	SHALLOW CONCENTRATED FLOW
CF	CHANNEL FLOW
CC	CIRCULAR CHANNEL
POI	POINT OF INTEREST
999	POND



NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 01.20.20 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7428

Rev.	Date	Revision
–	–	–

Issued For	Date	By
LEVEL III SITE PLAN APPLICATION	01.20.20	SRB
TMP APPLICATION	11.22.19	SRB

Design: SRB	Draft: CDD	Date: NOV. 2019
Checked: SRB	Scale: AS NOTED	Job No.: 3572
File Name: 3572-WSHED-EX.dwg		

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Drawing Name: PRE–DEVELOPMENT WATERSHED PLAN

Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine

Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

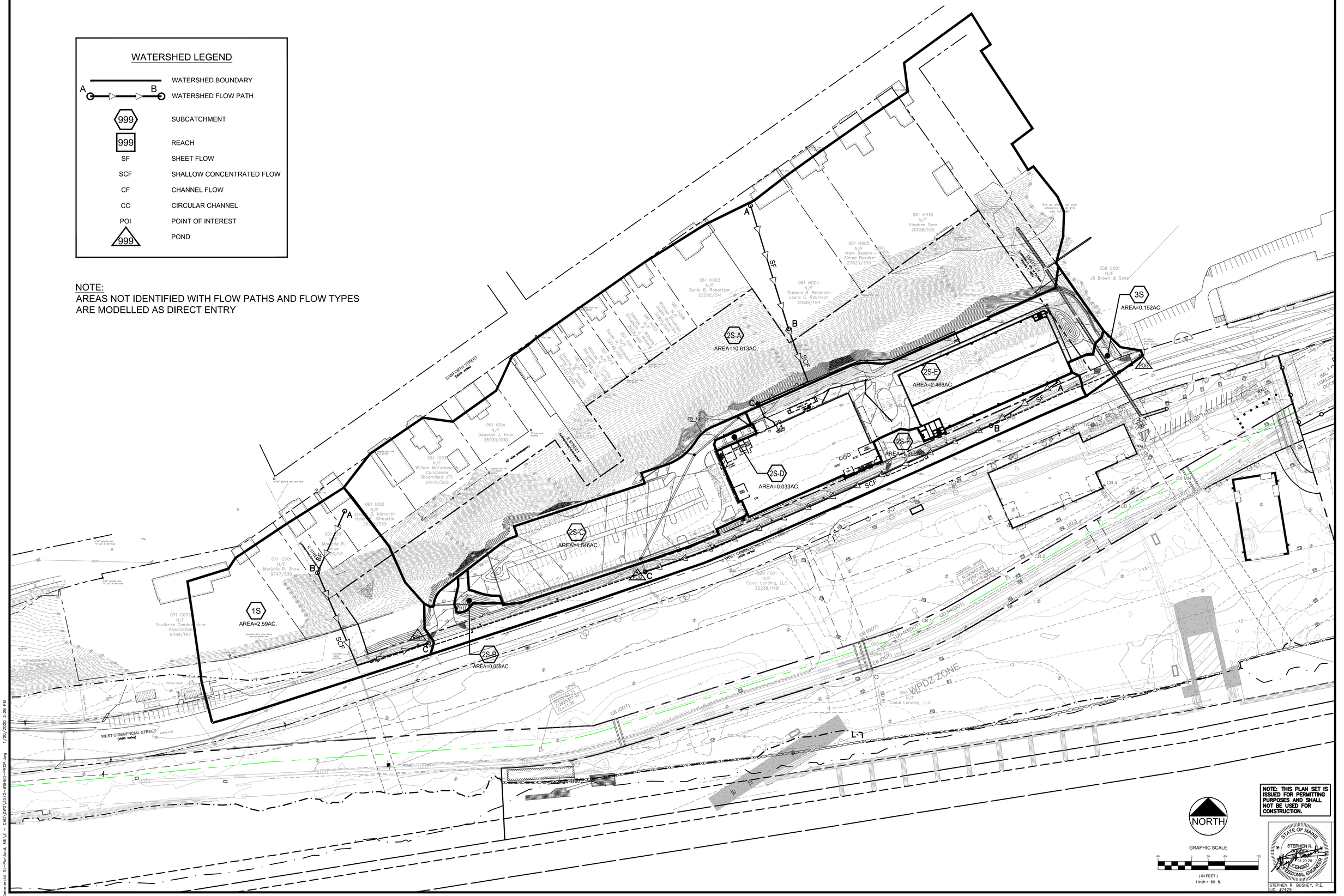
Drawing No. W–1

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WATERSHED LEGEND

- WATERSHED BOUNDARY
- A — B: WATERSHED FLOW PATH
- 999: SUBCATCHMENT
- 999: REACH
- SF: SHEET FLOW
- SCF: SHALLOW CONCENTRATED FLOW
- CF: CHANNEL FLOW
- CC: CIRCULAR CHANNEL
- POI: POINT OF INTEREST
- 999: POND

NOTE:
AREAS NOT IDENTIFIED WITH FLOW PATHS AND FLOW TYPES ARE MODELLED AS DIRECT ENTRY



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STATE OF MAINE — STEPHEN R. BUSHEY — 01.20.20 — LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

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TMP APPLICATION	11.22.19	SRB

Design: SRB	Draft: CDD	Date: NOV. 2019
Checked: SRB	Scale: AS NOTED	Job No.: 3572
File Name: 3572-WSHED-PROP.dwg		

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Drawing Name: POST-DEVELOPMENT WATERSHED PLAN
Project: U.S. Department of Veterans Affairs – Community Based Outpatient Clinic
133 West Commercial Street, Portland, Maine
Client: FDS JBB PORTLAND, LLC
10 Free Street, Portland, Maine 04101

Drawing No. W-2

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Memorandum
Planning and Urban Development Department
Planning Division

To: Brandon Mazer, Chair and Members of the Portland Planning Board
From: Andrew Tufts, Planner
Date: February 21, 2020
Re: 100 Andover Street, Maine Behavioral Health
Project #: PL-000930-2019 CBL: 239A A003001
Meeting: February 24, 2020

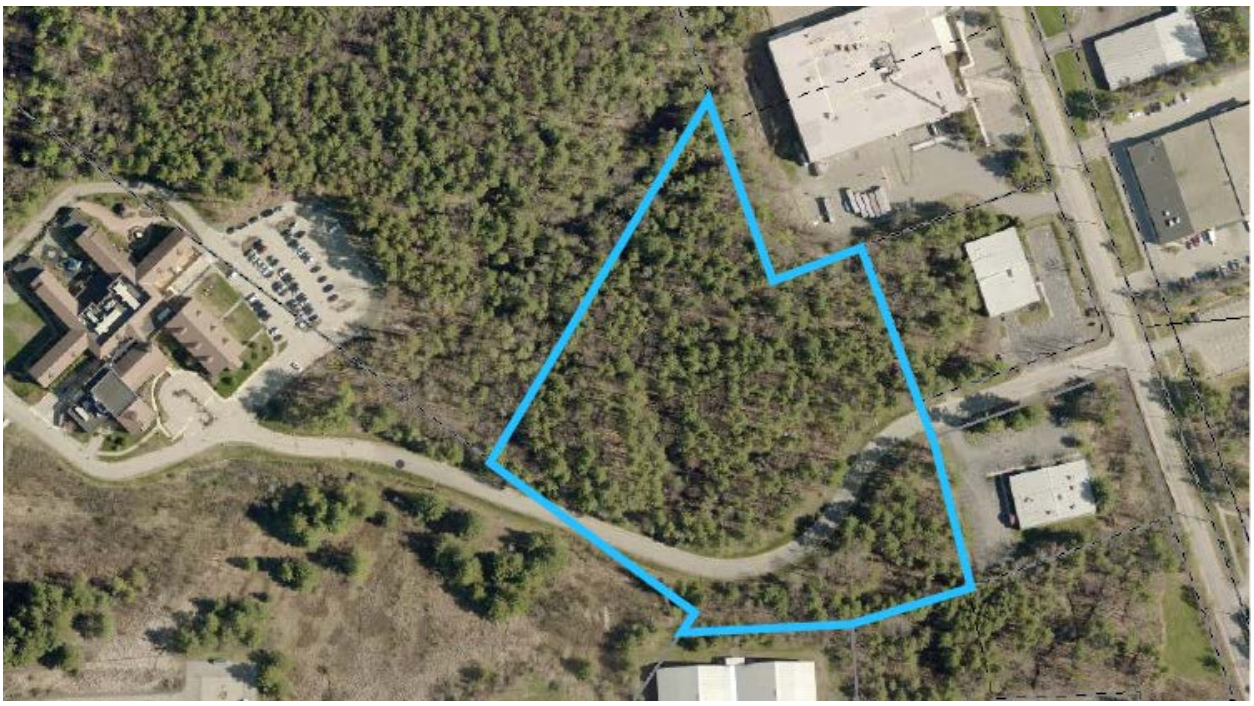


Figure 1: Parcel outline - Source: City of Portland Maine Parcel Viewer

I. INTRODUCTION

MaineHealth LLC, dba Maine Behavioral Healthcare has submitted a Level III Site Plan application for the development of a Center of Excellence in Autism and Developmental Disorders. The property is approximately 9.3 acres along 60' feet of street frontage on Andover Street. The site is located in the IM – Industrial Moderate zone. Medical clinics and professional offices are permitted uses in the IM Zone.

The Planning Department sent 41 notices advertising this meeting to property owners within 500 feet of the site. Legal advertisements ran in the February 15th & February 16th editions of the Portland Press Herald.

Applicant: Maine Behavioral Healthcare, LLC

Consultants: Barry J. Hosmer (Landscape Architect) David Titcomb (Titcomb Associates (Surveying)) Charlie Rizza (Architect) Maureen Mcglone (Ransom Consulting Engineers)

II. REQUIRED REVIEWS

Waiver Requests	*Applicable Standards*
The applicant is requesting a waiver of the required number of bicycle parking spaces as that would exceed over 50 bike spaces which is considered excessive for the clinic use.	Technical Standards – Transportation Standards –Bicycle Parking (14-526 (a) 4 b) b) Non-residential structures. Two (2) bicycle parking spaces for every ten (10) vehicle parking spaces for the first one hundred (100) required vehicle parking spaces, plus one (1) bicycle parking space for every twenty (20) required motor vehicle parking space over one hundred (100) required vehicle parking spaces.
4′ setback for a paved walking path around the playground, to better serve the users of the playground to allow for a loop walking path to lessen back and forth potential conflict among users.	Section 14-250 Dimensional Requirements (h) Pavement Setback from lot boundary; Ten (10) Feet
Review	*Applicable Standards*
Site Plan	*Section 14-526*

III. PROJECT DATA

Existing Zoning	I-M Zone
Existing Use	*Undeveloped*
Proposed Use	*Professional Offices – Outpatient Services*
Parcel Size	405,480 SF

	Existing	*Proposed*	*Net Change*
Building Footprint	NA	28,200 SF	+ 28,200 SF
Building Floor Area	NA	28,200 SF	+ 28,200 SF
Impervious Surface Area	NA	94,100 SF	+ 94,100 SF
Parking Spaces	0	119	+ 119
Bicycle Parking Spaces	0	3	+ 3



Figure 2: Existing conditions - Source: Andrew Tufts

IV. EXISTING CONDITIONS

The proposed development site is located on 100 Andover Street which is connected to outer Congress Street via Hutchins Drive. The parcel is approximately 9.3 acres in size. To the east of the property is Hydro International, the recently purchased MaineHealth warehouse and professional office building and Hutchins Drive. To the south is APEX Racket and Fitness Club, the American Red Cross and Cross Insurance.

The applicant is Maine Behavioral Healthcare and the owner of the parcel is MaineHealth, LLC. The site is currently undeveloped, and is part of the larger parcel of Spring Harbor Hospital, which was reviewed and approved by the City of Portland in 2002. The site is entirely forested, with a mix of pine and hardwood as the overstory, with wild blueberry and other acid loving shrubs covering much of the understory. Some invasive plants have been identified closer to Andover Street in areas of disturbance. The western portion of the property is a designated wetland. Approximately 1000' feet of wooded buffer is between the site and the Stroudwater River. The site is identified as a potential nesting/ roosting area of Long Nosed Bats, and as such any clearing must occur prior to April 19, 2020, or after September.

Owen Haskell, Inc. completed a boundary and topographic survey of the site. There were no existing or proposed easements identified.



Figure 3: Conceptual rendering – Entrance drive looking north - Source: Barry Hosmer

V. PROPOSED DEVELOPMENT

The proposed development includes a single story, 28,200 square foot building which would house outpatient services, professional offices as well as day treatment services and classrooms. The facility would be called the Center of Excellence in Autism and Developmental Disorders. Much of the care in this type of facility is on a one to one basis of provider and patient. The facility will be open from 8 AM to 5PM, with the school running from 9 AM to 2 PM. There are anticipated to be approximately 85 employees. The school would operate in its own wing of the building with its own entrance, occupying roughly 20-40% of the surface area, with the professional offices occupying the remaining space. A playground is proposed at the rear of the building, and is designed with a circuitous path so as to avoid conflict between users of the space. The parking field consists of 113 standard spaces and 6 handicap accessible spaces (85 employees, 39 visitors) comprising 51,530 square feet of impervious and permeable paving. The total area of the project is 93,700 square feet.

VI. PUBLIC COMMENT AND NEIGHBORHOOD MEETING

The applicant team held a neighborhood meeting on the evening of January 29, 2020 from 5:15 PM until approximately 6:35 PM at Spring Harbor Hospital. No one from the public attended the meeting. Attending on behalf of the development team were Barry Hosmer, project Landscape Architect, and Richard Gavin from Maine Behavioral Healthcare. **(See Attachment G)**

VII. RIGHT, TITLE, & INTEREST AND FINANCIAL & TECHNICAL CAPACITY

The owner of the property is MaineHealth, LLC. The applicant provided a copy of the warranty deed, recorded at the Cumberland County Registry of Deeds in CCRD Book 1740 page 106, which demonstrates their right, title and interest in the property. The applicant team cited their experience and qualifications to demonstrate capacity to design and construct the project. **(See Attachments C & D)**

IX. ZONING ANALYSIS

Dimensional requirements for this project are dictated by the IM – Moderate Impact Zone.

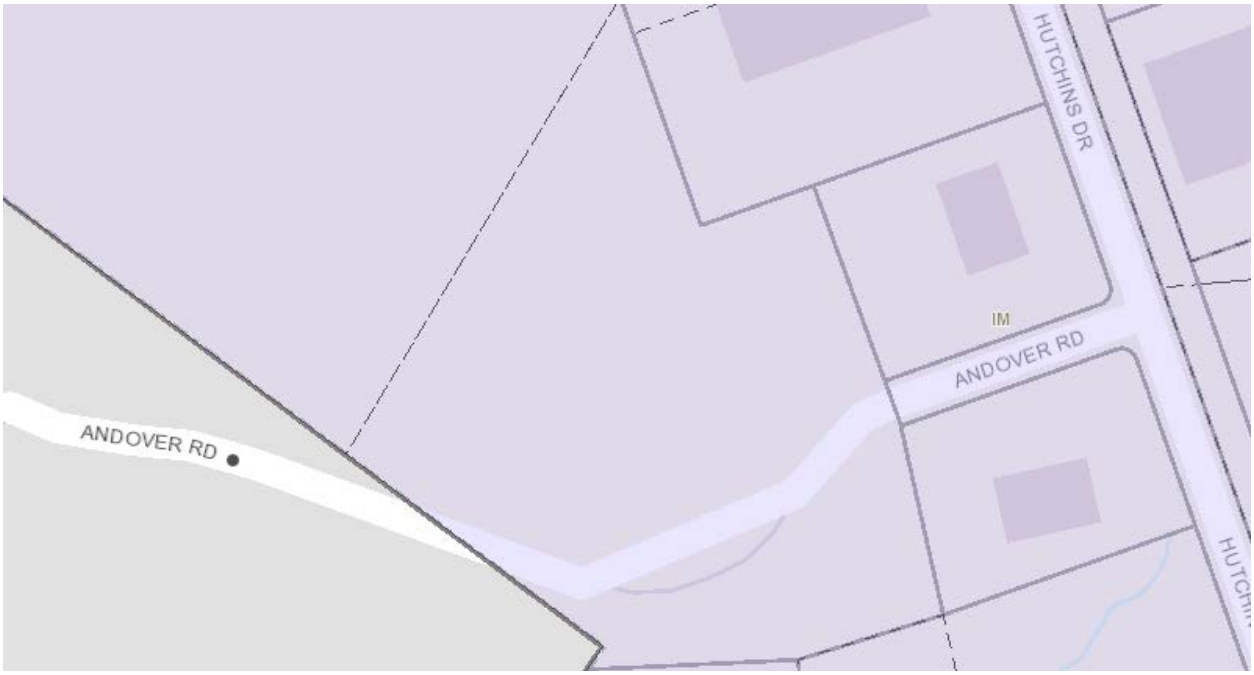


Figure 4: Zoning Map

Zoning Requirements	IM	Provided	+/-
Minimum Lot Size	None	9.3 AC	
Minimum Street Frontage	60 ft	60 ft	
Front Yard	Minimum: 27 ft	Minimum: 75 ft	
Minimum Side Yard	25 ft	39 ft	
Yard Left	25 ft	275 ft	
Minimum Rear Yard	25 ft	125 ft	
Maximum Lot Coverage	75%	23%	
Maximum Structure Height	75 ft	27 ft	
Parking	71	119	**+ 48**
Bicycle Parking	42 spaces	3 spaces	**- 39**

IX. DEVELOPMENT REVIEW

A. SITE PLAN SUBMISSION REQUIREMENTS (Section 14-527)

SITE PLAN STANDARDS (Section 14-526)

The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's site plan ordinance and applicable regulations. Staff comments are listed below.

1. *Transportation Standards*

a. Impact on Surrounding Street Systems and Access and Circulation

The site is located on Andover Street which is connected to outer Congress Street via Hutchins Drive. The site will be served primarily by passenger vehicles. A limited number of shuttle buses or vans may bring some students, and a trash vehicle will need to access the dumpster to the rear of the building. Deliveries would access the building through the front door. The parking lot system was designed to have a separate drop off lane for students and patients with limited parking just south of the building, for safety purposes. The main travel way for staff, patients and parents is located south of the landscaped island. The project has provided 6 universal handicap spaces.

Per ADA, an accessible route to a building entrance must be provided from the sidewalk serving the site. The applicant is working with City staff to meet this requirement.

Trip generation analysis shows that the new Maine Behavioral Health Center of Excellence in Autism and Development Disorders will generate in excess of 100 new peak hour trips. As a result, the project requires a Traffic Movement Permit (TMP) from the Maine Department of Transportation (MaineDOT). The City of Portland has Delegated Review Authority to review the application materials and issue the TMP on behalf of MaineDOT. A traffic study was submitted on January 28, 2020 and a Scoping Meeting was held on February 6, 2020. An initial traffic impact study has been submitted and is in review.

b. Sidewalks

Andover Street is a private drive and sidewalks do not exist.

c. Public Transit Access

West Commercial Street does not currently fall within a METRO service route; therefore, service is not directly available at the site.

d. Parking

The proposed parking would provide 119 surface parking spaces consisting of 113 standard spaces and 6 handicap accessible spaces. The applicant is exploring the implementation of compact spaces in lieu of some standard spaces. The City Code requires 71 spaces based on a ratio of 1 space/400 SF. All new surface parking shall be paved. Porous pavement is proposed for much of the surface parking field.

e. Bicycle Parking

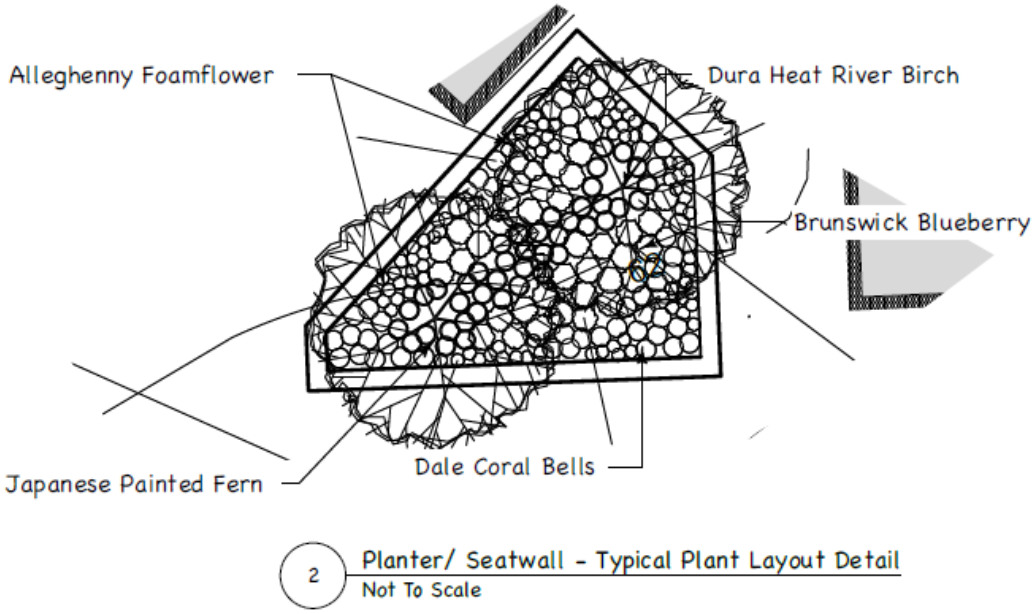
The applicant is proposing up to 20 bicycle spaces, and is requesting a waiver from the required 42 spaces. These changes have not yet been incorporated into the Site Plan, and will be subject to ongoing discussions.

2. Environmental Quality Standards

a. Preservation of Significant Natural Features

The site has been identified as habitat for the Long Nose Bat, which is a threatened species. The applicant has received the necessary permitting and paid a fee in lieu. The conditions of the permit state that any clearing must occur before April 19, 2020, which is the anticipated time the bats would return. Approximately 55 acres have been preserved to the north of the site as deer bed habitat.

b. Landscaping and Landscape Preservation



A landscaping plan was submitted by Barry Hosmer Landscape Architects as part of the application. The proposed parking lots will contain landscaping that is consistent with the City's technical standards. The applicant has attempted to reduce the footprint of the proposed development so as to limit disturbance to the existing landscape. The landscaping incorporates a variety of native plantings as well as other varieties. The landscape plan includes a note mandating that under no conditions may snow be plowed and piled on planting areas.

c. Water Quality, Storm Water Management and Erosion Control

The topography of the undeveloped site has several higher upland areas separated by pockets of wetlands. The native soil in this location are Hydrologic Soil Groups (HSG) C and D. Stormwater runoff from the site flows into the on-site wetlands and then off-site in 8 different locations. The site is in Zone X of FEMA's Flood Insurance Rate Map (FIRM), indicating that it is outside of the 500-year floodplain.

The proposed developed area which includes the proposed building, pavement and sidewalk (Post-Development sub catchments 9-20) totals 128,971 sf; of which 93,700 sf is new impervious surface and 35,270 sf is landscaped area. There will also be two outlet control structures that discharge to two analysis points. The runoff will discharge to the same points both pre and post development, with equal or decreased flows in the post development with no changes in existing channel geometry. Erosion and sedimentation control measures during construction are detailed within the design plans.

There is roughly 1,000 feet of vegetated buffer between the proposed site and the Stroudwater River, with pre-development flows exceeding the expected post-development flows for 2, 10, and 25-year storms. There is approximately 3,146 sf of wetland impact.

The project is required to comply with Maine DEP Chapter 500 and City of Portland Technical Manual Section 5 stormwater regulations. The project requires a Site Location of Development permit (SLODA). A Site Location of Development Act (SLODA) permit and a Natural Resources Protection Act (NRPA) Tier 2 Wetland Alteration permit were submitted on August 27, 2019. These permits were determined complete on September 18, 2019 and Jenifer McGill has been assigned as the project manager from the MDEP.

On November 13, 2019 Frank Del Giudice of the Army Corps of Engineers authorized the placement of fill in freshwater wetlands as indicated on the NRPA Wetland Alteration Permit.

3. Public Infrastructure and Community Safety Standards

a. Public Safety and Fire Prevention

The site would provide access from the primary driveway for emergency vehicles. Fire hydrants would be located along Andover Street. The facility would be fully sprinklered.

b. Availability and Adequate Capacity of Public Utilities

The Applicant is securing letters from the applicable utilities stating their ability to serve the site. The project will require new electrical, gas, sewer, and water services to the facility. An ability to serve letter has been requested from the Portland Water District, and a Wastewater Capacity Application has been approved by Brad Roland, P.E., Senior Project Engineer, at the City of Portland. (See Attachment I)

4. Site Design Standards

a. Snow and Ice Loading

Snow will be removed from the parking lots and stockpiled within the site perimeter or if necessary, removed from the site.

b. View Corridors

The site is not located within any corridors identified in the Downtown Vision View Corridor Protection Plan.

c. Historic Resources

The development is not located within a designated historic district.

d. Exterior Lighting

The applicant has submitted a photometric plan and has demonstrated that no light trespass will occur to neighboring properties. (See Attachment P.9 Lighting Photometric Plan)

e. Noise and Vibration

All heating, ventilation, air conditioning equipment including air handlers and generators are designed to meet local, state, and federal emissions and noise requirements. Most of the HVAC equipment is mounted in the middle of the roofs to minimize visibility. Any additional ground mounted equipment for the buildings will be screened.

f. Signage and Wayfinding

All signage shall meet the requirements of the Manual on Uniform Traffic Devices (MUTCD) and Division 22 of the City Code. The proposed hotel and commercial signage can be seen on the architectural renderings.

g. Zoning Related Design Standards

N/A

h. Construction Management Plan

The construction management plan continues to be reviewed by city staff. (See Attachment **P16. CONSTRUCTION MANAGEMENT PLAN)**

XII. NEXT STEPS

1. Address staff comments
2. Address additional comments of the Planning Board
3. Prepare final plan submission, including subdivision and site plan submittal requirements as included in 14-527(e) and (f) for review by the Planning Board
4. Hold Planning Board Hearing

XIII. ATTACHMENTS
PLANNING BOARD REPORT ATTACHMENTS

1. Comment Response Letters
2. Updated Comments

APPLICANT'S SUBMITTALS

A - PROJECT DESCRIPTION
B - APPLICATION FORM
C - RIGHT, TITLE, & INTEREST
D - FINANCIAL CAPACITY
E - ZONING ASSESSMENT
F – WAIVERS
G - NEIGHBORHOOD MEETING
H - TRAFFIC STUDY
I – UTILITIES
J – FIRE
K – LIGHTING
L - SOLID WASTE
M - STATE & FEDERAL APPROVALS
N - STORMWATER REPORT
O - STORMWATER MANAGEMENT PLAN FULL REPORT
P - CONSTRUCTION MANAGEMENT PLAN
Q. CONSTRUCTION MANAGEMENT PLAN SCHEDULE

PLANS

P1. COVER SHEET
P2. SITE PLAN
P3. EXISTING CONDITIONS
P4. LANDSCAPE
P5. BOUNDARY SURVEY
P6. TRAFFIC PLANS
P7. UTILITIES
P8. GRADING AND DRAINAGE PLAN
P9. LIGHTING PHOTOMETRIC PLAN
P10. ARCHITECTURAL SITE PLAN
P11. ARCHITECTURAL RENDERINGS
P12. ELEVATIONS
P13. FLOOR PLANS
P14. FIRE PLANS
P15. DETAILS
P16. CONSTRUCTION MANAGEMENT PLAN

Barry J. Hosmer, ASLA
Landscape Architect

196 Whitney Avenue, Portland, Maine 04102 207-874-0248

Project Memo

Prepared for the City of Portland
Planning and Urban Development Department
Planning Division

Date: February 7, 2020

Project: 100 Andover Road – Maine Behavioral Healthcare
Project ID: PL-00030-2019

Attn: Andrew Tufts

Overview: This memo has been prepared in response to comments received from your office dated January 21, 2020 and amended on February 3, 2020. The responses follow the order in which that were written and will identify the reviewer and overall topic reviewed as well as a brief summary of the question with an answer to follow.

Mike Tremblay, DPW P.E. Senior Engineer

Site Plan/ Layout

Concrete sidewalk, north side of building: The site plan drawing has been revised and this revision is reflected on the January 22, 2020 submission.

Design vehicle: Passenger Vehicle: The site will be served primarily by passenger vehicles, a limited number of shuttle buses or vans may bring some students, and a trash vehicle will need to access the dumpster to the rear of the building. Deliveries are primarily anticipated to be from UPS, Fed Ex etc. and would access the building through the front door.

Mountable Curb: This is intended so that a service vehicle for the transformer or other mechanical equipment can back over the curb on to the path and proceed to the southeast corner of the building and park. Any vehicle will not block traffic.

Drop Off and Pick Up Circulation: The parking lot system was designed to have a separate drop off lane for students and patients with limited parking just south of the building, for safety purposes. The main travel way for staff, patients and parents is located south of the landscaped island. We feel for safety reasons this is a desirable layout.

Parking: The staff will use approximately 95 spaces, those would be to the rear of the building and along the periphery of the main travel way. The angular spaces in front, the handicap spaces, as well as a few spaces directly across from the handicap spaces will primary be used by patients, parents and visitors.

Sidewalk Ramp: This will be revised to 4' x 4' on the next drawing submission.

Bicycle Ramp: The project will utilized a "Dero" Bike Hitch and will be included in the next drawing submission.

ADA accessible parking spaces: This facility is not a hospital; it is a professional office building, medical use. Under US Access Board Chapter 5 Parking Spaces 208.2.1 *"Other types of medical facilities not located in hospitals, including doctors' offices, and independent clinics, are not subject to this requirement but to the regular scoping table".* The regular scoping table is "Minimum Number of Accessible Parking Spaces" Section 208.2. Based on this table we are required to provide 4 accessible spaces with 1 additional van space. This project has provided 6 universal handicap spaces.

Snow Storage: Snow storage is not intended to be placed in a wetland and the outline of the snow storage areas on drawing C-101 will be revised so that it does not overlap the wetland edge. We also encourage limited use of salt and anticipate it primarily being used in the sidewalk areas.

Grading and Drainage

Spot Grades: Most of the conflicts have been revised on the January 22, 2020 submission, but a couple more need to be revised.

Porous Pavement: We are aware that porous pavement requires maintenance and are entering into a 5 year maintenance agreement. The porous pavement was not considered pervious in the drainage calculations. See full stormwater management report with calculations submitted on January 30, 2020.

Diagonal Parking Spot Grades/ Drainage: See revised C-102 drawing submitted revised on the January 22, 2020.

Traffic

TMP: A traffic study was submitted on January 28, 2020 and a Scoping Meeting was held on February 6, 2020.

Ben Pearson, PE Water Resources Compliance Coordinator

Construction Management Plan (CMP): A dewatering plan needs to be added to the text of the CMP.

Lauren Swett - Civil

Building Footprint: These issues have been addressed and the revisions are reflected on drawing C-101 on the January 22, 2020 submission.

Grading/ Drainage structures: These issues have been addressed and the revisions are reflected on drawing C-102 on the January 22, 2020 submission.

Basic Standards: We will show the construction entrance on the Grading and Drainage plan in the next drawing submission.

General Standards: These issues have been addressed and the revisions are reflected on drawing C-102 on the January 22, 2020 submission.

Flooding Standards: See full stormwater management report with calculations submitted on January 30, 2020.

Att. 2

Portland Maine | Yes. Google's good here.

Andrew Tufts <atufts@portlandmaine.gov>

100 Andover Street

1 message

Mike Tremblay <mtremblay@portlandmaine.gov> Fri, Feb 21, 2020 at 10:28 AM
To: Andrew Tufts <atufts@portlandmaine.gov>

Andrew,

Here are my additional comments on 100 Andover Street:

- Per ADA, an accessible route to a building entrance must be provided from the sidewalk serving the site.

- While the site driveway is served by a private roadway and is thus not subject to the City of Portland's Technical Manual the driveway width is significantly wider than the 24-foot maximum width described in those standards. Excess driveway width encourages faster turning maneuvers and can be a safety issue, especially for pedestrians. Narrowing the driveway width is recommended. Given that the design vehicle is primarily passenger cars with some box trucks, a smaller driveway should be possible.

- Pick-up/drop-off activity, assumed circulation patterns, etc. should be marked on the site plan or, for clarity, a separate plan.

Mike Tremblay, P.E.
Senior Engineer
Engineering Division
Department of Public Works
City of Portland, ME
mtremblay@portlandmaine.gov
P. 207.874.8881 F. 207.874.8852

Att. A

Barry J. Hosmer, ASLA
Landscape Architect

196 Whitney Avenue, Portland, Maine 04102 207-874-0248

November 20, 2019

Mr. James Rather
Development Review Services Manager
4th Floor, City Hall
389 Congress Street
Portland, Maine 04101

Subject: Maine Behavioral Healthcare
Center of Excellence in Autism and Developmental Disorders
123 Andover Road
Chart, Block, Lot: 239A A003

Dear James,

On behalf of MaineHealth, dba Maine Behavioral Healthcare, we are pleased to submit this Level III Site Plan application along with supporting materials for your review and approval.

The subject property is part of the larger parcel of Spring Harbor Hospital, which was reviewed and approved by the City of Portland in 2002. The planned development will occupy a wooded and undeveloped portion of the site. The site is composed of a small knoll with surface water running off to the west to a small unnamed stream and to the north to the 50+ acre MDEP Deeryard. Approximately 1000' of wooded buffer is between the site and the Stroudwater River. To the east of the property is Hydro International, the recently purchased MaineHealth warehouse and professional office building and Hutchins Drive. To the south is APEX Racket and Fitness Club, the American Red Cross and Cross Insurance.

The proposed project consist of a 28,200 square foot single story building which will house outpatient services, professional offices as well as day treatment services and classrooms. Much of the care in this type of facility is on a one to one basis of provider and patient. The parking field consists of 113 standard spaces and 6 handicap accessible spaces comprising 51,530 square feet of impervious and permeable paving. The total area of the project is 93,700 square feet.

We look forward to working with the Planning Staff in the review of this project. Please feel free to contact me with any questions or concerns you may have regarding the uploaded application and materials.

List of Uploaded Application and Documents

- Cover Letter - Project Description
- Level III Site Plan Application
- Right, Title and Interest

- Zoning Assessment Table
- Waiver Request – Waiver Table
- Financial Capability
- Technical Capability
- Construction Management Plan
- Fire Checklist and Plans
- Exterior Light Plan
- Boundary Survey
- Plans

Existing Conditions	C-100
Site Plan	C-101
Grading and Drainage	C-102
Utilities	C-103
Landscape	L-100
Details	C-200
Details	C-201
Details	C-202
Landscape Details	L-200
Stormwater Plans	
Existing Conditions	SW-100
Post Development	SW-101
Architectural Plans, Elevations and Renderings	

Additionally a Site Location of Development Act permit and a Natural Resources of Protection Act – Wetland Alteration permit were submitted to the Maine Department of Environmental Protection in September with a copy hand delivered to your office. The Traffic Analysis and Traffic Impact study is being prepared by James W. Sewall Co, and will be submitted under a separate application.

Sincerely,

Barry J. Hosmer LA
Maine Licensed Landscape Architect
Enc.

CITY OF PORTLAND
Planning & Urban Development Department

LEVEL II and LEVEL III SITE PLAN
GENERAL DOCUMENT AND DRAWINGS CHECKLIST
Please submit each document as a separate PDF file
Please confirm by electronically checking the boxes to the left

** PLEASE FILL OUT AND UPLOAD SEPARATELY THE ZONING TABLE AND WAIVER TABLE AS NOTED BELOW **

GENERAL APPLICATION DOCUMENTS	
Yes ☑ NA ☐	**Project Description** • Cover Letter with detailed project description
Yes ☑ NA ☐	**Completed Checklist – Level II and Level III Site Plan** (this document)
Yes ☑ NA ☐	**Right, Title and Interest** • Deeds, leases, or purchase and sales agreements
Yes ☑ NA ☐	**Evidence of State or Federal Approvals** • Permits or letters of non-jurisdiction, if applicable
Yes ☑ NA ☐	**Zoning Assessment** • Table listing required and proposed uses and dimensional standards Zoning Assessment Table
Yes ☐ NA ☑	**Existing and/or Proposed Easements or Covenants, applicable.** • Evidence of existing easements and any proposed easements
Yes ☑ NA ☐	**Waiver Requests** • Written request for waiver describing request and reason Waiver Table
Yes ☑ NA ☐	**Financial Capability** • Letter or evidence from a financial institution or third party verifying financial capacity to undertake project
Yes ☑ NA ☐	**Technical Capability** • Evidence of technical capability of applicant and consultants – resumes and/or examples of past projects

LEVEL II AND LEVEL III SITE PLAN
STANDARDS AND SUBMISSION CHECKLIST

Provide assessment of compliance with standards and include supplemental documentation, as applicable
Please Submit each document as a separate PDF file

TRANSPORTATION

Yes	NA	
☑	☐	**Transportation Analysis- Traffic Impact (14-526 (a) 1)** • Provisions for pedestrian, bicycle, vehicle, and loading circulation and incremental volume of traffic impacts • Traffic Impact Study (Technical Manual, Section 1) if applicable
☑	☐	**Access and Circulation (14-526 (a) 2 a)** • Access and internal circulation, addressing ADA access • Access and egress impacts on traffic flows • Description and use of drive-up features, if applicable
☐	☑	**Loading and Servicing (14-526 (a) 2 b)** • Loading and servicing needs, route and travel way geometrics for deliveries • Turning templates for delivery vehicles, if applicable
☑	☐	**Sidewalks (14-526 (a) 2 c)** • Sidewalks and condition along street frontages and internal walkways • Engineered details for ADA ramps and public sidewalk details meeting sidewalk materials policy and ADA ramp construction details as applicable (Technical Manual, Section 1)
☐	☑	**Public Transit (14-526 (a) 3), if applicable** • Existing available transit services • Proposed site plan design details, such as easement, pad base, and shelter
☑	☐	**Off-Street Parking: Vehicle & Motorcycle/Scooter) (14-526 (a) 4 a and c)** • Expected parking demand, proposed parking supply, ADA parking, and applicable Zoning Requirements • Address Technical Manual standards (Section 1) for curb cut separation and parking lot layout and locate on site plan
☑	☐	**Bicycle Parking (14-526 (a) 4 b)** • Address bicycle parking requirements and identify locations on-site • Construction details for bike racks (Technical Manual, Section 1)
☑	☐	**Snow Storage (14-526 (a) 4 d)** • Management plan for snow removal and locate snow storage areas on plan
☐	☑	**Traffic Demand Management (TDM) (14-526 (a) 5), if applicable** • Develop TDM with Trip Reduction Targets and Strategies

ENVIRONMENTAL AND LANDSCAPE FEATURES	
Yes ☐ NA ☑	**Preservation of Significant Natural Features (14-526 (b) 1), if applicable** • Trees, plants, habitats listed on State or Federal list of endangered or threatened • High and moderate value waterfowl and wading habitat • Aquifers on Casco Bay Islands • Waterbodies (including wetlands, watercourses, significant vernal pools and floodplains) • Proposed preservation areas and protection measures • Documentation from environmental consultants, determinations from applicable state agencies
Yes ☑ NA ☐	**Landscaping and Landscape Preservation (14-526 (b) 2 a)** • Preservation of trees and preservation within required zoning setbacks (Technical Manual, Section 4) • Protection measures of existing vegetation during construction • Protection measures within Shoreland Zone, if applicable
Yes ☑ NA ☐	**Site Landscaping (14-526 (b) 2 b)** • Screening and buffering of service areas and between non-residential and residential uses • Planting plans with plant schedule and sizes (Technical Manual, Section 4)
Yes ☑ NA ☐	**Parking Lot Landscaping (14-526 (b) 2 b ii), if applicable** • Landscaped islands within parking areas (Technical Manual, Section 4)
Yes ☐ NA ☑	**Street Trees (14-526 (b) 2 b iii)** • Existing Heritage or Feature Trees on site and measures to preserve • Identify street trees on the plan meeting the site plan and Technical Manual standards (Section 4) or identify alternative measures, if applicable
ENVIRONMENTAL AND STORMWATER	
Yes ☑ NA ☐	**Water Quality, Stormwater Management and Erosion Control (14-526 (b)3 a)** • Stormwater report in compliance with Section 5 of Technical Manual and DEP Chapter 500 stormwater for basic, general and flooding standards, as applicable • Erosion control plan and measures • Evidence of compliance with Urban Impaired Stream Standards pursuant to DEP Chapter 500 stormwater, as applicable • Subsurface sanitary sewage disposal and groundwater protection

PUBLIC INFRASTRUCTURE AND SAFETY	
Yes ☐ NA ☑	**Consistency with City Master Plans (14-526 (c) 1)** • Identify consistency with master plans • Proposed easements, rights and improvements to connect or continue off-premises public infrastructure, as applicable
Yes ☑ NA ☐	**Public Safety and Fire Prevention (14-526 (c))** • Address Crime Prevention through Environmental Design (CPTED) (Technical Manual, Section 3) • Emergency vehicle access • Address consistency with public safety standards (Technical Manual, Section 3) • Submit a code summary referring NFPA 1 and all Fire Department standards (Technical Manual, Section 3) – Fire Checklist
Yes ☑ NA ☐	**Availability and Adequacy of Public Utilities (14-526 (c) 3) (Technical Manual, Sections 2 & 9)** • Electrical services, including providing underground services • Identify existing and proposed connections for public utilities and required public utility upgrades • Sewer line connections are required, if there is a main within 200 feet • Proposed solid waste management facilities on-site and management for the site • Written evidence of the ability to serve from utility companies, as applicable
SITE DESIGN	
Yes ☐ NA ☑	**Massing, Ventilations and Wind Impact (14-526 (d) 1)** • Wind and ventilation impacts on adjoining structures and/or adjacent public spaces. Wind study, if applicable • Bulk, location or height impacts on adjoining structures • Identify and locate HVAC equipment and venting away from public spaces and residential properties • Identify screening and manufacturing specifications for noise, if applicable
Yes ☐ NA ☑	**Shadows (14-526 (d) 2), if applicable** • Shadow analysis of impacts on publicly accessible open space (Technical Manual, Section 11)
Yes ☐ NA ☑	**Snow and Ice Loading (14-526 (d) 3)** • Building design to prevent snow and ice from loading or falling onto adjacent properties or public ways
Yes ☐ NA ☑	**View Corridors (14-526 (d) 4), if applicable** • Protection of designated view corridors (Portland Design Manual, Appen. 1)

Yes ☐ NA ☑	**Historic Resources (14-526 (d) 5), if applicable** • Identify developments within Historic Districts or affecting Designated Landmarks • Certificate of Appropriateness or other evidence • Identify Developments within 100 feet of Historic Districts or affecting Designated Landmarks. Advisory HP review may be required • Address preservation and documentation of Archaeological Resources
Yes ☑ NA ☐	**Exterior Lighting (14-526 (d) 6)** • Cut sheets of on-site light fixtures and any architectural or specialty lights (Technical Manual, Section 12) • Engineered details for any lights proposed in street right-of-way (Technical Manual, Section 10)
Yes ☐ NA ☑	**Noise and Vibration (14-526 (d) 7)** • Evidence of noise levels for equipment, such as equipment specifications, to demonstrate consistency with zoning requirements
Yes ☐ NA ☑	**Signage and Wayfinding (14-526 (d) 8), if applicable** • Signage plan showing the location, dimensions, height and setback of all existing and proposed signs. Signs in Historic Districts are reviewed by Historic Preservation staff • Proposed commercial and directional signage on site
Yes ☑ NA ☐	**Zone Related Design Standards (14-526 (d) 5)** • Address Historic Preservation Design Review, if applicable • Address any applicable design review standards by zone • Address submission requirements from Design Manual, page 1, addressing neighborhood context • Description of exterior materials, color, finish, and samples
Construction Management Plan	
Yes ☑ NA ☐	**Construction Management Plan** • Construction Management Document and Plan

LEVEL II AND LEVEL III SITE PLAN
DRAWINGS CHECKLIST

Please upload the following DRAWINGS with the listed details into e-Plan as separate pdfs

RECENT BOUNDARY SURVEY (stamped by Maine Licensed Surveyor)

- [x] Must be in compliance with Technical Manual, Section 13

SITE PLAN(s) (stamped by Maine Licensed Engineer) including:

Existing Conditions

- [x] Approximate location of structures on abutting property
- [x] Topography
- [x] Locate water courses
- [x] Delineate wetlands
- [x] Zone lines

Proposed Site Plan

- [x] Ground floor area, and grade elevations for all buildings

Access, Circulation, and Parking

- [ ] Streets and intersections adjacent to site, any proposed geometric modifications
- [x] Location, dimensions and materials of all existing and proposed driveways, vehicle, bicycle, & pedestrian access ways with corresponding curb lines
- [x] Engineered specifications/ cross-sections for proposed driveways, sidewalks & paved areas
- [ ] Location and dimensions of proposed loading areas
- [ ] Existing and proposed transit infrastructure with dimensions/ engineering specifications
- [x] Location of vehicle and bicycle parking with dimensions and engineering specifications

Site Considerations

- [x] Identify snow storage areas
- [x] Location of fire hydrants
- [x] Location of solid waste management facilities

UTILITY PLAN including:

- [x] Existing utilities on site and within public streets
- [x] Location, sizing and directional flows of all existing and proposed utilities
- [ ] Location and dimensions of off-premises public or publicly accessible infrastructure adjacent to site
- [x] Electric utility infrastructure

GRADING AND DRAINAGE PLAN including:

- [x] Existing grades and drainage
- [x] Proposed grades
- [x] Proposed stormwater management meeting Technical Manual (Section 5), standards
- [ ] Location and proposed alteration of a water course
- [x] Preservation or alteration of wetlands

EROSION CONTROL

- [x] Must be in compliance with Technical Manual, Section 5

LANDSCAPE PLAN including:

- [x] Existing vegetation to be preserved and preservation measures
- [x] Proposed landscaping and buffers
- [x] Planting schedule

RECORDING PLAT, if applicable
☐ If Subdivision, must be in compliance with requirements of Section 14-496 (b)
ARCHITECTURAL PLANS AND RENDERINGS including:
☑ Exterior building elevations, color renderings, illustrations of all sides
☑ Location and dimensions of all existing and proposed HVAC and mechanical equipment, all proposed screening
☐ Provide context drawings, if applicable (Design Manual, page 1)
☑ Floor plans

Section 2
Title, Right or Interest

Overview:

Chapter 372 §§ 9 of the Site Law Regulations requires that an applicant for approval has demonstrated sufficient title, right or interest in the property, which is proposed for development or use.

A. Conclusion

The deed between George M Hutchins and Spring Harbor Hospital, a member of MaineHealth, is attached Book 1740 Page 106 and executed and recorded on March 8 2002

B. Attachments

Warranty Deed with attached Exhibit A between George M Hutchins and Spring Harbor Hospital.

0019509 BK17401PG106

WARRANTY DEED

(Maine Statutory Short Form)

KNOW ALL MEN BY THESE PRESENTS, That **GEORGE M. HUTCHINS**, of Falmouth, Maine for consideration paid, grants to **SPRING HARBOR HOSPITAL**, a Maine Business Corporation with a place of business at 465 Congress St., Portland, Maine, with **WARRANTY COVENANTS**, the land located in Portland and Westbrook, County of Cumberland, State of Maine , bounded and described as follows:

SEE EXHIBIT "A" ATTACHED HERETO
MADE A PART HEREOF AND INCORPORATED BY REFERENCE HEREIN

MAINE REAL ESTATE TAX PAID

WITNESS my hand and seal this 8TH day of March, 2002

George M. Hutchins
GEORGE M. HUTCHINS

STATE OF MAINE
CUMBERLAND, ss.

March 8, 2002

Then personally appeared the above named George M. Hutchins and acknowledged the foregoing instrument to be his free act and deed.

Before me,

~~Notary Public~~
ATTORNEY

Printed Name: DANIEL J. DESMOND

EXHIBIT A

Three lots or parcels of land being located partially in the City of Portland and partially in the City of Westbrook, in the County of Cumberland, State of Maine, bounded and described as follows:

PARCEL 1

Being Lot 100 as shown on plan entitled, "Master Plan Standard Boundary Survey – Subdivision – Stroudwater Estates on Hutchins Drive & Harry Harmon Drive Portland, Maine made for George Hutchins", dated October 29, 1998 and updated to June 26, 2001 by Owen Haskell, Inc. to be recorded in the Cumberland County Registry of Deeds.

EXCEPTING a 35,279 square foot parcel as shown on the above mentioned plan as to be added to Lot 9.

PARCEL 2

Being Lot 200 as shown on plan entitled, "Master Plan Standard Boundary Survey – Subdivision – Stroudwater Estates on Hutchins Drive & Harry Harmon Drive Portland, Maine made for George Hutchins", dated October 29, 1998 and updated to June 26, 2001 by Owen Haskell, Inc. to be recorded in the Cumberland County Registry of Deeds.

PARCEL 3

Being Lot 34 as shown on plan entitled, "Master Plan Standard Boundary Survey – Subdivision – Stroudwater Estates on Hutchins Drive & Harry Harmon Drive Portland, Maine made for George Hutchins", dated October 29, 1998 and updated to June 26, 2001 by Owen Haskell, Inc. to be recorded in the Cumberland County Registry of Deeds.

EXCEPTING from Lot 34 such portion as was conveyed to the Portland Water District by deeds recorded in Book 2411, Page 133 and Book 2411, Page 136.

TOGETHER with another Lot or parcel of land adjacent to Lot 34 and being bounded and described as follows:

Beginning on the easterly side of Hutchins Drive at the northwesterly corner of land formerly of Robert Pazolt as described in the deed recorded in Book 7559, Page 210 of the Cumberland County Registry of Deeds;

Thence, North 86° 34' 35" East, along land formerly of Robert Pazolt, 270.00 feet to Lot 34 on the above mentioned plan;

Thence, North 12° 18' 20" West, along Lot 34 on the above mentioned plan, 297.56 feet;

Thence, North 72° 25' 25" West, along Lot 34 on the above mentioned plan, 240.00 feet to the easterly side of Hutchins Drive;

Thence, South 3° 25' 25" East, along the easterly side of Hutchins Drive, 380.00 feet to the point of beginning.

Containing 1.89 acres, more or less

Parcel 3 (Lot 34 and adjacent parcel of 1.89 acres) is subject to a "conservation easement" granted to the State of Maine Department of Inland Fisheries and Wildlife as described in deeds recorded in the Cumberland County Registry of Deeds in Book 11061, Page 285 and Book 11306, Page 220.

Parcel 3 as described above is a gift from George M. Hutchins to Spring Harbor Hospital.

RECEIVED
RECORDED REGISTRY OF DEEDS
2002 MAR -8 PM 4:46
CUMBERLAND COUNTY
John B O'Brien

Section 3
Financial Capacity

Overview:

Chapter 373 §§ 1 (B) of the Site Law Regulations requires that applications for project approval demonstrate that the developer has the financial capacity to construct, operate and maintain all aspects of the proposed development.

A. Estimated Cost

The total construction cost is anticipated to be 11,900,000

B. Financing

Attached is the Line of Credit Note from TD Bank, N.A. to MaineHealth in the amount of $50,000,000.

Conclusion

MaineHealth has demonstrated that they have the financial capacity to construct, operate and maintain all aspects of the development.

LOAN # 857482 - 0101

LINE OF CREDIT LOAN NOTE

Date of Note: January 1, 2019

Principal Amount: $50,000,000.00

Definitions	
Business Day:	Any day of the year other than (i) a day that is a Saturday or Sunday, (ii) a day that is a legal holiday or a day on which banking institutions located in Portland, Maine are required or authorized to remain closed, (iii) a day on which the Federal Reserve System is not in operation; or (iv) any day on which commercial banks are not open for general business (including dealings in foreign exchange and foreign currency deposits) in London, England.
Default Rate:	A rate of interest equal to the Interest Rate provided herein plus four (4%) percent per annum, but in no event to exceed the maximum rate allowed by law.
Interest Rate: (LIBOR)	An interest rate equal to Fifty Five Basis Points (0.55%) per annum (the "**Margin**") in excess of the rate of interest per annum of the one (1) month LIBOR (as defined below) for any LIBOR Interest Period (as hereinafter defined). The Bank shall not be required to notify Borrower of adjustments in said interest rate. Notwithstanding the foregoing, or any other provision of this Note, if Bank shall reasonably determine (which determination shall be conclusive and binding absent manifest error) that, (i) by reason of circumstances affecting the relevant market, reasonable and adequate means do not exist for ascertaining LIBOR, or (ii) LIBOR does not adequately and fairly reflect the cost to Bank of funding the loan evidenced hereby, or (iii) it is unlawful for Bank to extend or maintain any loan evidenced hereby as a loan subject to LIBOR, Bank shall give prompt written notice thereof to Borrower and after the giving of such notice, until any such notice has been withdrawn by Bank, any loan evidenced hereby the shall bear interest at another index and margin or rate of interest then designated by Bank, in its reasonable discretion, that provides a comparable rate of interest.

LIBOR	The London Interbank Offered Rate rate of interest in U.S. Dollars (rounded upwards, at the Bank's option, to the next 1/8th of one percent) equal to the rate established by the Intercontinental Exchange Benchmark Administration, Ltd. ("**ICE**" or the successor thereto if ICE is no longer making a London Interbank Offered Rate available) as published by Bloomberg (or such other commercially available source providing quotations of LIBOR), as determined by the Bank (as hereafter defined) and in effect two (2) Business Days before the date of this Note and before the commencement of each LIBOR Interest Period (as defined below), provided however, if more than one LIBOR is specified, the applicable rate shall be the arithmetic mean of all such rates. London Business Days means any day on which commercial banks are open for general business (including dealings in foreign exchange and foreign currency deposits) in London, England. If, for any reason, such rate is not available, the term LIBOR shall mean, with respect to any LIBOR Interest Period, the rate of interest per annum determined by Bank to be the average rate per annum at which deposits in dollars are offered for such Interest Period by major banks in London, England at approximately 11:00 A.M. (London time) two (2) Business Days prior to the commencement of each LIBOR Interest Period. Interest shall be computed on an actual/360 day basis (i.e., interest for each day during which the Principal Amount, or any part thereof, is outstanding shall be computed at Interest Rate divided by 360). Notwithstanding the foregoing, LIBOR rate loans shall be deemed to constitute "**eurocurrency liabilities**" and as such shall be deemed subject to reserve requirements without benefits of credits for proration, exceptions or offsets that may be available from time to time to Bank. The LIBOR rate shall be adjusted automatically on and as of the effective date of any change in the LIBOR Reserve Percentage or the LIBOR Interest Period for each LIBOR rate loan comprising part of the same borrowing (including conversions, extensions and renewals), to a per annum interest rate determined pursuant to the following formula: Adjusted LIBOR Rate = $\frac{\text{LIBOR Rate}}{\text{1 - LIBOR Reserve Percentage}}$ For purposes of this calculation **LIBOR Reserve Percentage** is defined as, for any day, that percentage (expressed as a decimal) which is in effect from time to time under Regulation D, as such regulation may be amended from time to time or any successor regulation, as the maximum reserve requirement (including, without limitation, any basic, supplemental, emergency, special, or marginal

	reserves) applicable with respect to eurocurrency liabilities as that term is defined in Regulation D (or against any other category of liabilities that includes deposits by reference to which the interest rate of LIBOR rate loans is determined), whether or not Bank has any eurocurrency liabilities subject to such reserve requirement at that time.
LIBOR Interest Period:	Initially, the first (1st) LIBOR Interest Period hereunder shall be the period (A) commencing on the date hereof and ending on (and including) the last day of the calendar month in which this Note is dated; or (B) the first day of the month selected by Borrower as the first month for which LIBOR will be the Interest Rate hereunder and ending on (and including) the last day of such calendar month. Thereafter, each LIBOR Interest Period shall commence on the first (1st) day of the calendar month immediately following the previous LIBOR Interest Period and shall end on (and include) the last calendar day of each such calendar month thereafter, provided however, no LIBOR Interest Period shall extend beyond the Maturity Date.
Maturity Date:	June 30, 2020
State:	The State of Maine

FOR VALUE RECEIVED, MaineHealth, a Maine nonprofit corporation (the "**Borrower**"), having an address as indicated below, **HEREBY PROMISES TO PAY** to the order of TD Bank, N.A., a national banking association, (hereinafter, together with its successors and assigns, referred to as the "**Bank**") at P.O. Box 5600, Lewiston, Maine 04243-5600, or at such other place as the holder hereof may from time to time designate in writing, in immediately available federal funds, the Principal Amount, which Principal Amount shall be due and payable on the Maturity Date, together with interest on the outstanding Principal Amount from time to time at the Interest Rate until this Note is paid in full, which interest shall be payable monthly commencing on the first day of the month following the Date of the Note and on the first day of each successive month thereafter until this Note is paid in full. On the Maturity Date the then outstanding Principal Amount, together with all accrued interest thereon, shall be due and payable.

If any present or future law, governmental rule, regulation, policy, guideline, directive or similar requirement (whether or not having the force of law) imposes, modifies, or deems applicable any capital adequacy, capital maintenance or similar requirement which affects the manner in which Bank allocates capital resources to its commitments (including any commitments hereunder), and as a result thereof, in the opinion of Bank, the rate of return on Bank's capital with regard to this Note is reduced to a level below that which Bank could have achieved but for such circumstances, then in such case and, upon notice from Bank to Borrower, from time to time, Borrower shall pay Bank such additional amount or amounts as shall compensate Bank for such

reduction in Bank's rate of return; provided, however, that Bank shall do so only if it is assessing such additional amount or amounts with respect to similarly situated borrowers. Such notice shall contain the statement of Bank with regard to any such amount or amounts which shall, in the absence of manifest error, be binding upon Borrower. Provided that Bank is acting as set forth above with respect to assessing such amount or amounts, in determining such amount, Bank may use any reasonable method of averaging and attribution that it deems applicable. For the avoidance of doubt, the foregoing provisions shall apply to all requests, rules, regulations, guidelines or directives concerning capital adequacy issued in connection with the Dodd–Frank Wall Street Reform and Consumer Protection Act and all requests, rules, regulations, guidelines or directives concerning capital adequacy promulgated by the Bank for International Settlements, the Basel Committee on Banking Regulations and Supervisory Practices (or any successor or similar authority) or the United States financial regulatory authorities, regardless of the date adopted, issued, promulgated or implemented.

If, after the date hereof, any (a) adoption of, or change in, United States federal, state or foreign laws, regulations or treaties, or any governmental or quasi-governmental rules, regulations, policies, guidelines, requests or directives (whether or not having the force of law), including the Dodd-Frank Wall Street Reform and Consumer Protection Act and all requests, rules, regulations, guidelines or directives issued in connection therewith regardless of the date enacted, adopted or issued, or (b) change in the interpretation, promulgation, implementation or administration of or under any United States federal, state or foreign laws, regulations or treaties, or any governmental or quasi-governmental rules, regulations, policies, guidelines, requests or directives (whether or not having the force of law), including the Dodd-Frank Wall Street Reform and Consumer Protection Act and all requests, rules, regulations, guidelines or directives issued in connection therewith regardless of the date enacted, adopted or issued, by any court, governmental, quasi-governmental, central bank or comparable agency or monetary authority that is charged with the interpretation or administration thereof, shall (1) subject Bank to any tax of any kind whatsoever with respect to any loans made by it, or change the basis of taxation of payments to Bank in respect thereof (except for changes in the rate of tax on the overall net income of Bank); (2) impose, modify, or hold applicable, any reserve, special deposit, compulsory loan, or similar requirement against assets held by, deposits or other liabilities in, or for the account of, advances, loans, or other extension of credit (including participations therein) by, or any other acquisition of funds by, any office of Bank which is not otherwise included in the determination of rate under the Note; or (3) shall impose on such Bank any other condition; and the result of any of the foregoing is to materially increase the cost to Bank of making or maintaining the loan evidenced by the Note, or to reduce any amount receivable under the Note, or any other Loan Document, then, in any such case, Borrower shall promptly pay Bank, upon its demand, any additional amounts necessary to compensate Bank for such additional costs or reduced amount receivable which Bank reasonably deems to be material as determined by Bank, with respect to the Loan. A certificate as to any additional amounts payable pursuant to this paragraph submitted by Bank to Borrower shall be presumptive evidence of such amounts owing.

Bank agrees to use reasonable efforts to avoid, or to minimize, any amounts which might otherwise be payable pursuant to this paragraph provided however, that such efforts shall not cause the imposition on Bank of any additional costs or legal regulatory burdens deemed by Bank in good faith to be material.

The Borrower and each endorser and guarantor hereof grant to the Bank a continuing lien on and security interest in any and all deposits or other sums at any time credited by or due from the Bank or any Bank Affiliate (as hereinafter defined) to the Borrower and/or each endorser or guarantor hereof and any cash, securities, instruments or other property of the Borrower and each endorser and guarantor hereof in the possession of the Bank or any Bank Affiliate, whether for safekeeping or otherwise, or in transit to or from the Bank or any Bank Affiliate (regardless of the reason the Bank or Bank Affiliate had received the same or whether the Bank or Bank Affiliate has conditionally released the same) as security for the full and punctual payment and performance of all of the liabilities and obligations of the Borrower and/or any endorser or guarantor hereof to the Bank or any Bank Affiliate and such deposits and other sums may be applied or set off against such liabilities and obligations of the Borrower or any endorser or guarantor hereof to the Bank or any Bank Affiliate at any time, whether or not such are then due, whether or not demand has been made and whether or not other collateral is then available to the Bank or any Bank Affiliate.

Notwithstanding anything to the contrary herein, whenever any payment to be made under this Note shall be stated to be due on a day that is not a Business Day, such payment may be made on the next succeeding Business Day, and such extension of time shall in such case be included in the computations of payment of interest.

This Note is secured by, and the holder is entitled to the benefits and security of, that certain Line of Credit Agreement (the **"Loan Agreement")** of even date herewith between Borrower and Bank.

Upon the occurrence of any Event of Default (as defined in the Loan Agreement), Bank may exercise any and all rights and remedies under the Loan Agreement (including without limitation, rights to accelerate the Loan), or available at law or equity, or both. Borrower shall be obligated to reimburse Bank for Bank's Expenses (as defined and provided for in the Loan Agreement), incurred by Bank. From and after the occurrence of any Event of Default, the interest rate of this Note shall be at the Default Rate.

In no event shall the total of all charges payable under this Note, the Loan Agreement and any other documents executed and delivered in connection herewith and therewith that are or could be held to be in the nature of interest exceed the maximum rate permitted to be charged by applicable law. Should Bank receive any payment that is or would be in excess of that permitted to be charged under any such applicable law, such payment shall have been, and shall be deemed to have been, made in error and shall thereupon be applied to reduce the principal balance outstanding on this Note.

This Note may be prepaid, in whole or in part without a prepayment premium, so long as (i) Bank is given not less than three (3) Business Days' notice of such prepayment, (ii) each prepayment is accompanied by the payment of accrued and unpaid interest on the principal amount prepaid together with all costs and expenses attributable to such prepayment (iii) each prepayment is made in immediately available federal funds and (iv) the prepayment occurs on the last day of a LIBOR Interest Period.

Borrower waives demand, presentment for payment, notice of dishonor, protest and notice of protest of this Note.

Any notice, demand or request relating to any matter set forth in this Note shall be given in the manner provided for in the Loan Agreement. Time is of the essence as to all dates set forth herein.

This Note may not be waived, changed, modified, terminated or discharged orally, but only by an agreement in writing signed by the party against whom enforcement of any such waiver, change, modification, termination or discharge is sought.

Bank is subject to the requirements of the USA Patriot Act (Title III of Pub. L. 107-56) (signed into law October 26, 2001)) (the "Act") and hereby notifies the Borrower that pursuant to the requirements of the Act, it is required to obtain, verify and record information that identifies the Borrower, which information includes the name and address of the Borrower and other information that will allow Bank to identify the Borrower in accordance with the Act.

BORROWER HEREBY KNOWINGLY, VOLUNTARILY AND INTENTIONALLY WAIVES THE RIGHT TO A TRIAL BY JURY TO THE EXTENT THAT ANY SUCH RIGHT SHALL NOW OR HEREAFTER EXIST IN RESPECT OF ANY LITIGATION BASED ON THIS NOTE, ARISING OUT OF, UNDER OR IN CONNECTION WITH THIS NOTE OR ANY OTHER LOAN DOCUMENTS CONTEMPLATED TO BE EXECUTED IN CONNECTION HEREWITH, OR ANY COURSE OF CONDUCT, COURSE OF DEALINGS, STATEMENTS (WHETHER VERBAL OR WRITTEN) OR ACTIONS OF ANY PARTY. THIS WAIVER IS INTENDED TO ENCOMPASS INDIVIDUALLY EACH INSTANCE AND EACH ISSUE AS TO WHICH THE RIGHT TO A TRIAL BY JURY WOULD OTHERWISE ACCRUE CONSTITUTES A MATERIAL INDUCEMENT FOR BORROWER AND BANK TO ENTER INTO THE TRANSACTIONS CONTEMPLATED HEREBY. BANK IS HEREBY AUTHORIZED TO FILE A COPY OF THIS PARAGRAPH IN ANY PROCEEDING AS CONCLUSIVE EVIDENCE OF THIS WAIVER.

BORROWER HEREBY EXPRESSLY AND UNCONDITIONALLY WAIVES, IN CONNECTION WITH ANY SUIT, ACTION OR PROCEEDING BROUGHT BY OR ON BEHALF OF BANK ON THIS NOTE, ANY AND EVERY RIGHT BORROWER MAY HAVE (I) TO OBJECT TO THE JURISDICTION OR VENUE OF ANY STATE COURT

SITTING IN PORTLAND, MAINE OR ANY FEDERAL COURT LOCATED IN THE STATE, (II) TO INJUNCTIVE RELIEF, (III) TO INTERPOSE ANY COUNTERCLAIM THEREIN (OTHER THAN COMPULSORY COUNTERCLAIMS), AND (IV) TO HAVE THE SAME CONSOLIDATED WITH ANY OTHER OR SEPARATE SUIT, ACTION OR PROCEEDING. BORROWER HEREBY AGREES AND CONSENTS, IN ADDITION TO ANY METHODS OF SERVICE OF PROCESS PROVIDED FOR UNDER APPLICABLE LAW, ALL TO SERVICE OF PROCESS IN ANY SUCH SUIT BEING MADE UPON BORROWER BY MAIL AT THE ADDRESS SET FORTH IN THE LOAN AGREEMENT, AND SERVICE SO MADE SHALL BE COMPLETE TEN (10) DAYS AFTER THE SAME SHALL HAVE BEEN SO MAILED. THE FOREGOING WAIVERS ARE GIVEN KNOWINGLY AND VOLUNTARILY BY BORROWER. BANK IS HEREBY AUTHORIZED TO FILE A COPY OF THIS PARAGRAPH IN ANY PROCEEDING AS CONCLUSIVE EVIDENCE OF ANY OR ALL OF THE FOREGOING WAIVERS.

This Note and the rights and obligations of the parties hereunder shall in all respects be governed by, and construed and enforced in accordance with, the laws of the State (without giving effect to the State's principles of conflicts of law).

This Note evidences a loan for business and commercial purposes, and not for personal, family or household purposes. No invalidity or unenforceability of any portion of this Note shall affect the validity or enforceability of the remaining portions hereof. This Note shall take effect as a sealed instrument, as of the date first set forth above, regardless of the actual date of execution and delivery.

[NO FURTHER TEXT ON THIS PAGE]

IN WITNESS WHEREOF, the Borrower has executed and delivered this Note on the Date set forth above.

Address:

22 Bramall Street
Portland, Maine 04102

Borrower:

MAINEHEALTH

By: _____
Name: Lugene A. Inzana
Title: Senior Vice President, Finance and Chief Financial Officer

Portland, Maine Yes. Life's good here.

Planning & Urban Development Department

ZONING ANALYSIS Relevant Zone(s) IM - Industrial Moderate

All Projects:

	Required	Proposed
Lot Size	none	9.30 acres
Area Per Dwelling Unit	n/a	---
Minimum Street Frontage	60'	60'
Front Yard Minimum [1]	27'	75'±
Front Yard Maximum	none	---
Rear Yard	25'	125'±
Yard Right	25'	39'
Yard Left	25'	275'±
Side Street Setback	n/a	---
Step Back	n/a	---
Maximum Lot Coverage	75%	23%
Minimum Lot Coverage	none	---
Maximum Height	75'	27'
Open Space	none	---
Maximum Impervious Area	75%	23%
Pavement Setback	10'	10'
Floor Area Ratio	none	---
Off Street Parking Spaces	71	119
Loading Bays	0	0
Other 1		
Other 2		
Other 3		

Building Height = 26' - 8"

[1] Measured from Andover Road

Standard to be Waived: Cite Ordinance or Technical Manual Standard	**Cite Standard Language:** Cite specific language of applicable Ordinance or Technical Manual Standard	**Waiver Being Sought:** Describe waiver being sought. Ex. – We are requesting a two-way parking lot drive aisle width of 20' feet.	**Justification for Waiver:** Address specific waiver criteria, if applicable, and document reasons for the waiver request.
IM Zone Section 14-250 Dimensional Requirements (h) Pavement Setback from lot boundary	Ten (10) Feet	4' setback for a paved walking path around the playground	To better serve the users of the playground to allow for a loop walking path to lessen back and forth potential conflict among users.

Att. G

Maine Behavioral Healthcare – Center for Autism and Developmental Disorders
100 Andover Road
Portland, Maine

Neighborhood Meeting Sign In Sheet

January 29, 2020
Spring Harbor Hospital, 123 Andover Road
Westbrook, Maine 04092

Members of the Public in Attendance	E-Mail
1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10.	
* NO ONE FROM THE PUBLIC CAME TO THE MEETING	
Developer and Consultant Team in Attendance	E-Mail
1. Barry Hosmer	barrybjhla@earthlink.net
2. RICHARDS GAVIN	RGAVIN@MAINEBEHAVIORALHEALTHCARE.ORG
3.	
4.	
5.	

HOSMER ARRIVED AT 5:15 LEFT AT 6:35

MAINE BEHAVIORAL HEALTH CENTER OF EXCELLENCE IN AUTISM AND DEVELOPMENT DISORDERS

PORTLAND, MAINE

SECTIONS 1 – 6

TRAFFIC MOVEMENT PERMIT APPLICATION

Submitted to:

CITY OF PORTLAND

DEPARTMENT OF PLANNING AND URBAN DEVELOPMENT

December 16, 2019

Applicant:

Maine Behavioral Healthcare
22 Bramhall Street
Portland, ME 04102

Prepared by:

Sewall
The evolution of expertise
A TFIC Company
40 Forest Falls Drive, Suite 2 • Yarmouth, Maine 04096 • +1.207.817.5440 • sewall.com • info@sewall.com

Department of Transportation
Traffic Engineering Division
16 State House Station
Augusta, Maine 04333
Telephone: 207-287-3775

FOR MDOT USE 1/2001
ID #:

Total Fees:
Date: Received

****

PERMIT APPLICATION – TRAFFIC
TRAFFIC MOVEMENT PERMIT, 23 M.R.S.A.§ 704 -A

Please type or print:
This application is for (check all that applies): Traffic 100-200 PCE's X
Traffic 200+ PCE's _____

Name of Applicant: MaineHealth, dba Maine Behavioral Healthcare Attn: Dennis Morelli

Address: 22 Bramhall Street, Portland, ME 04102 Telephone: (207) 662-6149

Name of local contact or agent: Diane W. Morabito, P.E. PTOE

Address: Sewall, 40 Forest Falls Dr, Suite 2, Yarmouth, ME 04096 Telephone: (207) 817-5440

Name and type of development: A new 29,104 square foot medical building for Maine Behavioral Health Center of Excellence in Autism and Development Disorders

Location of development: 100 Andover Road

City/Town/Plantation: Portland County: Cumberland Tax Map # 239A Lot # A003

Do you want a consolidated review with DEP pursuant to 23 M.R.S.A.§ 704-A (7)?
Yes_____ No X

Was this development started prior to obtaining traffic permit? No

Is the project located in an area designated as a growth area (as defined in M.R.S.A. title 30-A, chapter 187)?
Yes _____ No _____

Is project located within a compact area of an urban compact municipality? Yes X No ____

Is this development or any portion of the site currently subject to state or municipal enforcement action?

Not Known

Existing DEP or MDOT permit number (if applicable):

Name(s) of DOT staff person(s) contacted concerning this application:

Name(s) of DOT staff person(s) present at the scoping meeting for 200+ applications:

1/2000

CERTIFICATION

The traffic engineer responsible for preparing this application and/or attaching pertinent site and traffic information hereto, by signing below, certifies that the application for traffic approval is complete and accurate to the best of his/her knowledge.

Signature: Diane W. Morabito Re/Cert/Lic No.: Maine PE # 5077
PTOE # 571

Name(print): Diane W. Morabito

Date: 12/16/19

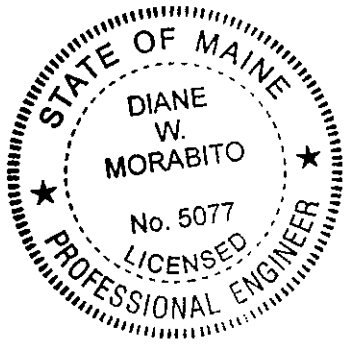
If the signature below is not the applicant's signature, attach letter of agent authorization signed by applicant.

"I certify under penalty of law that I have personally examined the information submitted in this document and all attachments thereto and that, based on my inquiry of those individuals immediately responsible for obtaining the information I believe the information is true, accurate, and complete. I authorize the Department to enter the property that is the subject of this application, at reasonable hours, including buildings, structures or conveyances on the property, to determine the accuracy of any information provided herein. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

DMorabito 12/12/19

Signature of Applicant Date

FORM C 7/97



Sewall
The evolution of expertise

NOTICE OF INTENT TO FILE

Please take notice that Maine Behavioral Healthcare, Attn: Dennis Morelli, 22 Bramhall Street, Portland, ME 04102 Telephone (207) 662-6149 is intending to file a Traffic Movement Permit application with the City of Portland Department of Planning and Urban Development pursuant to the provisions of 23 M.R.S.A. § 704-A on or about December 18, 2019.

The application is for the Maine Behavioral Health Center of Excellence in Autism and Development Disorders at 100 Andover Road in Portland, Maine. The proposed health center will be 29,104 square feet in size. Construction is expected to begin in April of 2020 with occupancy planned for July 2021. The health center is expected to generate approximately 114 one-way trips during their weekday AM peak hour and 128 trips during their PM peak hour.

A request for a public hearing must be received by The City of Portland, in writing, no later than 20 days after the application is found by the City to be complete and is accepted for processing. Public comment on the application will be accepted throughout the processing of the application.

The application will be filed for public inspection at Department of Planning and Urban Development, which is located Portland City Hall, 389 Congress Street, Portland, Maine 04101, during normal working hours. A copy of the application may also be seen at the Maine Department of Transportation Southern Region 1 Office, 51 Pleasant Hill Road, Scarborough, ME 04070-0358.

Written public comments may be sent to the Department of Planning and Urban Development, City of Portland, 389 Congress Street, Portland, Maine 04101.

Diane W. Morabito

Diane W. Morabito, P.E. PTOE

List of Abutting Property Owners

City of Portland

Map/ Lot Number	Name and Mailing Address		Return Receipt Received
239A A001001	APEX FITNESS & RACKET CENTER LLC 20 FOWLER FARM RD SCARBOROUGH ME 04074	2455 Congress Street	X
239A A002001	MBAA SERVICES LLC 33 DOWD RD # 1 BANGOR ME 04401		X
239A A004001	AMERICAN NATIONAL RED CROSS 524 FOREST AVE PORTLAND ME 04101		X
239A A004002	SPINNAKER HOLDINGS LLC 113 FORESIDE RD FALMOUTH ME 04105		X
238A B004001	CBS REALTY LLC 10 ANDOVER RD PORTLAND ME 04102		X
240 A001001	HUTCHINS DRIVE LLC ONE CANAL PLAZA 5TH FLOOR PORTLAND ME 04101		X
240 A002001	BROWN J B & SONS & FORE RIVER WHR STOR CO INC PO BOX 207 PORTLAND ME 04112		X

City of Westbrook

Map/ Lot Number	Name and Mailing Address		
006-000-008	EHRLENBACH COLLINS INC 87 COUNTY ROAD WESTBROOK ME 04092		X
006-000-010	KIMCO REALTY LLC 65 GRAY ROAD STE #4 FALMOUTH ME 04105	73 County Road	X
006-000-017A	MBAA SERVICES LLC 33 DOWD RD # 1 BANGOR ME 04401	11 County Road	X
006-000-009	PLUMMER PROPERTIES LLC 81 COUNTY ROAD WESTBROOK ME 04092	81 County Road	X
006-000-018	APEX FITNESS & RACKET	2455 Congress	X

	CENTER LLC 20 FOWLER FARM RD SCARBOROUGH ME 04074	Street	
009-000-015	RANDALL, LLEWELLYN A JR 681 STROUDWATER ST. WESTBROOK ME 04092	681 Stroudwater St.	
006-000-011 006-000-012	SNR CORPORATION C/O ALL AMERICAN SELF STORAGE 10 REGENCY RIDGE ANDOVER MA 01810	45 County Road 35 County Road	X
003-000-012 003-000-13	SYSCO FOOD SVCS OF NO NEW ENGLAND INC ATTN: TAX DEPT 1390 ENCLAVE PARKWAY HOUSTON TX 77077	44 Thomas Drive 50 Thomas Drive	
006-000-014 006-000-015	THOJOE PROPERTIES LLC 15 COUNTY ROAD WESTBROOK ME 04092	21County Road 15 County Road	X
City of Portland, Maine			X

INTRODUCTION

The purpose of this application is to summarize the information required in a Traffic Movement Permit application to request a Scoping Meeting for a proposed new medical facility on Andover Road in Portland, Maine. Trip generation analysis shows that the new Maine Behavioral Health Center of Excellence in Autism and Development Disorders will generate in excess of 100 new peak hour trips. As a result, the project requires a Traffic Movement Permit (TMP) from the Maine Department of Transportation (MaineDOT). The City of Portland has Delegated Review Authority to review the application materials and issue the TMP on behalf of MaineDOT.

SITE DESCRIPTION - SECTION 1A

The proposed site is located at 100 Andover Road in Portland. The overall parcel is approximately 10.16 acres in size, based upon the survey plan prepared by Owen Haskell, Inc., which is included with this application. The existing terrain has several small hills with wetlands located in between them towards the middle of the parcel.

EXISTING AND PROPOSED USES - SECTION 1B

This parcel is currently vacant. The proposed medical facility will be 29,104 square feet in size and is expected to employ 117 persons.

SITE VICINITY - SECTION 1C

The site location and vicinity are shown on the map in Figure 1.

OTHER DEVELOPMENT - SECTION 1D

The City of Portland Department of Planning and Urban Development was contacted to request information regarding other proposed or approved developments that are expected to significantly impact traffic volumes in the study area. The City has not yet responded so other development projects will be identified and discussed at the Scoping Meeting.

TRIP GENERATION - SECTION 1E

The number of trips to be generated by the new medical facility was estimated using both the Institute of Transportation Engineers (ITE) "Trip Generation, 7th Edition" report, the edition being utilized by MaineDOT for traffic permitting purposes, and the newer 10th edition report since it is based upon a greater amount of information and considered more current and up to date. The results, based upon land use code 720 – Medical-Dental Office Building, calculated on the bases of 29,104 sf and 117 employees, are shown below:

	ITE Trip Generation (one-way trip ends)					
	7th Ed.			**10th Ed.**		
Time Period	Emp.	S.F.	Avg.	S.F.	Emp.	Avg.
Weekday	1,042	1,052	1,048	1,012	1,018	1,016
AM Peak Hour – Adj. Street	62	72	67	81	80	80
Entering	49	57	53	61	62	62
Exiting	13	15	14	18	18	18
AM Peak Hour – Generator	94	105	100	103	125	114
Entering	61	69	65	64	76	70
Exiting	33	36	35	39	49	44
PM Peak Hour – Adj. Street	124	108	116	101	113	107
Entering	42	29	35	28	39	33
Exiting	82	79	81	73	74	74
PM Peak Hour – Generator	124	130	127	120	135	128
Entering	42	52	47	47	54	51
Exiting	82	78	80	73	81	77

As seen above, the employee and square footage bases yielded similar results so they were averaged. Based upon both the 7th Edition and the newer more current 10th Edition, the project is expected 100 or more trips during both the weekday AM and PM peak hour. As a result, the proposed medical facility requires a TMP. Given the proposed medical office type use it was assumed that all trips are primary (or new) trips with no pass-by trips. The newer 10th edition generally yielded higher results and is considered more current so it is expected that the traffic study and analysis will be based upon these trip estimates.

TRIP DISTRIBUTION AND ASSIGNMENT - SECTION 1F & G

Turning movement/classification counts were conducted by Sewall/Maine Traffic Resources during the AM (7:00 – 9:00 AM) and PM (3:00 – 6:00) peak hour periods at the intersection of Congress Street, Hutchins Drive and Skyway Drive. The AM peak hour occurred from 7:30 – 8:30 while the PM peak hour occurred from 4:15 – 5:15.
The count records are included in this application.

The count data was factored to 30th highest hour volumes, the volumes typically used for design and traffic analysis purposes, using published MaineDOT group mean urban factors. The existing 2019 volumes, expected to be representative of peak summer volumes in late July or early August, are shown in Figure 2.

The trips for the AM and PM peak hour periods were assigned to the area intersections based upon the traffic patterns recorded during the counts. The resulting trip assignments are shown in Figure 3 for the AM and PM peak hours.



Figure 1

Site Location Map

Maine Behavioral Healthcare

Portland, Maine

Sewall
The evolution of expertise
A TFC Company

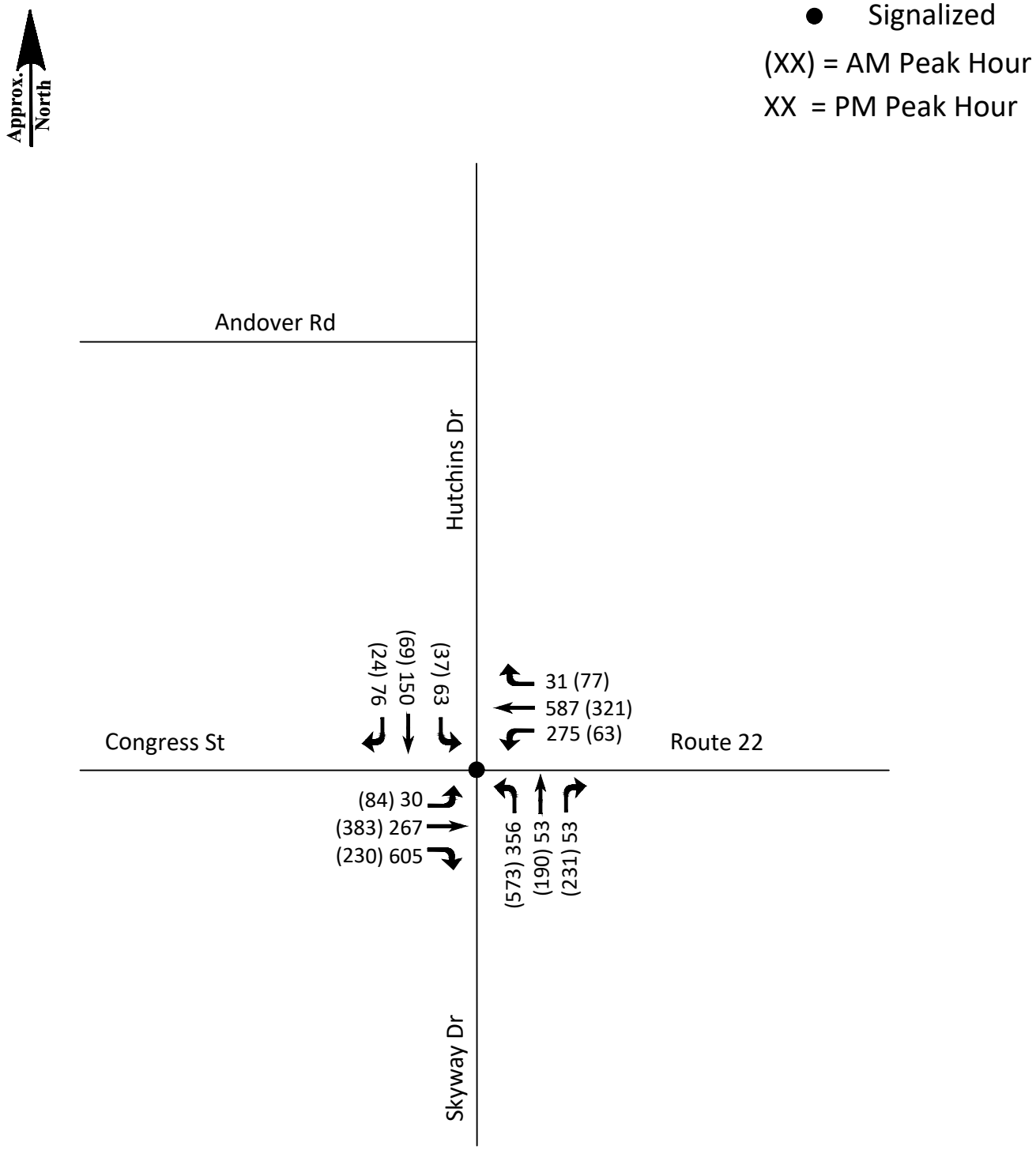


Figure 2

Existing 2019 30th H.H. Volumes
Maine Behavioral Healthcare
Portland, Maine

Sewall
The evolution of expertise
A TRC Company

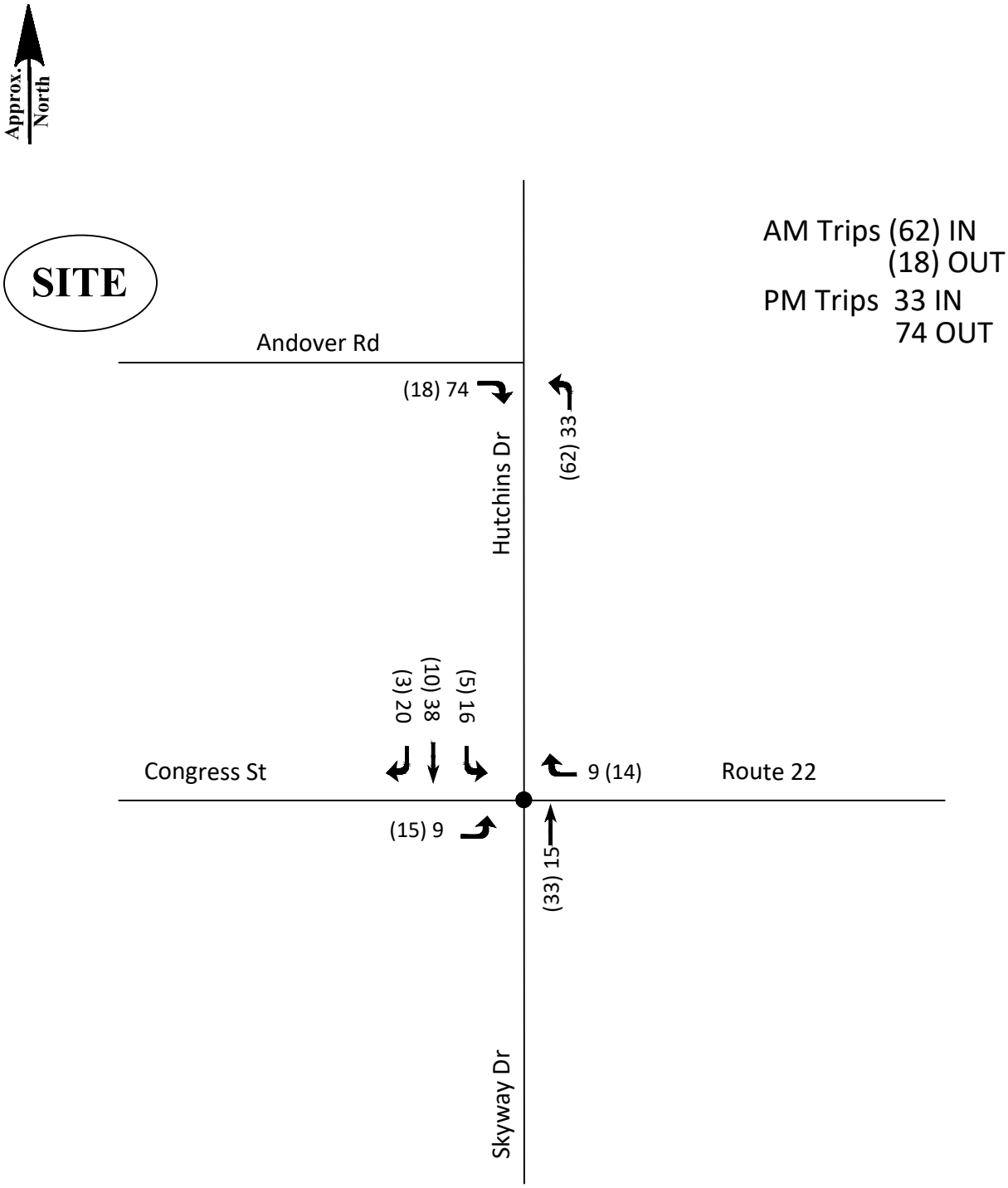


Figure 3

Trip Assignments
Maine Behavioral Healthcare
Portland, Maine

Sewall
The evolution of expertise
A TPC company

Maine Traffic Resources

40 Forest Falls Drive, Suite 2
Yarmouth, Maine 04096
www.mainetrafficresources.com

Title: Congress, Hutchins & Skyway
Town: Portland
Counter: JAM
Weather: Sunny

File Name : PortlandCongressHutchinsSky2019AM
Site Code : 12345551
Start Date : 9/19/2019
Page No : 1

Groups Printed- Passenger Cars - Light Trucks - Heavy Trucks

	Hutchins Drive From North					Congress St From East					Skyway Drive From South					Congress St From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
07:00 AM	3	8	6	0	17	12	61	10	0	83	34	23	101	1	159	85	77	16	0	178	437
07:15 AM	1	15	4	0	20	13	80	18	0	111	46	24	123	0	193	52	107	17	0	176	500
07:30 AM	8	12	7	0	27	16	72	10	0	98	54	31	126	0	211	63	86	24	0	173	509
07:45 AM	3	8	10	0	21	21	84	15	0	120	61	72	159	1	293	53	100	22	1	176	610
Total	15	43	27	0	85	62	297	53	0	412	195	150	509	2	856	253	370	79	1	703	2056
08:00 AM	1	13	10	0	24	17	75	16	0	108	60	41	153	1	255	52	87	20	2	161	548
08:15 AM	11	34	9	0	54	20	79	20	0	119	48	40	116	1	205	54	97	15	0	166	544
08:30 AM	2	14	12	0	28	6	71	17	0	94	34	19	101	0	154	58	90	9	0	157	433
08:45 AM	1	5	7	0	13	8	76	12	0	96	35	21	74	0	130	91	92	8	0	191	430
Total	15	66	38	0	119	51	301	65	0	417	177	121	444	2	744	255	366	52	2	675	1955

Gr. I = .88 / .85 = 1.035

Maine Traffic Resources

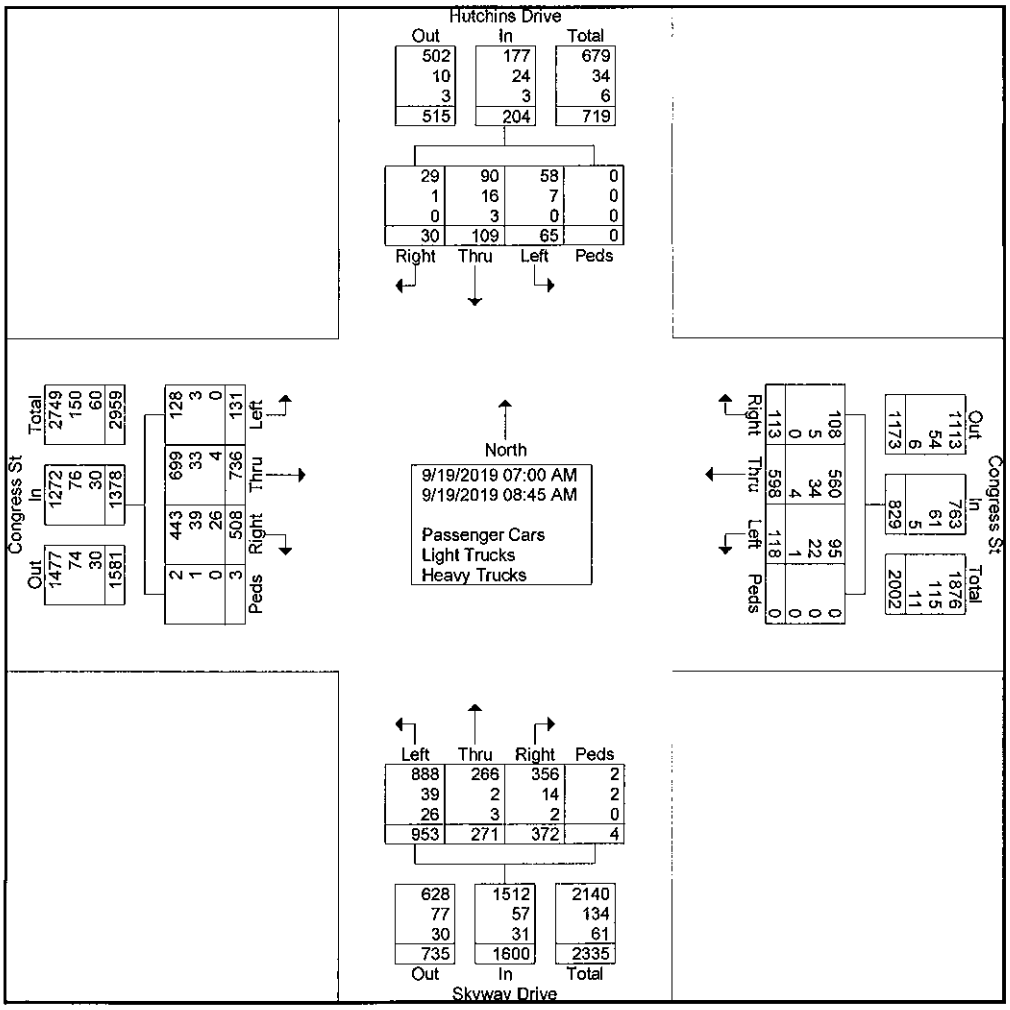
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Title: Congress, Hutchins & Skyway
Town: Portland
Counter: JAM
Weather: Sunny

File Name : PortlandCongressHutchinsSky2019AM
Site Code : 12345551
Start Date : 9/19/2019
Page No : 2

Groups Printed- Passenger Cars - Light Trucks - Heavy Trucks

	Hutchins Drive From North					Congress St From East					Skyway Drive From South					Congress St From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
Grand Total	30	109	65	0	204	113	598	118	0	829	372	271	953	4	1600	508	736	131	3	1378	4011
Apprch %	14.7	53.4	31.9	0		13.6	72.1	14.2	0		23.2	16.9	59.6	0.2		36.9	53.4	9.5	0.2		
Total %	0.7	2.7	1.6	0	5.1	2.8	14.9	2.9	0	20.7	9.3	6.8	23.8	0.1	39.9	12.7	18.3	3.3	0.1	34.4	
Passenger Cars	29	90	58	0	177	108	560	95	0	763	356	266	888	2	1512	443	699	128	2	1272	3724
% Passenger Cars	96.7	82.6	89.2	0	86.8	95.6	93.6	80.5	0	92	95.7	98.2	93.2	50	94.5	87.2	95	97.7	66.7	92.3	92.8
Light Trucks	1	16	7	0	24	5	34	22	0	61	14	2	39	2	57	39	33	3	1	76	218
% Light Trucks	3.3	14.7	10.8	0	11.8	4.4	5.7	18.6	0	7.4	3.8	0.7	4.1	50	3.6	7.7	4.5	2.3	33.3	5.5	5.4
Heavy Trucks	0	3	0	0	3	0	4	1	0	5	2	3	26	0	31	26	4	0	0	30	69
% Heavy Trucks	0	2.8	0	0	1.5	0	0.7	0.8	0	0.6	0.5	1.1	2.7	0	1.9	5.1	0.5	0	0	2.2	1.7



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Site Code : 12345551
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	Hutchins Drive From North					Congress St From East					Skyway Drive From South					Congress St From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 07:00 AM to 08:45 AM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 07:30 AM																					
07:30 AM	8	12	7	0	27	16	72	10	0	98	54	31	126	0	211	**63**	86	**24**	0	173	509
07:45 AM	3	8	**10**	0	21	**21**	**84**	15	0	**120**	**61**	**72**	**159**	**1**	**293**	53	**100**	22	**1**	**176**	**610**
08:00 AM	1	13	10	0	24	17	75	16	0	108	60	41	153	1	255	52	87	20	**2**	161	548
08:15 AM	**11**	**34**	9	0	**54**	20	79	**20**	0	119	48	40	116	1	205	54	97	15	0	166	544
Total Volume	23	67	36	0	126	74	310	61	0	445	223	184	554	3	964	222	370	81	3	676	2211
% App. Total	18.3	53.2	28.6	0		16.6	69.7	13.7	0		23.1	19.1	57.5	0.3		32.8	54.7	12	0.4		
PHF	.523	.493	.900	.000	.583	.881	.923	.763	.000	.927	.914	.639	.871	.750	.823	.881	.925	.844	.375	.960	.906

24 69 37 77 321 63 231 190 573 230 383 84

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File Name : PortlandCongressHutchinsSky2019PM
Site Code : 12345552
Start Date : 9/19/2019
Page No : 1

Groups Printed- Passenger Cars - Light Trucks - Heavy Trucks

	Hutchins Drive From North					Congress Street From East					Skyway Drive From South					Congress Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
03:00 PM	7	21	10	0	38	8	104	39	0	151	13	9	71	1	94	106	69	1	0	176	459
03:15 PM	8	20	11	0	39	9	109	35	1	154	14	9	86	1	110	90	53	8	0	151	454
03:30 PM	15	40	13	0	68	8	109	39	0	156	17	18	70	0	105	117	66	3	0	186	515
03:45 PM	8	21	13	0	42	11	139	40	0	190	17	9	77	0	103	103	60	6	0	169	504
Total	38	102	47	0	187	36	461	153	1	651	61	45	304	2	412	416	248	18	0	682	1932
04:00 PM	17	30	10	0	57	5	127	54	0	186	12	15	87	1	115	157	67	8	0	232	590
04:15 PM	17	30	13	0	60	12	142	61	0	215	9	14	68	0	91	117	75	11	0	203	569
04:30 PM	14	34	23	0	71	8	159	78	0	245	10	13	87	2	112	147	63	7	0	217	645
04:45 PM	20	43	7	0	70	6	119	53	0	178	15	13	94	0	122	163	52	4	0	219	589
Total	68	137	53	0	258	31	547	246	0	824	46	55	336	3	440	584	257	30	0	871	2393
05:00 PM	22	38	18	0	78	4	147	74	0	225	17	11	95	0	123	158	68	7	0	233	659
05:15 PM	20	41	14	0	75	4	135	49	0	188	11	16	73	0	100	115	58	2	0	175	538
05:30 PM	14	23	13	0	50	8	109	38	1	156	13	11	74	2	100	106	50	4	0	160	466
05:45 PM	5	22	6	0	33	4	92	21	0	117	12	7	65	0	84	61	40	5	0	106	340
Total	61	124	51	0	236	20	483	182	1	686	53	45	307	2	407	440	216	18	0	674	2003

Maine Traffic Resources

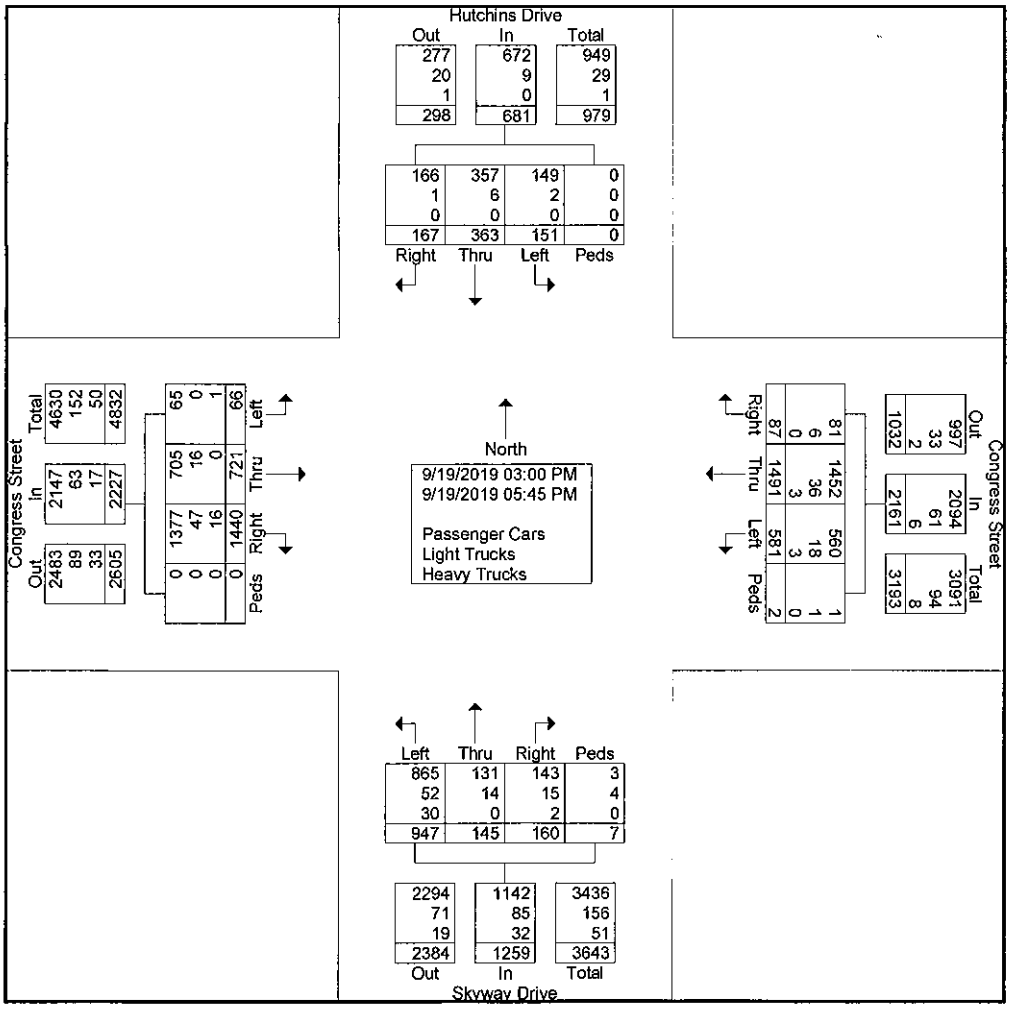
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Site Code : 12345552
Start Date : 9/19/2019
Page No : 2

Groups Printed- Passenger Cars - Light Trucks - Heavy Trucks

	Hutchins Drive From North					Congress Street From East					Skyway Drive From South					Congress Street From West					
	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Factor	1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		1.0	1.0	1.0	1.0		
Grand Total	167	363	151	0	681	87	1491	581	2	2161	160	145	947	7	1259	1440	721	66	0	2227	6328
Apprch %	24.5	53.3	22.2	0		4	69	26.9	0.1		12.7	11.5	75.2	0.6		64.7	32.4	3	0		
Total %	2.6	5.7	2.4	0	10.8	1.4	23.6	9.2	0	34.1	2.5	2.3	15	0.1	19.9	22.8	11.4	1	0	35.2	
Passenger Cars	166	357	149	0	672	81	1452	560	1	2094	143	131	865	3	1142	1377	705	65	0	2147	6055
% Passenger Cars	99.4	98.3	98.7	0	98.7	93.1	97.4	96.4	50	96.9	89.4	90.3	91.3	42.9	90.7	95.6	97.8	98.5	0	96.4	95.7
Light Trucks	1	6	2	0	9	6	36	18	1	61	15	14	52	4	85	47	16	0	0	63	218
% Light Trucks	0.6	1.7	1.3	0	1.3	6.9	2.4	3.1	50	2.8	9.4	9.7	5.5	57.1	6.8	3.3	2.2	0	0	2.8	3.4
Heavy Trucks	0	0	0	0	0	0	3	3	0	6	2	0	30	0	32	16	0	1	0	17	55
% Heavy Trucks	0	0	0	0	0	0	0.2	0.5	0	0.3	1.2	0	3.2	0	2.5	1.1	0	1.5	0	0.8	0.9



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	Hutchins Drive From North					Congress Street From East					Skyway Drive From South					Congress Street From West					
Start Time	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Right	Thru	Left	Peds	App. Total	Int. Total
Peak Hour Analysis From 03:00 PM to 05:45 PM - Peak 1 of 1																					
Peak Hour for Entire Intersection Begins at 04:15 PM																					
04:15 PM	17	30	13	0	60	**12**	142	61	0	215	9	**14**	68	0	91	117	**75**	**11**	0	203	569
04:30 PM	14	34	**23**	0	71	8	**159**	**78**	0	**245**	10	13	87	**2**	112	147	63	7	0	217	645
04:45 PM	20	**43**	7	0	70	6	119	53	0	178	15	13	94	0	122	**163**	52	4	0	219	589
05:00 PM	**22**	38	18	0	**78**	4	147	74	0	225	**17**	11	**95**	0	**123**	158	68	7	0	**233**	**659**
Total Volume	73	145	61	0	279	30	567	266	0	863	51	51	344	2	448	585	258	29	0	872	2462
% App. Total	26.2	52	21.9	0		3.5	65.7	30.8	0		11.4	11.4	76.8	0.4		67.1	29.6	3.3	0		
PHF	.830	.843	.663	.000	.894	.625	.892	.853	.000	.881	.750	.911	.905	.250	.911	.897	.860	.659	.000	.936	.934

76 150 63 31 587 275 53 53 356 605 267 30

Gr. I = 0.88/.85 = 1.035

ACCIDENT REVIEW - SECTION 2

The Maine Department of Transportation uses two criteria to determine high crash locations (HCLs). The first is the critical rate factor (CRF), which is a measure of the accident rate. A CRF greater than one indicates a location which has a higher than expected accident rate. The expected rate is calculated as a statewide average of similar facilities.

The second criterion, which must also be met, is based upon the number of accidents that occur at a particular location. Eight or more accidents must occur over the three-year study period for the location to be considered a high crash location. Accident data was obtained from MaineDOT for Congress Street and Hutchins Drive within the expected study area. The CRF and number of accidents are summarized by location for the most recent three-year period, 2016 to 2018, below:

Location Description	# of Acc.	CRF
Congress Street between Johnson Road and cut to Johnson Road	1	0.47
Congress Street cut to Johnson Road and Unum Drive	3	0.29
Intersection of Congress Street and Unum Drive	4	0.21
Congress Street between Unum Dr. and Blueberry Road	5	0.33
Intersection of Congress Street and Blueberry Road	6	1.10
Congress Street between Blueberry Road and Hutchins/Skyway	8	0.62
Intersection of Congress Street, Hutchins Drive & Skyway Drive	23	0.73
Congress Street between Hutchins/Skyway and Westbrook Town Line	12	0.52
County Road between town line and Thomas Drive	8	0.66
Intersection of County Road & Thomas Drive in Westbrook	3	0.39
County Road between Thomas Drive and Finch Street	19	0.49
Intersection of County Road & Finch Street in Westbrook	4	0.60
Intersection of County Road & Spring Street in Westbrook	28	0.73
Hutchins Drive between Congress Street and its dead end	2	0.41
At end of Hutchins Drive	1	2.94

As can be seen in the above accident table, there are no high crash locations on either Route 22 (Congress Street/County Road) or Hutchins Drive in the vicinity of the site. Hence, no additional accident analysis should be required.

Maine Department Of Transportation - Traffic Engineering, Crash Records Section

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ **Crash Summary I** ☐ **Section Detail** ☑ **Crash Summary II** ☐ **1320 Public** ☐ **1320 Private** ☐ **1320 Summary**

REPORT DESCRIPTION

Portland: Congress St and Hutchins Dr

REPORT PARAMETERS

Year 2016, Start Month 1 through Year 2018 End Month: 12

Route: **0022X**	Start Node: **18488**	Start Offset: **0**	☐ **Exclude First Node**
	End Node: **15176**	End Offset: **0**	☐ **Exclude Last Node**
Route: **0561168**	Start Node: **18490**	Start Offset: **0**	☑ **Exclude First Node**
	End Node: **18491**	End Offset: **0**	☐ **Exclude Last Node**

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
18488	0022X - 3.58	Int of BLUEBERRY RD CONGRESS ST	2	6	1	0	1	1	3	50.0	4.833	0.41	0.38	1.10
												Statewide Crash Rate:	0.15	
18490	0022X - 3.78	Int of CONGRESS ST EXIT 7A CONN RD HUTCHINS DR	9	23	0	0	2	6	15	34.8	9.187	0.83	1.13	0.00
												Statewide Crash Rate:	0.73	
15176	0022X - 4.05	TL Portland Westbrook	2	0	0	0	0	0	0	0.0	3.981	0.00	0.40	0.00
												Statewide Crash Rate:	0.15	
18491	0561168 - 0.40	0508911 POR,HUTCHINS DR,END	2	1	0	0	1	0	0	100.0	0.190	1.75	0.59	2.94
												Statewide Crash Rate:	0.15	
Study Years:	3.00	**NODE TOTALS:**		30	1	0	4	7	18	40.0	18.191	0.55	0.67	0.83

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
18488	18490	3106664	0 - 0.20	0022X - 3.58	0.20	2	8	0	0	0	4	4	50.0	0.01041	256.08	415.10	0.00
Int of BLUEBERRY RD CONGRESS ST				ST RTE 22											Statewide Crash Rate: 216.61		
15176	18490	3106023	0 - 0.27	0022X - 3.78	0.27	2	12	0	0	1	6	5	58.3	0.02150	186.07	358.15	0.00
TL Portland Westbrook				ST RTE 22											Statewide Crash Rate: 216.61		
18490	18491	193997	0 - 0.40	0561168 - 0	0.40	2	2	0	0	0	1	1	50.0	0.00152	437.80	1063.11	0.00
Int of CONGRESS ST EXIT 7A CONN RD HUTCHINS DR				RD INV 05 61168											Statewide Crash Rate: 405.29		
Study Years: 3.00				**Section Totals:**	0.87		22	0	0	1	11	10	54.5	0.03343	219.34	342.28	0.64
				Grand Totals:	0.87		52	1	0	5	18	28	46.2	0.03343	518.44	476.08	1.09

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	Injury Crashes K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
18488	18490	3106664	0 - 0.20	0022X - 3.58	8	0	0	0	4	4	2018-30370	10/24/2018	3.59	C
											2018-3506	01/11/2018	3.60	C
											2018-14777	05/22/2018	3.61	PD
											2017-4432	02/08/2017	3.65	C
											2018-26801	09/20/2018	3.65	PD
											2018-15959	06/06/2018	3.68	C
											2018-15010	05/30/2018	3.69	PD
											2017-38387	12/13/2017	3.76	PD
15176	18490	3106023	0 - 0.27	0022X - 3.78	12	0	0	1	6	5	2017-15915	05/16/2017	3.84	C
											2017-12287	04/14/2017	3.84	PD
											2016-35233	12/05/2016	3.87	C
											2018-41158	12/05/2018	3.87	C
											2017-5357	02/10/2017	3.87	PD
											2017-32991	11/02/2017	3.88	PD
											2017-40046	12/23/2017	3.89	PD
											2016-27143	09/26/2016	3.93	C
											2016-30950	11/01/2016	3.95	C
											2016-22494	08/04/2016	3.96	B
											2018-41298	12/19/2018	3.97	PD
											2016-32326	11/10/2016	4.01	C
18490	18491	193997	0 - 0.40	0561168 - 0	2	0	0	0	1	1	2018-6368	02/20/2018	0.19	PD
											2016-28010	09/28/2016	0.26	C
				Totals:	22	0	0	1	11	10				

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												PM												
	Hour of Day																								
Day Of Week	**12**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**Un**	**Tot**
SUNDAY	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
MONDAY	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	1	2	0	1	2	0	0	0	0	0	7
TUESDAY	0	0	0	0	0	0	0	0	2	0	0	0	1	0	0	1	2	0	0	0	0	1	0	0	0	7
WEDNESDAY	0	1	0	0	0	0	0	4	2	1	0	0	0	0	1	1	4	0	1	1	0	0	0	0	0	16
THURSDAY	0	0	0	0	0	0	0	2	3	0	0	1	1	1	0	0	0	1	1	0	0	0	0	0	0	10
FRIDAY	0	0	0	0	0	0	0	1	1	1	0	0	0	2	0	0	2	1	0	0	0	1	0	0	0	9
SATURDAY	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Totals	0	1	1	1	0	0	0	8	8	2	0	1	2	4	1	3	10	2	3	3	0	2	0	0	0	**52**

Vehicle Counts by Type

Unit Type	Total
1-Passenger Car	54
2-(Sport) Utility Vehicle	30
3-Passenger Van	3
4-Cargo Van (10K lbs or Less)	1
5-Pickup	6
6-Motor Home	0
7-School Bus	0
8-Transit Bus	0
9-Motor Coach	0
10-Other Bus	0
11-Motorcycle	0
12-Moped	0
13-Low Speed Vehicle	0
14-Autocycle	0
15-Experimental	0
16-Other Light Trucks (10,000 lbs or Less)	0
17-Medium/Heavy Trucks (More than 10,000 lbs)	9
18-ATV - (4 wheel)	0
20-ATV - (2 wheel)	0
21-Snowmobile	0
22-Pedestrian	3
23-Bicyclist	0
24-Witness	10
25-Other	0
26-Construction	0
27-Farm Vehicle	0
Total	**116**

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	8	37	4	1	0	0	50
Ran Off Roadway	2	0	0	0	0	0	2
Failed to Yield Right-of-Way	12	1	0	0	0	0	13
Ran Red Light	1	0	0	0	0	0	1
Ran Stop Sign	1	0	0	0	0	0	1
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	1	1	0	0	0	0	2
Improper Turn	0	0	0	0	0	0	0
Improper Backing	1	0	0	0	0	0	1
Improper Passing	3	0	0	0	0	0	3
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	20	4	0	0	0	0	24
Failed to Keep in Proper Lane	0	0	0	0	0	0	0
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	0	0	0	0	0	0	0
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	0	0	0	0	0	0	0
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	1	1	0	0	0	0	2
Unknown	1	2	0	0	0	0	3
Total	**51**	**46**	**4**	**1**	**0**	**0**	**102**

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	49	46	4	1	0	2	102
Physically Impaired or Handicapped	0	0	0	0	0	0	0
Emotional(Depressed, Angry, Disturbed, etc.)	0	0	0	0	0	0	0
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	2	0	0	0	0	0	2
Other	0	0	0	0	0	1	1
Total	**51**	**46**	**4**	**1**	**0**	**3**	**105**

Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	3	0	0	0	0	3
20-24	8	0	0	0	0	8
25-29	14	0	0	0	0	14
30-39	24	0	0	0	0	24
40-49	16	0	0	0	0	16
50-59	22	0	0	0	0	22
60-69	10	0	0	0	0	10
70-79	4	0	0	0	0	4
80-Over	1	0	0	0	0	1
Unknown	1	0	0	3	0	4
Total	**103**	**0**	**0**	**3**	**0**	**106**

Crash Summary II - Characteristics

Most Harmful Event

Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	20
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	**Total**	**102**
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	0		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	80		
14-Parked Motor Vehicle	1		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
16-Work Zone / Maintenance Equipment	0		
17-Other Non-Fixed Object	0		
18-Impact Attenuator / Crash Cushion	0		
19-Bridge Overhead Structure	0		
20-Bridge Pier or Support	0		
21-Bridge Rail	0		
22-Cable Barrier	0		
23-Culvert	0		
24-Curb	0		
25-Ditch	0		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	1		
32-Utility Pole / Light Support	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post Pole or Support	0		

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	1	1
A	0	0
B	5	6
C	18	22
PD	28	0
Total	**52**	**29**

Road Character

Road Grade	Total
1-Level	43
2-On Grade	8
3-Top of Hill	0
4-Bottom of Hill	1
5-Other	0
Total	**52**

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	23
2-Traffic Signals (Flashing)	1
3-Advisory/Warning Sign	0
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	3
6-Yield Sign	0
7-Curve Warning Sign	0
8-Officer, Flagman, School Patrol	0
9-School Bus Stop Arm	0
10-School Zone Sign	0
11-R.R. Crossing Device	0
12-No Passing Zone	2
13-None	23
14-Other	0
Total	**52**

Light

Light Condition	Total
1-Daylight	37
2-Dawn	0
3-Dusk	2
4-Dark - Lighted	10
5-Dark - Not Lighted	3
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	**52**

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2016	2017	2018	Total
JANUARY	1	1	2	4
FEBRUARY	2	2	1	5
MARCH	1	0	1	2
APRIL	0	2	0	2
MAY	1	1	2	4
JUNE	1	2	1	4
JULY	0	0	2	2
AUGUST	3	2	1	6
SEPTEMBER	4	0	1	5
OCTOBER	0	2	3	5
NOVEMBER	3	2	1	6
DECEMBER	3	2	2	7
Total	**19**	**16**	**17**	**52**

Report is limited to the last 10 years of data.


Search...
18491
STROUDWATER RIVER
TWIN FALLS PRESERVE
WESTBROOK
ANDOVER RD
HUTCHINS DR
PORTLAND
18489
BLUEBERRY RD
Stroudwater River
Blueberry Hill
95
18490
22
18488
CONGRESS ST
14864
15176
COUNTY RD
19740
19738
19739
SKYWAY DR
46
INTERSTATE 95 RAMP
19737
THOMAS DR
DISTRICT RD
INTERSTATE 95 RAMP S
19742
19903
19908
18662
18599
19741
Scale: 1:9000
600ft

ENTRANCES AND EXITS - SECTION 3

Access to and from the proposed facility will be provided by a single full movement drive to Andover Road. The sight distances were measured by Ransom Consulting, Inc. and are shown on their site plan, along with the posted speed limits, included in this application package.

TITLE, RIGHT OR INTEREST - SECTION 4

The deed for the parcel is included in this application package.

0019509

BK 17401 PG 106

MAINE REAL ESTATE TAX PAID

WARRANTY DEED

(Maine Statutory Short Form)

KNOW ALL MEN BY THESE PRESENTS, That **GEORGE M. HUTCHINS**, of Falmouth, Maine for consideration paid, grants to **SPRING HARBOR HOSPITAL**, a Maine Business Corporation with a place of business at 465 Congress St., Portland, Maine, with **WARRANTY COVENANTS**, the land located in Portland and Westbrook, County of Cumberland, State of Maine , bounded and described as follows:

SEE EXHIBIT "A" ATTACHED HERETO
MADE A PART HEREOF AND INCORPORATED BY REFERENCE HEREIN

WITNESS my hand and seal this 8TH day of March, 2002

George M. Hutchins
GEORGE M. HUTCHINS

STATE OF MAINE
CUMBERLAND, ss.

March 8, 2002

Then personally appeared the above named George M. Hutchins and acknowledged the foregoing instrument to be his free act and deed.

Before me,

~~Notary Public~~
ATTORNEY

Printed Name: DANIEL J. DESMOND

EXHIBIT A

Three lots or parcels of land being located partially in the City of Portland and partially in the City of Westbrook, in the County of Cumberland, State of Maine, bounded and described as follows:

PARCEL 1

Being Lot 100 as shown on plan entitled, "Master Plan Standard Boundary Survey – Subdivision – Stroudwater Estates on Hutchins Drive & Harry Harmon Drive Portland, Maine made for George Hutchins", dated October 29, 1998 and updated to June 26, 2001 by Owen Haskell, Inc. to be recorded in the Cumberland County Registry of Deeds.

EXCEPTING a 35,279 square foot parcel as shown on the above mentioned plan as to be added to Lot 9.

PARCEL 2

Being Lot 200 as shown on plan entitled, "Master Plan Standard Boundary Survey – Subdivision – Stroudwater Estates on Hutchins Drive & Harry Harmon Drive Portland, Maine made for George Hutchins", dated October 29, 1998 and updated to June 26, 2001 by Owen Haskell, Inc. to be recorded in the Cumberland County Registry of Deeds.

PARCEL 3

Being Lot 34 as shown on plan entitled, "Master Plan Standard Boundary Survey – Subdivision – Stroudwater Estates on Hutchins Drive & Harry Harmon Drive Portland, Maine made for George Hutchins", dated October 29, 1998 and updated to June 26, 2001 by Owen Haskell, Inc. to be recorded in the Cumberland County Registry of Deeds.

EXCEPTING from Lot 34 such portion as was conveyed to the Portland Water District by deeds recorded in Book 2411, Page 133 and Book 2411, Page 136.

TOGETHER with another Lot or parcel of land adjacent to Lot 34 and being bounded and described as follows:

Beginning on the easterly side of Hutchins Drive at the northwesterly corner of land formerly of Robert Pazolt as described in the deed recorded in Book 7559, Page 210 of the Cumberland County Registry of Deeds;

Thence, North 86° 34' 35" East, along land formerly of Robert Pazolt, 270.00 feet to Lot 34 on the above mentioned plan;

Thence, North 12° 18' 20" West, along Lot 34 on the above mentioned plan, 297.56 feet;

Thence, North 72° 25' 25" West, along Lot 34 on the above mentioned plan, 240.00 feet to the easterly side of Hutchins Drive;

Thence, South 3° 25' 25" East, along the easterly side of Hutchins Drive, 380.00 feet to the point of beginning.

Containing 1.89 acres, more or less

Parcel 3 (Lot 34 and adjacent parcel of 1.89 acres) is subject to a "conservation easement" granted to the State of Maine Department of Inland Fisheries and Wildlife as described in deeds recorded in the Cumberland County Registry of Deeds in Book 11061, Page 285 and Book 11306, Page 220.

Parcel 3 as described above is a gift from George M. Hutchins to Spring Harbor Hospital.

RECEIVED
RECORDED REGISTRY OF DEEDS
2002 MAR -8 PM 1:46
CUMBERLAND COUNTY
John B O'Brien

PUBLIC OR PRIVATE RIGHTS-OF-WAY - SECTION 5

No new public or private right-of-ways are proposed for this project.

SCHEDULE - SECTION 6

Construction of the new medical center is expected to begin in April of 2020 with occupancy planned for July of 2021.

Utilities

History

Maureen McGlone PE of Ransom Environmental Consultants on August 2, 2019 applied for a wastewater capacity application form the City of Portland. She has additonally contacted Jon Giles, Bradley Roland and Keith Gray concerning both the water and sanitary sewer service to the site. It is my understating that ability to serve letters could not be prepared until the Site Plan application has actually been submitted. Once I receive letters from Public Works and the Portland Water District I will forward them to the Planning Staff.

PORTLAND FIRE DEPARTMENT
SITE REVIEW
FIRE DEPARTMENT CHECKLIST

for

The Center of Excellence in Autism and Developmental Disorders

A separate drawing[s] shall be provided as part of the site plan application for the Portland Fire Department's review. Please refer to the following drawings included with this checklist

1. Name, address, telephone number of applicant (Cover Sheet)
2.
3. Name address, telephone number of architect (Cover Sheet)

4. Proposed uses of any structures [NFPA and IBC classification] (A-001)
5.
6. Square footage of all structures [total and per story] (A-001)

7. Elevation of all structures (A-200, A-201)

8. Proposed fire protection of all structures
   - ***As of September 16, 2010 all new construction of one and two family homes are required to be sprinkled in compliance with NFPA 13D. This is required by City Code. (NFPA 101 2009 ed.)***

9. Hydrant locations (C-100, C-101)

10. Water main[s] size and location (C-103)

11. Access to all structures [min. 2 sides] (C-101)

12. A code summary shall be included referencing NFPA 1 and all fire department. Technical standards. (A-001)

Some structures may require Fire flows using annex H of NFPA 1

Invue

DESCRIPTION

The EPIC Collection delivers custom luminaire flexibility with high quality, yet availability expectations of standard specification grade product. The EPIC Collection can be dressed to suit any application. Recognizing evolving environmental and legislative trends, the EPIC Collection delivers world class LED optical and performance solutions to the decorative luminaire marketplace.

Catalog #		Type
Project		SP3 / SP5
Comments		Date
Prepared by		

SPECIFICATION FEATURES

Construction

TOP: Cast aluminum top housing attaches to cast aluminum mounting arm hub with four stainless steel fasteners. One-piece silicone gasket between mounting hub and top casting seals out moisture and contaminants. (See the mounting accessories section for a full selection of mounting arms. (Only these arms are compatible with the Epic luminaire). MIDSECTION: Continuous silicone gaskets seal lens to top casting and shade. The mid section features cast aluminum construction and stainless steel assembly. SHADES: Heavy gauge precision spun aluminum shades offer superior surface finish and consistency in form. DOORFRAME: Die-cast aluminum 1/8" thick door and doorframe seal to underside of shade with a thick wall continuous silicone gasket. Mounting hub ships attached to mounting arm.

Optics

Choice of twelve patented, high-efficiency AccuLED Optic™ technology manufactured from injection-molded acrylic. Optics are precisely designed to shape the optics, maximizing efficiency and application spacing. AccuLED Optic technology, creates consistent distributions with the scalability to meet customized application requirements. Offered Standard in 4000K (+/- 275K) CCT and nominal 70 CRI. Optional 3000K CCT and 5000K CC. For the ultimate level of spill light control, an optional house-side shield accessory can be field or factory installed. The house-side shield is designed to seamlessly integrate with the SL2, SL3 or SL4 optics.

Electrical

LED drivers mount to die-cast aluminum back housing for optimal heat sinking, operation efficacy, and prolonged life. Standard drivers feature electronic universal voltage (120-277V 50/60Hz), 347V 60Hz or 480V 60Hz operation, greater than 0.9 power factor, less that 20% harmonic distortion, and is suitable for operation in -40°C to 40°C ambient environments. All fixtures are shipped standard with 10kV/10kA common – and differential – mode surge protection. LightBARs feature and IP66 enclosure rating and maintain greater than 95% lumen maintenance at 60,000 hours per IESNA TM-21. Occupancy sensor and dimming options available.

Finish

Housing is finished in five-stage super TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. LightBAR™ cover plates are standard white and may be specified to match finish of luminaire housing. Standard colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available. Consult Outdoor Architectural Colors brochure for a complete selection.

Warranty

Five-year warranty.





ECM/EMM
EPIC MEDIUM LED

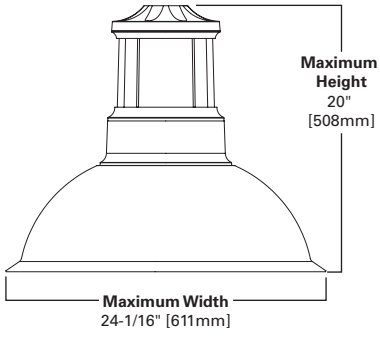
1 - 4 LightBARs

Solid State LED

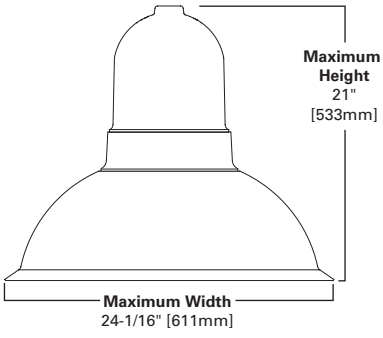
DECORATIVE AREA LUMINAIRE

DIMENSIONS

ECM Classical



EMM Modern



See configurations for more detailed information.

CERTIFICATION DATA

UL/cUL Listed
IP66 LIghtBARs
LM79 / LM80 Compliant
2G Vibration Tested
ISO 9001

ENERGY DATA

Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120-277V 50/60Hz, 347V/60Hz, 480V/60Hz
-40°C Minimum Temperature
40°C Ambient Temperature Rating

EPA

Effective Projected Area: (Sq. Ft.) 0.94

SHIPPING DATA

Approximate Net Weight:
45 lbs. [20 kgs.]

Powering Business Worldwide

CONFIGURATIONS

HOUSING



Classical
8-5/8" H x 8-3/4" W



Modern
9-3/8" H
x 8-7/8" W

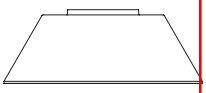
MID SECTION



Solid
3-7/16" H x 9-15/16" W

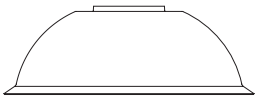


Solid Rings
3-7/16" H x 12" W

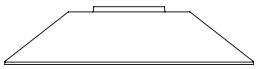


Straight Narrow
6-5/8" H x 19-1/8" W

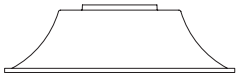
SHADE



Bell
8" H x 24" W

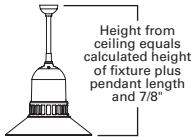


Straight Wide
5-1/8" H x 23-15/16" W



Flute
6" H x 22-1/2" W

MOUNTING OPTION



POWER AND LUMENS BY BAR COUNT (21 LED LIGHTBARS)

Number of LightBARs		E01	E02	E03	E04
Drive Current			350mA Drive Current		
Power (Watts)		25W	52W	75W	97W
Current @ 120V (A)		0.22	0.44	0.63	0.82
Current @ 277V (A)		0.10	0.20	0.28	0.36
Power (Watts)		31W	58W	82W	99W
Current @ 347V (A)		0.11	0.19	0.28	0.29
Current @ 480V (A)		0.09	0.15	0.20	0.21
T2	Lumens	2,948	5,896	8,844	11,792
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G3	B3-U0-G3
T3	Lumens	2,936	5,873	8,809	11,745
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G3	B3-U0-G3
T4	Lumens	2,876	5,752	8,627	11,503
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B2-U0-G3
5MQ	Lumens	3,054	6,108	9,161	12,215
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2
5WQ	Lumens	2,987	5,975	8,962	11,949
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2
5XQ	Lumens	2,982	5,963	8,945	11,926
	BUG Rating	B2-U0-G1	B3-U0-G2	B3-U0-G3	B4-U0-G3
SL2	Lumens	2,878	5,756	8,634	11,512
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2
SL3	Lumens	2,894	5,788	8,682	11,576
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2
SL4	Lumens	2,823	5,647	8,470	11,294
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2
RW	Lumens	2,957	5,915	8,872	11,829
	BUG Rating	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3
SLL/SLR	Lumens	2,616	5,231	7,847	10,462
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G3	B2-U0-G3

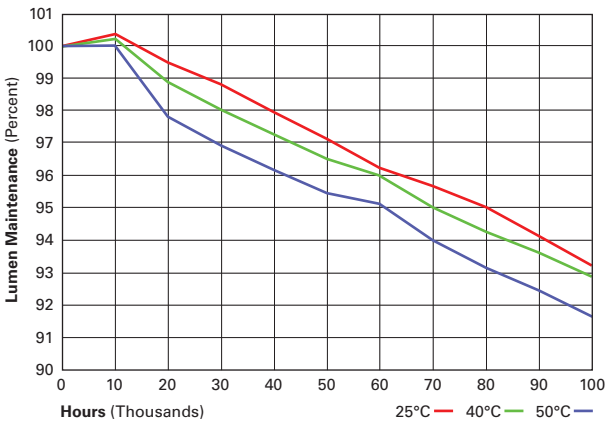
POWER AND LUMENS BY BAR COUNT (7 LED LIGHTBARS)

Number of LightBARs		F01	F02	F03	F04
Drive Current			1A Drive Current		
Power (Watts)		26W	55W	78W	102W
Current @ 120V (A)		0.22	0.46	0.66	0.86
Current @ 277V (A)		0.10	0.21	0.29	0.37
Power (Watts)		32W	60W	85W	105W
Current @ 347V (A)		0.11	0.19	0.28	0.30
Current @ 480V (A)		0.09	0.15	0.21	0.22
T2	Lumens	2,434	4,867	7,301	9,735
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3
T3	Lumens	2,424	4,848	7,272	9,696
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3
T4	Lumens	2,374	4,748	7,122	9,496
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B2-U0-G2
5MQ	Lumens	2,521	5,042	7,563	10,084
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2
5WQ	Lumens	2,466	4,932	7,398	9,864
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2
5XQ	Lumens	2,461	4,923	7,384	9,845
	BUG Rating	B2-U0-G1	B3-U0-G2	B3-U0-G2	B4-U0-G3
SL2	Lumens	2,376	4,752	7,127	9,503
	BUG Rating	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2
SL3	Lumens	2,389	4,778	7,167	9,556
	BUG Rating	B1-U0-G1	B1-U0-G1	B1-U0-G2	B2-U0-G2
SL4	Lumens	2,331	4,662	6,993	9,323
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G2	B2-U0-G2
RW	Lumens	2,441	4,883	7,324	9,765
	BUG Rating	B1-U0-G1	B2-U0-G2	B3-U0-G3	B3-U0-G3
SLL/SLR	Lumens	2,159	4,318	6,478	8,637
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G3	B1-U0-G3

LUMEN MAINTENANCE

Ambient Temperature	25,000 Hours*	50,000 Hours*	60,000 Hours*	100,000 Hours	Theoretical L70 (Hours)
25ºC	> 99%	> 97%	> 96%	> 93%	> 450,000
40ºC	> 98%	> 97%	> 96%	> 92%	> 425,000
50ºC	> 97%	> 96%	> 95%	> 91%	> 400,000

* Per IESNA TM-21 data.



LUMEN MULTIPLIER

Ambient Temperature	Lumen Multiplier
10ºC	1.02
15ºC	1.01
25ºC	1.00
40ºC	0.99
50ºC	0.96

Powering Business Worldwide

Eaton
1121 Highway 74 South
Peachtree City, GA 30269
P: 770-486-4800
www.eaton.com/lighting

Specifications and dimensions subject to change without notice.

CONTROL OPTIONS

0-10V (DIM)
This fixture is offered standard with 0-10V dimming driver(s). The DIM option provides 0-10V dimming wire leads for use with a lighting control panel or other control method.

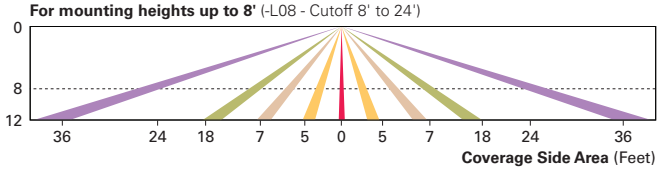
Photocontrol (PC, PER and PER7)
Optional button-type photocontrol (PC) and photocontrol receptacles (PER and PER7) provide a flexible solution to enable "dusk-to-dawn" lighting by sensing light levels. Advanced control systems compatible with NEMA 7-pin standards can be utilized with the PER7 receptacle.

Dimming Occupancy Sensor (MS/DIM-LXX, MS/X-LXX and MS-LXX)
These sensors are factory installed in the luminaire housing. When the MS/DIM-LXX sensor option is selected, the occupancy sensor is connected to a dimming driver and the entire luminaire dims when there is no activity detected. When activity is detected, the luminaire returns to full light output. The MS/DIM sensor is factory preset to dim down to approximately 50 percent power with a time delay of five minutes. The MS-LXX sensor is factory preset to turn the luminaire off after five minutes of no activity. The MS/X-LXX is also preset for five minutes and only controls the specified number of light engines to maintain steady output from the remaining light engines.

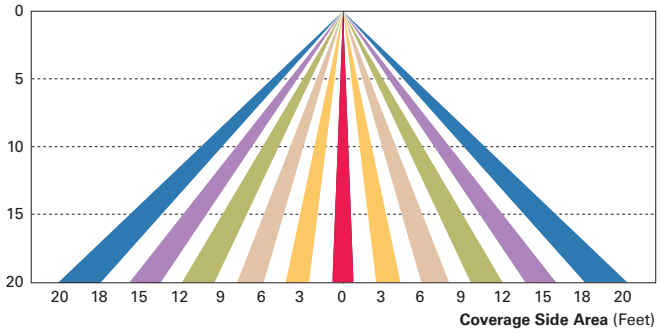
These occupancy sensors includes an integral photocell that can be activated with the FSIR-100 accessory for "dusk-to-dawn" control or daylight harvesting - the factory preset is OFF. The FSIR-100 is a wireless tool utilized for changing the dimming level, time delay, sensitivity and other parameters.

A variety of sensor lens are available to optimize the coverage pattern for mounting heights from 8'-40'.

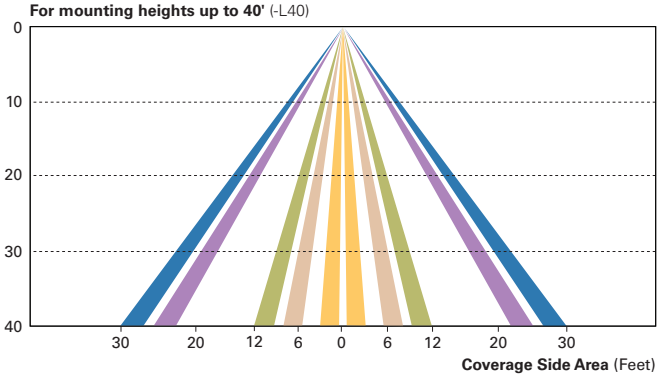
For mounting heights up to 8' (-L08 - Cutoff 8' to 24')



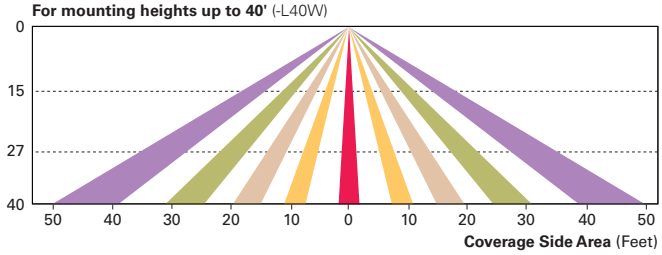
For mounting heights up to 20' (-L20)



For mounting heights up to 40' (-L40)



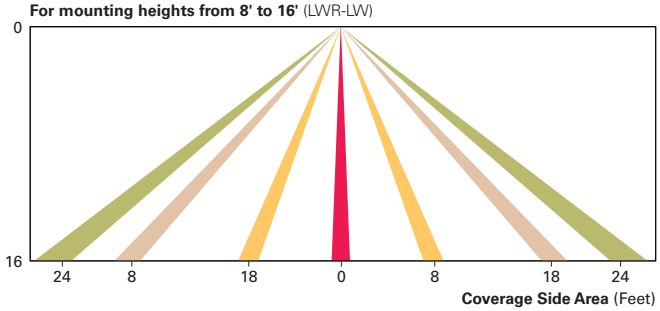
For mounting heights up to 40' (-L40W)



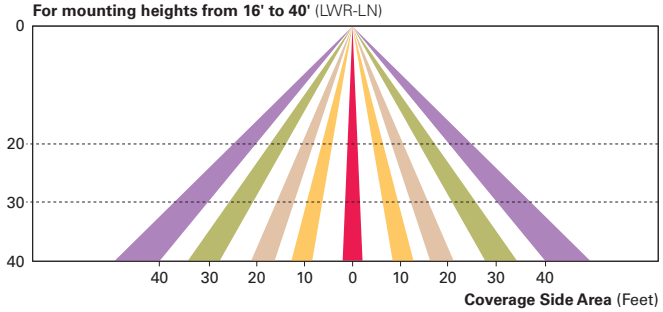
LumaWatt Pro Wireless Control and Monitoring System (LWR-LW and LWR-LN)
The LumaWatt Pro system is a peer-to-peer wireless network of luminaire-integral sensors for any sized project. Each sensor is capable of motion and photo sensing, metering power consumption and wireless communication. The end-user can securely create and manage sensor profiles with browser-based management software. The software will automatically broadcast to the sensors via wireless gateways for zone-based and individual luminaire control. The LumaWatt Pro software provides smart building solutions by utilizing the sensor to provide easy-to-use dashboard and analytic capabilities such as improved energy savings, traffic flow analysis, building management software integration and more.

For additional details, refer to the LumaWatt Pro product guides.

For mounting heights from 8' to 16' (LWR-LW)



For mounting heights from 16' to 40' (LWR-LN)



ORDERING INFORMATION

Sample Number: ECM-E04-LED-E1-T2-FL-GM

Product Family [1]	Number of LightBARs [2, 3]	Lamp Type	Voltage	Distribution	Mid Section Type	Shade Type	Color [5]
ECM=Epic Classical Medium **EMM**=Epic Modern Medium	**E01**=(1) 21 LED LightBAR **E02**=(2) 21 LED LightBARs **E03**=(3) 21 LED LightBARs **E04**=(4) 21 LED LightBARs **F01**=(1) 7 LED LightBAR **F02**=(2) 7 LED LightBARs **F03**=(3) 7 LED LightBARs **F04**=(4) 7 LED LightBARs	**LED**=Solid State Light Emitting Diodes	**E1**=Electronic (120-277V) **347**=347V **480**=480V [4]	**T2**=Type II **T3**=Type III **T4**=Type IV **SL2**=Type II w/Spill Control **SL3**=Type III w/Spill Control **SL4**=Type IV w/Spill Control **5MQ**=Type V Square Medium **5WQ**=Type V Square Wide **5XQ**=Type V Square Extra Wide **RW**=Rectangular Wide **SLL**=90° Spill Light Eliminator Left **SLR**=90° Spill Light Eliminator Right	**SO**=Solid **SR**=Solid Rings	**SN**=Straight Narrow **SW**=Straight Wide **BL**=Bell **FL**=Flute	**AP**=Grey **BZ**=Bronze **BK**=Black **DP**=Dark Platinum **GM**=Graphite Metallic **WH**=White

Options (Add as Suffix)

2L=Two Circuits [6]
7030=70 CRI / 3000K CCT [7]
7050=70 CRI / 5000K CCT [7]
8030=80 CRI / 3000K CCT [7]
LCF=LightBAR Cover Plate Matches Housing Finish
MS-LXX=Motion Sensor for ON/OFF Operation [8]
MS/X-LXX=Motion Sensor for Bi-Level Switching [9]
PMXX=Pendant Mount (XX=Pendant Length in Inches, 9.5" min - 48.0" max) [10]
HSS=Factory Installed House Side Shield [11]
DIM=0-10V Dimming Driver [12]
LWR-LW=LumaWatt Pro Wireless Sensor, Wide Lens for 8' - 16' Mounting Height [13]
LWR-LN=LumaWatt Pro Wireless Sensor, Narrow Lens for 16' - 40' Mounting Height [13]

Accessories (Order Separately) [14]

Classical
VA6150-XX=Bishop Wall Mount Arm
VA6151-XX=Bishop Wall Mount Arm with Cross Rod
VA6152-XX=Traditional Wall Mount Arm
VA6153-XX=Traditional Wall Mount Arm with 45° Strap
VA6154-XX=Bishop Single Pole Mount Arm
VA6155-XX=Bishop Single Pole Mount Arm with Cross Rod
VA6156-XX=Bishop Twin Pole Mount Arm
VA6157-XX=Bishop Twin Pole Mount Arm with Cross Rods
VA6158-XX=Traditional Single Pole Mount Arm
VA6159-XX=Traditional Single Pole Mount Arm with Rounded Upper Bar
VA6160-XX=Traditional Single Pole Mount Arm with Rounded Lower Bar [15]
VA6161-XX=Traditional Single Pole Mount Arm with 45° Upper Bar
VA6162-XX=Traditional Single Pole Mount Arm with 45° Lower Bar [15]
VA6163-XX=Traditional Single Pole Mount Arm with 45° Upper Strap
VA6165-XX=Traditional Twin Pole Mount Arm
VA6166-XX=Traditional Twin Pole Mount Arm with Rounded Upper Bars
VA6167-XX=Traditional Twin Pole Mount Arm with Rounded Lower Bars [15]
VA6168-XX=Traditional Twin Pole Mount Arm with 45° Upper Bars
VA6169-XX=Traditional Twin Pole Mount Arm with 45° Lower Bars [15]
VA6170-XX=Traditional Twin Pole Mount Arm with 45° Upper Straps
VA6171-XX=Mast Arm Adapter

Modern
VA6101-XX=Bishop Wall Mount Arm
VA6102-XX=Bishop Wall Mount Arm with Cross Rod
VA6103-XX=Traditional Wall Mount Arm
VA6104-XX=Traditional Wall Mount Arm with 45° Strap
VA6105-XX=Bishop Single Pole Mount Arm
VA6106-XX=Bishop Single Pole Mount Arm with Cross Rod
VA6107-XX=Bishop Twin Pole Mount Arm
VA6108-XX=Bishop Twin Pole Mount Arm with Cross Rods
VA6109-XX=Traditional Single Pole Mount Arm
VA6110-XX=Traditional Single Pole Mount Arm with Rounded Upper Bar
VA6111-XX=Traditional Single Pole Mount Arm with Rounded Lower Bar [15]
VA6112-XX=Traditional Single Pole Mount Arm with 45° Upper Bar
VA6113-XX=Traditional Single Pole Mount Arm with 45° Lower Bar [15]
VA6114-XX=Traditional Single Pole Mount Arm with 45° Upper Strap
VA6116-XX=Traditional Twin Pole Mount Arm
VA6117-XX=Traditional Twin Pole Mount Arm with Rounded Upper Bars
VA6118-XX=Traditional Twin Pole Mount Arm with Rounded Lower Bars [15]
VA6119-XX=Traditional Twin Pole Mount Arm with 45° Upper Bars
VA6120-XX=Traditional Twin Pole Mount Arm with 45° Lower Bars [15]
VA6121-XX=Traditional Twin Pole Mount Arm with 45° Upper Straps
VA6122-XX=Mast Arm Adapter

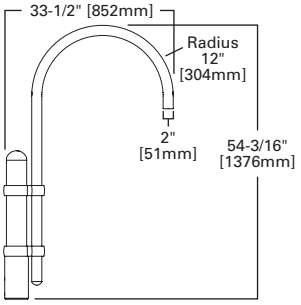
OA/RA1016=NEMA Twistlock Photocontrol - Multi-Tap
OA/RA1027=NEMA Twistlock Photocontrol - 480V
OA/RA1201=NEMA Twistlock Photocontrol - 347V
OA/RA1013=Photocontrol Shorting Cap
LB/HSS-21=Field Installed House Side Shield for "E" LightBARs [11, 16]
LB/HSS-07=Field Installed House Side Shield for "F" LightBARs [11, 16]

Accessory Options [17]
V=Victorian Finial [18]
M=Modern Finial [18]
A=Architectural Finial [18]
N=Nostalgic Finial [18]
R=NEMA Twistlock Photocontrol Receptacle [19]

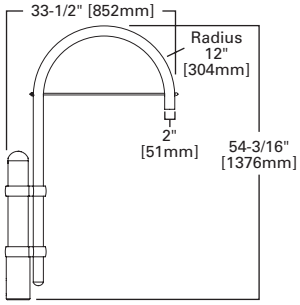
NOTES:
1. Arm not included. Order separately. See accessories.
2. Standard 4000K CCT and greater than 70 RI.
3. 21 LED LightBAR powered by 350mA and 7 LED LightBAR powered by 1A.
4. Only for use with 480V Wye systems. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems).
5. Custom and RAL color matching available upon request. Consult your lighting representative at Eaton for more information.
6. Low-level output varies by bar count. Consult factory. Requires quantity of two or more LightBARs.
7. Consult customer service for lead times and multiplier.
8. Sensor mounted to the luminaire. Available in E01-E04 and F01-F04 configurations. Replace "XX" with mounting height in feet for proper lens selection, (e.g., MS-L25). Consult factory for additional information.
9. Sensor mounted to the luminaire. Available in E02-E04 and F02-F04 configurations. Replace "X" with number of LightBARs operating in low output mode and replace XX with mounting height in feet for proper lens selection, (e.g., MS/3-L25). Maximum four bars in low output mode. Consult factory for additional information.
10. Pendant mount option "PMXX" must be used with Invue Pendant mount kit only. Includes pendant pipe, swivel hangar and canopy cover. Other pendant lengths can be specified in inches (XX). Minimum pendant length is 9-1/2". For lengths above 48", consult your lighting representative at Eaton for more information.
11. Only for use with SL2, SL3 and SL4 distributions.
12. Dimming leads provide for external 0-10V control system (by others).
13. LumaWatt wireless sensors are factory installed only, requiring network components LWP-EM-1, LWP-GW-1, and LWP-PoE8 in appropriate quantities. See www.eaton.com/lighting for LumaWatt application information.
14. Replace XX with color suffix.
15. Only available with traditional arms.
16. One required for each LightBAR.
17. Add as suffix to accessory. Example: VA6109-BK-R.
18. Not available with finials, pendant mount "PM48" or bishop wall mounts.
19. Requires use of 4" O.D. round straight pole.

MOUNTING ACCESSORIES

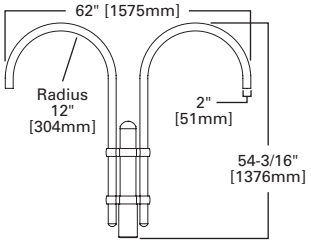
Pole mount arms are designed to fit both medium ECM/EMM housings. (Only these arms are compatible with the Epic luminaire). Arms feature a precision welded cast aluminum mounting hub for attachment of fixture head to arm with four stainless steel fasteners. Wall mount arms are designed to fit both medium ECM/EMM housings. Arms feature a precision welded cast aluminum mounting hub for attachment of fixture head to arm with four stainless steel fasteners.



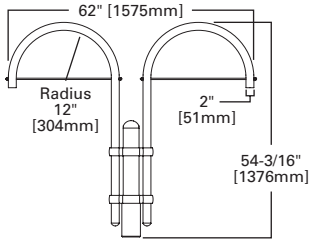
BISHOP SINGLE POLE MOUNT ARM
VA6105 (Modern), VA6154 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall tenon.
Weight: 24 lbs. E.P.A: 0.92



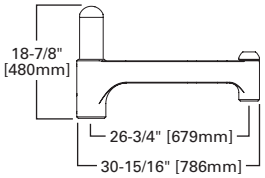
BISHOP SINGLE POLE MOUNT ARM WITH CROSS ROD
VA6106 (Modern), VA6155 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall tenon.
Weight: 25 lbs. E.P.A: 0.98



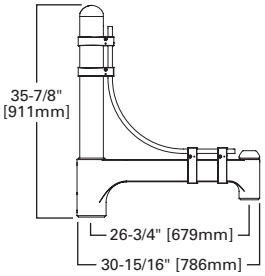
BISHOP TWIN POLE MOUNT ARM
VA6107 (Modern), VA6156 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall tenon.
Weight: 37 lbs. E.P.A: 1.43



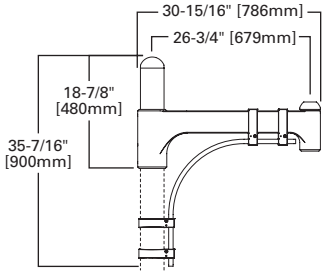
BISHOP TWIN POLE MOUNT ARM WITH CROSS RODS
VA6108 (Modern), VA6157 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall tenon.
Weight: 39 lbs. E.P.A: 1.55



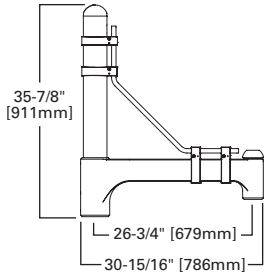
TRADITIONAL SINGLE POLE MOUNT ARM
VA6109 (Modern), VA6158 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall tenon.
Weight: 20 lbs. E.P.A: 0.86



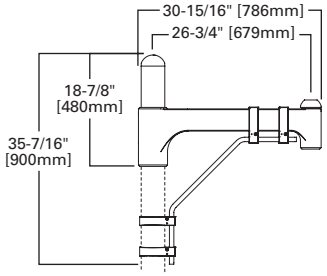
TRADITIONAL SINGLE POLE MOUNT ARM WITH ROUNDED UPPER BAR
VA6110 (Modern), VA6159 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall tenon.
Weight: 28 lbs. E.P.A: 1.4



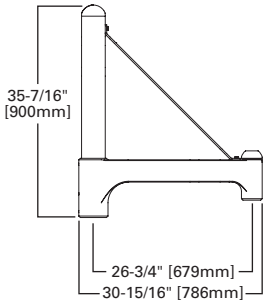
TRADITIONAL SINGLE POLE MOUNT ARM WITH ROUNDED LOWER BAR
VA6111 (Modern), VA6160 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall tenon.
Weight: 25 lbs. E.P.A: 1.16



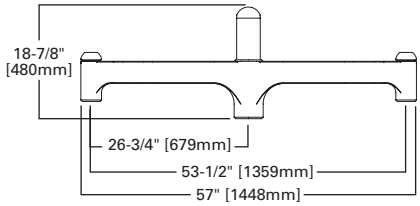
TRADITIONAL SINGLE POLE MOUNT ARM WITH 45° UPPER BAR
VA6112 (Modern), VA6161 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall tenon.
Weight: 28 lbs. E.P.A: 1.38



TRADITIONAL SINGLE POLE MOUNT ARM WITH 45° LOWER BAR
VA6113 (Modern), VA6162 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall tenon.
Weight: 24 lbs. E.P.A: 1.17

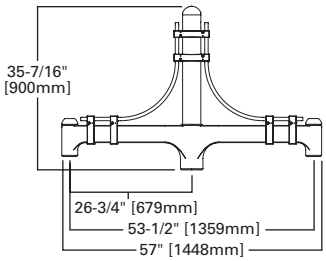


TRADITIONAL SINGLE POLE MOUNT ARM WITH 45° UPPER STRAP
VA6114 (Modern), VA6163 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall tenon.
Weight: 24 lbs. E.P.A: 1.17

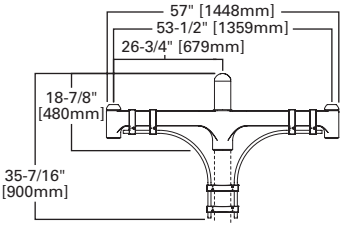


TRADITIONAL TWIN POLE MOUNT ARM
VA6116 (Modern), VA6165 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall tenon.
Weight: 30 lbs. E.P.A: 1.44

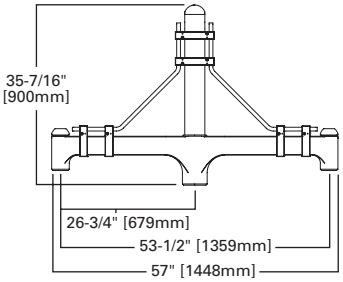
MOUNTING ACCESSORIES



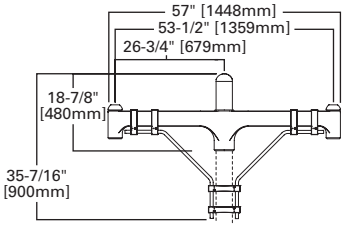
TRADITIONAL TWIN POLE MOUNT ARM WITH ROUNDED UPPER BARS
VA6117 (Modern), VA6166 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall tenon.
Weight: 43 lbs. E.P.A: 2.28



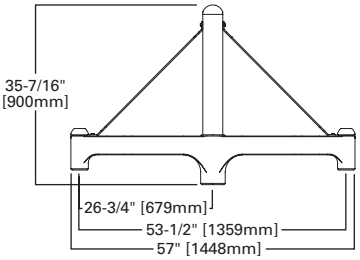
TRADITIONAL TWIN POLE MOUNT ARM WITH ROUNDED LOWER BARS
VA6118 (Modern), VA6167 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall tenon.
Weight: 40 lbs. E.P.A: 2.04



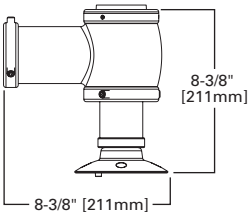
TRADITIONAL TWIN POLE MOUNT ARM WITH 45° UPPER BARS
VA6119 (Modern), VA6168 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall tenon.
Weight: 43 lbs. E.P.A: 2.24



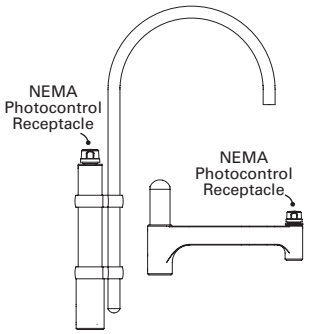
TRADITIONAL TWIN POLE MOUNT ARM WITH 45° LOWER BARS
VA6120 (Modern), VA6169 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall tenon.
Weight: 40 lbs. E.P.A: 2.0



TRADITIONAL TWIN POLE MOUNT ARM WITH 45° UPPER STRAPS
VA6121 (Modern), VA6170 (Classical)
Slipfits over 4" round straight pole, or 4" O.D. by 6" tall tenon.
Weight: 37 lbs. E.P.A: 1.81

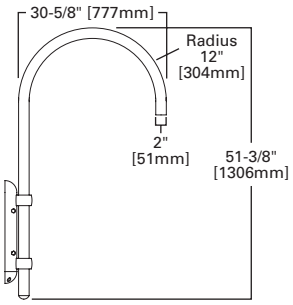


MAST ARM ADAPTER
VA6122 (Modern), VA6171 (Classical)
Secures fixture to nominal 2" pipe (2-3/8" horizontal O.D.)
Weight: 4 lbs.

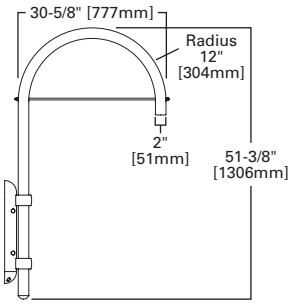


NEMA TWISTLOCK PHOTOCONTROL (R)
Order separately (Not compatible with finials or wall mount bishop arms)

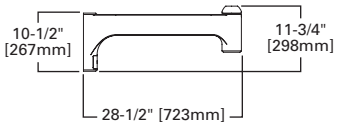
Wall Mount Accessories



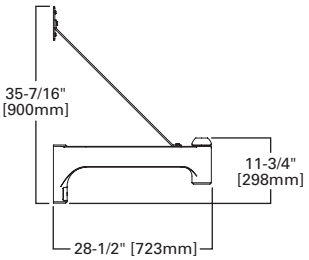
BISHOP WALL MOUNT ARM
VA6101 (Modern), VA6150 (Classical)
Mounts to wall with four stainless steel lag bolts (provided by other).
Weight: 16 lbs.



BISHOP WALL MOUNT ARM WITH CROSS ROD
VA6102 (Modern), VA6151 (Classical)
Mounts to wall with four stainless steel lag bolts (provided by other).
Weight: 17 lbs.



TRADITIONAL WALL MOUNT ARM
VA6103 (Modern), VA6152 (Classical)
Mounts to wall with four stainless steel lag bolts (provided by other).
Weight: 17 lbs.



TRADITIONAL WALL MOUNT ARM WITH 45° STRAP
VA6104 (Modern), VA6153 (Classical)
Mounts to wall with four stainless steel lag bolts (provided by other).
Weight: 18 lbs.

Streetworks

DESCRIPTION

The Galleon™ LED luminaire delivers exceptional performance in a highly scalable, low-profile design. Patented, high-efficiency AccuLED Optics™ system provides uniform and energy conscious illumination to walkways, parking lots, roadways, building areas and security lighting applications. IP66 rated and UL/cUL Listed for wet locations.

Catalog #		**Type** SL
Project		
Comments		**Date**
Prepared by		

SPECIFICATION FEATURES

Construction
Extruded aluminum driver enclosure thermally isolated from Light Squares for optimal thermal performance. Heavy-wall, die-cast aluminum end caps enclose housing and die-cast aluminum heat sinks. A unique, patent pending interlocking housing and heat sink provides scalability with superior structural rigidity. 3G vibration tested and rated. Optional tool-less hardware available for ease of entry into electrical chamber. Housing is IP66 rated.

Optics
Patented, high-efficiency injection-molded AccuLED Optics technology. Optics are precisely designed to shape the distribution maximizing efficiency and application spacing. AccuLED Optics create consistent distributions with the scalability to meet customized application requirements. Offered standard in 4000K (+/- 275K) CCT 70 CRI. Optional 3000K, 5000K and 6000K CCT.

Electrical
LED drivers are mounted to removable tray assembly for ease of maintenance. 120-277V 50/60Hz, 347V 60Hz or 480V 60Hz operation. 480V is compatible for use with 480V Wye systems only. Standard with 0-10V dimming. Shipped standard with Eaton proprietary circuit module designed to withstand 10kV of transient line surge. The Galleon LED luminaire is suitable for operation in -40°C to 40°C ambient environments. For applications with ambient temperatures exceeding 40°C, specify the HA (High Ambient) option. Light Squares are IP66 rated. Greater than 90% lumen maintenance expected at 60,000 hours. Available in standard 1A drive current and optional 600mA, 800mA and 1200mA drive currents (nominal).

Mounting
STANDARD ARM MOUNT: Extruded aluminum arm includes internal bolt guides allowing for easy positioning of fixture during mounting. When mounting two or more luminaires at 90° and 120° apart, the EA extended arm may be required. Refer to the arm mounting requirement table. Round pole adapter included. For wall mounting, specify wall mount bracket option. QUICK MOUNT ARM: Adapter is bolted directly to the pole. Quick mount arm slide into place on the adapter and is secured via two screws, facilitating quick and easy installation. The versatile, patent pending, quick mount arm accommodates multiple drill patterns ranging from 1-1/2" to 4-7/8". Removal of the door on the quick mount arm enables wiring of the fixture without having to access the driver compartment. A knock-out enables round pole mounting.

Finish
Housing finished in super durable TGIC polyester powder coat paint, 2.5 mil nominal thickness for superior protection against fade and wear. Heat sink is powder coated black. Standard housing colors include black, bronze, grey, white, dark platinum and graphite metallic. RAL and custom color matches available.

Warranty
Standard five-year warranty. Optional ten-year warranty, please see your Eaton Streetworks sales representative for more information.



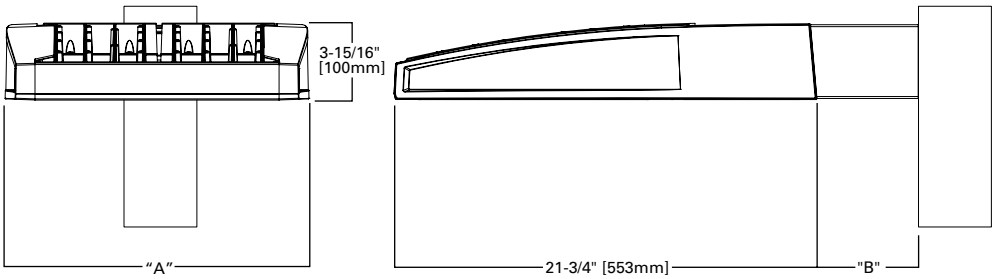
GAN
GALLEON LED

1-10 Light Squares
Solid State LED

AREA / ROADWAY LUMINAIRE

LumenSafe Technology
CLICK HERE

DIMENSIONS



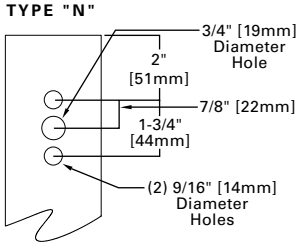
DIMENSION DATA

Number of Light Squares	"A" Width	"B" Standard Arm Length	"B" Optional Arm Length [1]	Weight with Arm (lbs.)	EPA with Arm [2] (Sq. Ft.)
1-4	15-1/2" (394mm)	7" (178mm)	10" (254mm)	33 (15.0 kgs.)	0.96
5-6	21-5/8" (549mm)	7" (178mm)	10" (254mm)	44 (20.0 kgs.)	1.00
7-8	27-5/8" (702mm)	7" (178mm)	13" (330mm)	54 (24.5 kgs.)	1.07
9-10	33-3/4" (857mm)	7" (178mm)	16" (406mm)	63 (28.6 kgs.)	1.12

NOTES: 1. Optional arm length to be used when mounting two fixtures at 90° on a single pole. **2.** EPA calculated with optional arm length.

DRILLING PATTERN

TYPE "N"



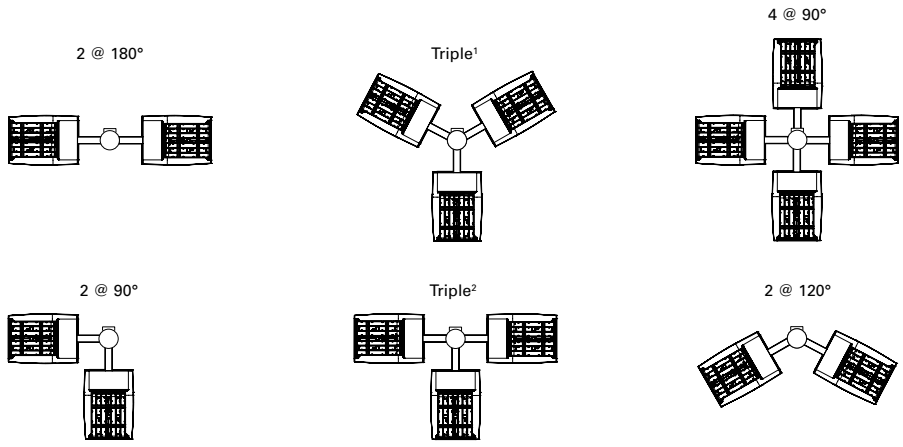
CERTIFICATION DATA
UL/cUL Wet Location Listed
ISO 9001
LM79 / LM80 Compliant
3G Vibration Rated
IP66 Rated
DesignLights Consortium® Qualified*

ENERGY DATA
Electronic LED Driver
>0.9 Power Factor
<20% Total Harmonic Distortion
120V-277V 50/60Hz
347V & 480V 60Hz
-40°C Min. Temperature
40°C Max. Temperature
50°C Max. Temperature (HA Option)

*www.designlights.org

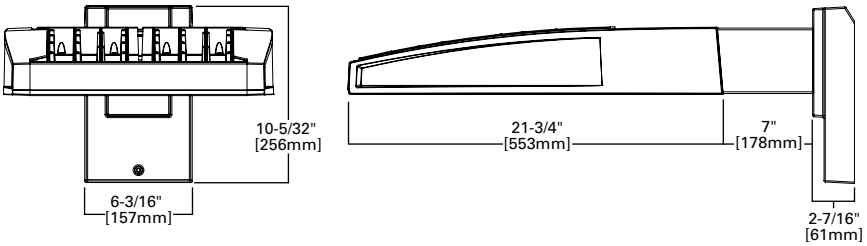
STANDARD ARM MOUNTING REQUIREMENTS

Configuration	90° Apart	120° Apart
GAN-AF-01	7" Arm (Standard)	7" Arm (Standard)
GAN-AF-02	7" Arm (Standard)	7" Arm (Standard)
GAN-AF-03	7" Arm (Standard)	7" Arm (Standard)
GAN-AF-04	7" Arm (Standard)	7" Arm (Standard)
GAN-AF-05	10" Extended Arm (Required)	7" Arm (Standard)
GAN-AF-06	10" Extended Arm (Required)	7" Arm (Standard)
GAN-AF-07	13" Extended Arm (Required)	13" Extended Arm (Required)
GAN-AF-08	13" Extended Arm (Required)	13" Extended Arm (Required)
GAN-AF-09	16" Extended Arm (Required)	16" Extended Arm (Required)
GAN-AF-10	16" Extended Arm (Required)	16" Extended Arm (Required)

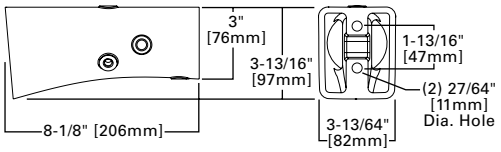


NOTES: 1 Round poles are 3 @ 120°. Square poles are 3 @ 90°. **2** Round poles are 3 @ 90°.

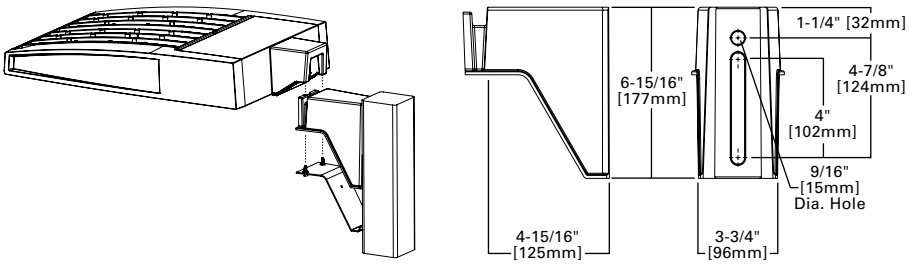
STANDARD WALL MOUNT



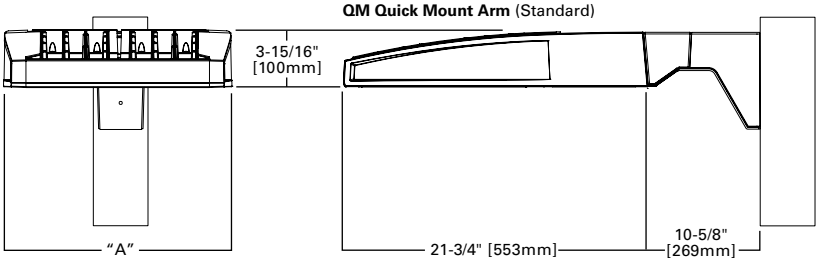
MAST ARM MOUNT



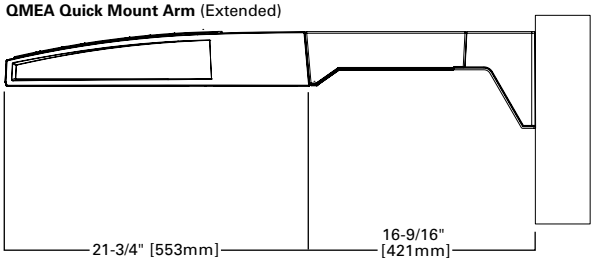
QUICK MOUNT ARM (INCLUDES FIXTURE ADAPTER)



QM Quick Mount Arm (Standard)



QMEA Quick Mount Arm (Extended)

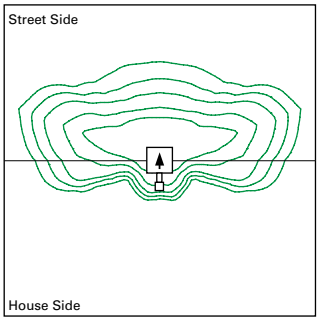


QUICK MOUNT ARM DATA

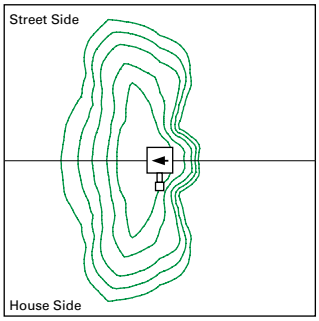
Number of Light Squares [1, 2]	**"A" Width**	**Weight with QM Arm** (lbs.)	**Weight with QMEA Arm** (lbs.)	**EPA** (Sq. Ft.)
1-4	15-1/2" (394mm)	35 (15.91 kgs.)	38 (17.27 kgs.)	1.11
5-6 [3]	21-5/8" (549mm)	46 (20.91 kgs.)	49 (22.27 kgs.)	
7-8	27-5/8" (702mm)	56 (25.45 kgs.)	59 (26.82 kgs.)	

NOTES: 1 QM option available with 1-8 light square configurations. **2** QMEA option available with 1-6 light square configurations. **3** QMEA arm to be used when mounting two fixtures at 90° on a single pole.

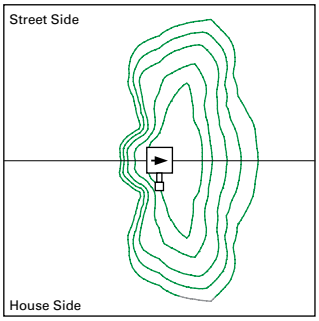
OPTIC ORIENTATION



Standard



Optics Rotated Left @ 90° [L90]

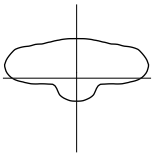


Optics Rotated Right @ 90° [R90]

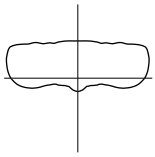
OPTICAL DISTRIBUTIONS

Asymmetric Area Distributions

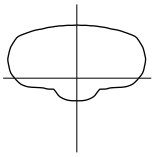
T2
(Type II)



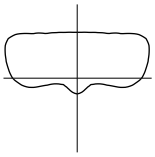
SL2
(Type II with Spill Control)



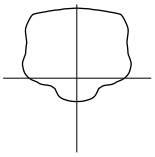
T3
(Type III)



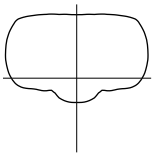
SL3
(Type III with Spill Control)



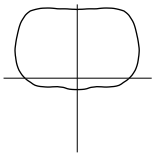
T4FT
(Type IV Forward Throw)



T4W
(Type IV Wide)

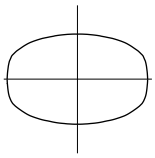


SL4
(Type IV with Spill Control)

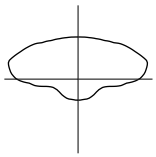


Asymmetric Roadway Distributions

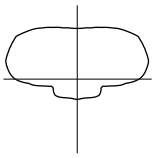
RW
(Rectangular Wide Type I)



T2R
(Type II Roadway)

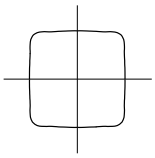


T3R
(Type III Roadway)

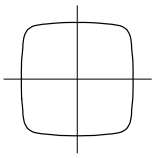


Symmertric Distributions

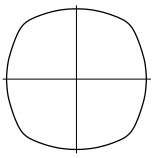
5NQ
(Type V Square Narrow)



5MQ
(Type V Square Medium)

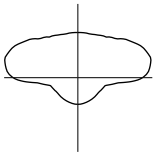


5WQ
(Type V Square Wide)

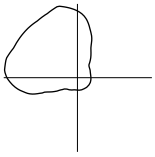


Specialized Distributions

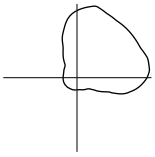
AFL
(Automotive Frontline)



SLL
(90° Spill Light Eliminator Left)

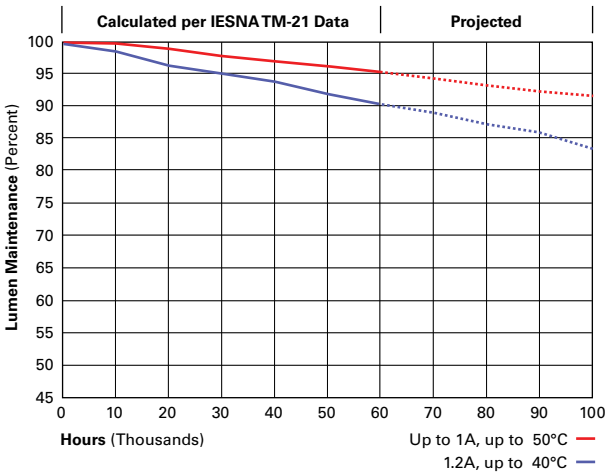


SLR
(90° Spill Light Eliminator Right)



LUMEN MAINTENANCE

Drive Current	Ambient Temperature	TM-21 Lumen Maintenance (60,000 Hours)	Projected L70 (Hours)
Up to 1A	Up to 50°C	> 95%	416,000
1.2A	Up to 40°C	> 90%	205,000



LUMEN MULTIPLIER

Ambient Temperature	Lumen Multiplier
0°C	1.02
10°C	1.01
25°C	1.00
40°C	0.99
50°C	0.97

NOMINAL POWER LUMENS (1.2A)

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		67	129	191	258	320	382	448	511	575	640
Input Current @ 120V (A)		0.58	1.16	1.78	2.31	2.94	3.56	4.09	4.71	5.34	5.87
Input Current @ 208V (A)		0.33	0.63	0.93	1.27	1.57	1.87	2.22	2.52	2.80	3.14
Input Current @ 240V (A)		0.29	0.55	0.80	1.10	1.35	1.61	1.93	2.18	2.41	2.71
Input Current @ 277V (A)		0.25	0.48	0.70	0.96	1.18	1.39	1.69	1.90	2.09	2.36
Input Current @ 347V (A)		0.20	0.39	0.57	0.78	0.96	1.15	1.36	1.54	1.72	1.92
Input Current @ 480V (A)		0.15	0.30	0.43	0.60	0.73	0.85	1.03	1.16	1.28	1.45
Optics											
T2	4000K/5000K Lumens	6,863	13,412	20,011	26,441	32,761	39,205	46,364	52,534	58,601	64,880
	3000K Lumens	6,489	12,681	18,919	25,000	30,974	37,066	43,836	49,668	55,405	61,341
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
T2R	4000K/5000K Lumens	7,285	14,238	21,246	28,072	34,780	41,621	49,221	55,770	62,212	68,878
	3000K Lumens	6,888	13,462	20,087	26,541	32,884	39,351	46,537	52,729	58,819	65,122
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5
T3	4000K/5000K Lumens	6,995	13,670	20,397	26,951	33,391	39,959	47,256	53,544	59,728	66,130
	3000K Lumens	6,613	12,924	19,284	25,480	31,570	37,780	44,679	50,624	56,471	62,524
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
T3R	4000K/5000K Lumens	7,150	13,973	20,850	27,549	34,134	40,846	48,307	54,734	61,056	67,598
	3000K Lumens	6,761	13,212	19,713	26,046	32,272	38,619	45,673	51,750	57,726	63,911
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
T4FT	4000K/5000K Lumens	7,036	13,748	20,515	27,107	33,586	40,191	47,530	53,854	60,074	66,512
	3000K Lumens	6,652	12,999	19,397	25,629	31,754	37,999	44,938	50,917	56,797	62,885
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
T4W	4000K/5000K Lumens	6,945	13,571	20,249	26,756	33,152	39,671	46,917	53,160	59,298	65,653
	3000K Lumens	6,566	12,831	19,146	25,297	31,344	37,508	44,358	50,260	56,064	62,072
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
SL2	4000K/5000K Lumens	6,851	13,388	19,977	26,396	32,704	39,137	46,283	52,444	58,498	64,768
	3000K Lumens	6,477	12,658	18,888	24,957	30,920	37,003	43,759	49,584	55,308	61,235
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
SL3	4000K/5000K Lumens	6,994	13,668	20,394	26,947	33,388	39,953	47,249	53,537	59,720	66,119
	3000K Lumens	6,612	12,922	19,281	25,477	31,567	37,774	44,673	50,618	56,463	62,514
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
SL4	4000K/5000K Lumens	6,645	12,986	19,378	25,603	31,723	37,962	44,893	50,868	56,743	62,824
	3000K Lumens	6,282	12,279	18,321	24,207	29,993	35,892	42,445	48,094	53,648	59,398
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G4	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
5NQ	4000K/5000K Lumens	7,214	14,097	21,036	27,795	34,437	41,210	48,734	55,220	61,597	68,199
	3000K Lumens	6,820	13,329	19,888	26,279	32,558	38,962	46,077	52,208	58,237	64,479
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
5MQ	4000K/5000K Lumens	7,347	14,356	21,423	28,306	35,071	41,969	49,632	56,237	62,730	69,454
	3000K Lumens	6,947	13,573	20,254	26,762	33,158	39,680	46,925	53,170	59,309	65,667
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5
5WQ	4000K/5000K Lumens	7,366	14,396	21,480	28,381	35,164	42,080	49,765	56,386	62,898	69,639
	3000K Lumens	6,964	13,610	20,308	26,833	33,247	39,786	47,050	53,311	59,468	65,842
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
SLL/SLR	4000K/5000K Lumens	6,147	12,010	17,921	23,679	29,339	35,109	41,521	47,046	52,478	58,102
	3000K Lumens	5,811	11,355	16,944	22,388	27,739	33,194	39,256	44,479	49,617	54,933
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
RW	4000K/5000K Lumens	7,149	13,970	20,846	27,543	34,126	40,837	48,295	54,722	61,042	67,582
	3000K Lumens	6,760	13,208	19,709	26,041	32,264	38,610	45,661	51,738	57,713	63,897
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4
AFL	4000K/5000K Lumens	7,175	14,021	20,921	27,643	34,249	40,986	48,470	54,920	61,262	67,828
	3000K Lumens	6,784	13,256	19,780	26,136	32,381	38,750	45,827	51,925	57,922	64,129
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4

* Nominal data for 70 CRI.

NOMINAL POWER LUMENS (1A)

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		59	113	166	225	279	333	391	445	501	558
Input Current @ 120V (A)		0.51	1.02	1.53	2.03	2.55	3.06	3.56	4.08	4.60	5.07
Input Current @ 208V (A)		0.29	0.56	0.82	1.11	1.37	1.64	1.93	2.19	2.46	2.75
Input Current @ 240V (A)		0.26	0.48	0.71	0.96	1.19	0.41	1.67	1.89	2.12	2.39
Input Current @ 277V (A)		0.23	0.42	0.61	0.83	1.03	1.23	1.45	1.65	1.84	2.09
Input Current @ 347V (A)		0.17	0.32	0.50	0.64	0.82	1.00	1.14	1.32	1.50	1.68
Input Current @ 480V (A)		0.14	0.24	0.37	0.48	0.61	0.75	0.91	0.99	1.12	1.28
Optics											
T2	4000K/5000K Lumens	6,256	12,225	18,242	24,104	29,865	35,739	42,265	47,888	53,420	59,144
	3000K Lumens	5,915	11,559	17,248	22,789	28,236	33,790	39,960	45,277	50,506	55,919
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
T2R	4000K/5000K Lumens	6,642	12,979	19,366	25,589	31,705	37,941	44,870	50,840	56,711	62,789
	3000K Lumens	6,280	12,271	18,311	24,193	29,976	35,872	42,423	48,068	53,619	59,365
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5
T3	4000K/5000K Lumens	6,377	12,461	18,593	24,568	30,439	36,426	43,077	48,810	54,447	60,282
	3000K Lumens	--	--	--	--	--	--	--	--	--	--
	BUG Rating	B1-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
T3R	4000K/5000K Lumens	6,518	12,739	19,006	25,113	31,116	37,235	44,036	49,895	55,658	61,622
	3000K Lumens	6,029	11,781	17,579	23,229	28,779	34,440	40,729	46,148	51,478	56,995
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
T4FT	4000K/5000K Lumens	6,414	12,533	18,702	24,710	30,616	36,637	43,328	49,093	54,763	60,631
	3000K Lumens	6,064	11,849	17,681	23,363	28,946	34,638	40,966	46,417	51,776	57,325
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
T4W	4000K/5000K Lumens	6,331	12,372	18,459	24,391	30,221	36,163	42,769	48,459	54,056	59,849
	3000K Lumens	5,986	11,697	17,452	23,061	28,572	34,192	40,436	45,817	51,108	56,585
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
SL2	4000K/5000K Lumens	6,245	12,205	18,212	24,062	29,813	35,677	42,192	47,807	53,326	59,042
	3000K Lumens	5,904	11,539	17,218	22,750	28,187	33,732	39,891	45,199	50,418	55,822
	BUG Rating	B1-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5	B4-U0-G5
SL3	4000K/5000K Lumens	6,376	12,460	18,591	24,564	30,436	36,421	43,072	48,803	54,439	60,273
	3000K Lumens	6,028	11,780	17,578	23,224	28,776	34,435	40,723	46,141	51,471	56,986
	BUG Rating	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
SL4	4000K/5000K Lumens	6,058	11,838	17,664	23,340	28,918	34,605	40,924	46,370	51,727	57,269
	3000K Lumens	5,727	11,193	16,701	22,067	27,341	32,718	38,692	43,841	48,906	54,146
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G4	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
5NQ	4000K/5000K Lumens	6,577	12,851	19,176	25,336	31,392	37,566	44,426	50,337	56,151	62,170
	3000K Lumens	6,218	12,151	18,131	23,955	29,680	35,517	42,003	47,592	53,089	58,779
	BUG Rating	B2-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4
5MQ	4000K/5000K Lumens	6,697	13,088	19,528	25,803	31,970	38,258	45,243	51,264	57,185	63,313
	3000K Lumens	6,332	12,374	18,463	24,395	30,227	36,171	42,776	48,468	54,066	59,861
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5
5WQ	4000K/5000K Lumens	6,715	13,122	19,580	25,871	32,055	38,360	45,365	51,401	57,337	63,482
	3000K Lumens	6,348	12,406	18,513	24,461	30,307	36,268	42,891	48,599	54,210	60,021
	BUG Rating	B3-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5	B5-U0-G5	B5-U0-G5
SLL/SLR	4000K/5000K Lumens	5,604	10,949	16,337	21,586	26,745	32,004	37,850	42,886	47,838	52,965
	3000K Lumens	5,298	10,351	15,446	20,409	25,287	30,258	35,786	40,547	45,229	50,077
	BUG Rating	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
RW	4000K/5000K Lumens	6,517	12,735	19,002	25,107	31,109	37,227	44,025	49,883	55,644	61,607
	3000K Lumens	6,162	12,040	17,965	23,738	29,413	35,197	41,623	47,163	52,609	58,247
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
AFL	4000K/5000K Lumens	6,541	12,781	19,072	25,199	31,221	37,362	44,185	50,065	55,846	61,831
	3000K Lumens	6,184	12,084	18,032	23,825	29,519	35,325	41,775	47,334	52,801	58,459
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B4-U0-G4	B4-U0-G4

* Nominal data for 70 CRI.

NOMINAL POWER LUMENS (800MA)

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		44	85	124	171	210	249	295	334	374	419
Input Current @ 120V (A)		0.39	0.77	1.13	1.54	1.90	2.26	2.67	3.03	3.39	3.80
Input Current @ 208V (A)		0.22	0.44	0.62	0.88	1.06	1.24	1.50	1.68	1.87	2.12
Input Current @ 240V (A)		0.19	0.38	0.54	0.76	0.92	1.08	1.30	1.46	1.62	1.84
Input Current @ 277V (A)		0.17	0.36	0.47	0.72	0.83	0.95	1.19	1.31	1.42	1.67
Input Current @ 347V (A)		0.15	0.24	0.38	0.49	0.63	0.77	0.87	1.01	1.15	1.52
Input Current @ 480V (A)		0.11	0.18	0.29	0.37	0.48	0.59	0.66	0.77	0.88	0.96
Optics											
T2	4000K/5000K Lumens	5,054	9,878	14,739	19,475	24,129	28,875	34,148	38,691	43,159	47,785
	3000K Lumens	4,779	9,338	13,935	18,412	22,813	27,301	32,286	36,581	40,805	45,179
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B4-U0-G5	B4-U0-G5
T2R	4000K/5000K Lumens	5,366	10,486	15,647	20,675	25,616	30,654	36,252	41,076	45,819	50,730
	3000K Lumens	5,074	9,914	14,794	19,548	24,218	28,982	34,276	38,835	43,320	47,964
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5
T3	4000K/5000K Lumens	5,153	10,068	15,022	19,849	24,593	29,430	34,805	39,436	43,990	48,705
	3000K Lumens	4,872	9,519	14,203	18,766	23,251	27,825	32,907	37,285	41,591	46,048
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B4-U0-G5	B4-U0-G5
T3R	4000K/5000K Lumens	5,266	10,292	15,356	20,290	25,140	30,084	35,578	40,312	44,968	49,786
	3000K Lumens	4,979	9,731	14,518	19,184	23,769	28,443	33,638	38,114	42,516	47,071
	BUG Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
T4FT	4000K/5000K Lumens	5,182	10,126	15,109	19,964	24,736	29,600	35,006	39,664	44,245	48,987
	3000K Lumens	4,899	9,574	14,285	18,876	23,387	27,986	33,097	37,501	41,832	46,315
	BUG Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
T4W	4000K/5000K Lumens	5,115	9,995	14,914	19,706	24,417	29,218	34,554	39,152	43,674	48,354
	3000K Lumens	4,836	9,450	14,100	18,631	23,085	27,624	32,670	37,017	41,292	45,717
	BUG Rating	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5	B4-U0-G5
SL2	4000K/5000K Lumens	5,046	9,860	14,713	19,441	24,087	28,825	34,089	38,625	43,085	47,702
	3000K Lumens	4,771	9,322	13,911	18,381	22,774	27,253	32,229	36,518	40,735	45,101
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B4-U0-G5
SL3	4000K/5000K Lumens	5,152	10,067	15,020	19,846	24,591	29,426	34,800	39,431	43,984	48,698
	3000K Lumens	4,871	9,518	14,200	18,764	23,249	27,822	32,902	37,280	41,585	46,042
	BUG Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
SL4	4000K/5000K Lumens	4,894	9,565	14,271	18,857	23,364	27,959	33,065	37,465	41,792	46,270
	3000K Lumens	4,627	9,043	13,492	17,829	22,090	26,434	31,261	35,422	39,513	43,746
	BUG Rating	B1-U0-G2	B1-U0-G3	B1-U0-G3	B2-U0-G4	B2-U0-G4	B2-U0-G4	B2-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
5NQ	4000K/5000K Lumens	5,313	10,383	15,493	20,470	25,363	30,351	35,893	40,669	45,367	50,229
	3000K Lumens	5,024	9,817	14,647	19,354	23,980	28,696	33,936	38,452	42,893	47,490
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G3
5MQ	4000K/5000K Lumens	5,411	10,574	15,778	20,848	25,830	30,911	36,554	41,418	46,202	51,154
	3000K Lumens	5,117	9,997	14,917	19,710	24,421	29,225	34,561	39,160	43,682	48,364
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4
5WQ	4000K/5000K Lumens	5,426	10,603	15,820	20,903	25,899	30,992	36,652	41,529	46,325	51,290
	3000K Lumens	5,130	10,025	14,958	19,763	24,486	29,302	34,654	39,263	43,799	48,493
	BUG Rating	B3-U0-G1	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G5	B5-U0-G5
SLL/SLR	4000K/5000K Lumens	4,528	8,846	13,199	17,440	21,609	25,858	30,580	34,649	38,651	42,792
	3000K Lumens	4,281	8,364	12,480	16,489	20,430	24,448	28,912	32,759	36,543	40,459
	BUG Rating	B1-U0-G2	B1-U0-G2	B2-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5	B3-U0-G5
RW	4000K/5000K Lumens	5,265	10,289	15,353	20,285	25,134	30,077	35,569	40,303	44,958	49,775
	3000K Lumens	4,978	9,727	14,516	19,179	23,763	28,437	33,629	38,105	42,506	47,060
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3	B5-U0-G4
AFL	4000K/5000K Lumens	5,285	10,327	15,409	20,360	25,225	30,186	35,699	40,450	45,120	49,956
	3000K Lumens	4,996	9,763	14,569	19,249	23,849	28,540	33,752	38,244	42,659	47,232
	BUG Rating	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3

* Nominal data for 70 CRI.

NOMINAL POWER LUMENS (600MA)

Number of Light Squares		1	2	3	4	5	6	7	8	9	10
Nominal Power (Watts)		34	66	96	129	162	193	226	257	290	323
Input Current @ 120V (A)		0.30	0.58	0.86	1.16	1.44	1.73	2.03	2.33	2.59	2.89
Input Current @ 208V (A)		0.17	0.34	0.49	0.65	0.84	0.99	1.14	1.30	1.48	1.63
Input Current @ 240V (A)		0.15	0.30	0.43	0.56	0.74	0.87	1.00	1.13	1.30	1.43
Input Current @ 277V (A)		0.14	0.28	0.41	0.52	0.69	0.81	0.93	1.04	1.22	1.33
Input Current @ 347V (A)		0.11	0.19	0.30	0.39	0.49	0.60	0.69	0.77	0.90	0.99
Input Current @ 480V (A)		0.08	0.15	0.24	0.30	0.38	0.48	0.53	0.59	0.71	0.77
Optics											
T2	4000K/5000K Lumens	4,121	8,055	12,019	15,881	19,676	23,547	27,847	31,552	35,196	38,967
	3000K Lumens	3,896	7,615	11,363	15,015	18,604	22,263	26,328	29,831	33,276	36,842
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G4
T2R	4000K/5000K Lumens	4,376	8,552	12,760	16,860	20,890	24,998	29,563	33,497	37,365	41,369
	3000K Lumens	4,138	8,085	12,064	15,941	19,751	23,635	27,951	31,670	35,328	39,113
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4
T3	4000K/5000K Lumens	4,201	8,210	12,251	16,187	20,055	23,999	28,383	32,159	35,873	39,718
	3000K Lumens	3,973	7,763	11,583	15,304	18,961	22,691	26,835	30,406	33,916	37,552
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5
T3R	4000K/5000K Lumens	4,294	8,393	12,523	16,546	20,501	24,532	29,014	32,875	36,671	40,600
	3000K Lumens	4,060	7,936	11,840	15,644	19,383	23,195	27,432	31,082	34,671	38,386
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
T4FT	4000K/5000K Lumens	4,226	8,257	12,321	16,280	20,172	24,139	28,547	32,346	36,082	39,948
	3000K Lumens	3,996	7,807	11,649	15,392	19,071	22,822	26,990	30,582	34,114	37,770
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G2	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5
T4W	4000K/5000K Lumens	4,171	8,151	12,162	16,071	19,912	23,827	28,178	31,928	35,615	39,432
	3000K Lumens	3,943	7,706	11,498	15,194	18,825	22,527	26,642	30,187	33,673	37,281
	BUG Rating	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5	B3-U0-G5
SL2	4000K/5000K Lumens	4,114	8,041	11,998	15,854	19,643	23,506	27,799	31,498	35,135	38,901
	3000K Lumens	3,890	7,603	11,344	14,989	18,572	22,224	26,282	29,780	33,219	36,779
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G3	B2-U0-G3	B3-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5
SL3	4000K/5000K Lumens	4,200	8,209	12,249	16,184	20,053	23,996	28,379	32,154	35,869	39,712
	3000K Lumens	3,972	7,762	11,580	15,302	18,960	22,688	26,831	30,400	33,913	37,546
	BUG Rating	B1-U0-G1	B1-U0-G2	B2-U0-G3	B2-U0-G3	B2-U0-G3	B3-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
SL4	4000K/5000K Lumens	3,992	7,799	11,638	15,378	19,053	22,801	26,964	30,552	34,081	37,733
	3000K Lumens	3,774	7,374	11,003	14,539	18,015	21,557	25,493	28,886	32,222	35,674
	BUG Rating	B1-U0-G2	B1-U0-G2	B1-U0-G3	B1-U0-G3	B2-U0-G4	B2-U0-G4	B2-U0-G4	B2-U0-G5	B2-U0-G5	B3-U0-G5
5NQ	4000K/5000K Lumens	4,333	8,467	12,634	16,694	20,683	24,751	29,271	33,166	36,996	40,961
	3000K Lumens	4,097	8,005	11,945	15,784	19,555	23,401	27,674	31,357	34,978	38,727
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G2	B5-U0-G3	B5-U0-G3
5MQ	4000K/5000K Lumens	4,413	8,622	12,867	17,000	21,064	25,207	29,810	33,777	37,677	41,715
	3000K Lumens	4,173	8,152	12,165	16,073	19,915	23,832	28,185	31,934	35,623	39,440
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4
5WQ	4000K/5000K Lumens	4,424	8,646	12,900	17,046	21,120	25,274	29,890	33,866	37,778	41,826
	3000K Lumens	4,182	8,175	12,197	16,117	19,968	23,896	28,260	32,018	35,717	39,545
	BUG Rating	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G4	B5-U0-G4	B5-U0-G4	B5-U0-G4
SLL/SLR	4000K/5000K Lumens	3,692	7,214	10,763	14,222	17,621	21,086	24,937	28,256	31,519	34,897
	3000K Lumens	3,491	6,820	10,176	13,447	16,660	19,937	23,577	26,715	29,800	32,994
	BUG Rating	B1-U0-G1	B1-U0-G2	B1-U0-G3	B2-U0-G3	B2-U0-G3	B2-U0-G4	B3-U0-G4	B3-U0-G4	B3-U0-G5	B3-U0-G5
RW	4000K/5000K Lumens	4,293	8,390	12,520	16,542	20,496	24,527	29,007	32,866	36,662	40,591
	3000K Lumens	4,059	7,932	11,837	15,640	19,378	23,189	27,425	31,074	34,662	38,377
	BUG Rating	B2-U0-G1	B3-U0-G1	B3-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B4-U0-G2	B5-U0-G3	B5-U0-G3	B5-U0-G3
AFL	4000K/5000K Lumens	4,310	8,421	12,566	16,602	20,571	24,616	29,112	32,986	36,795	40,738
	3000K Lumens	4,074	7,962	11,881	15,697	19,448	23,273	27,525	31,187	34,788	38,516
	BUG Rating	B1-U0-G1	B1-U0-G1	B2-U0-G2	B2-U0-G2	B2-U0-G2	B3-U0-G2	B3-U0-G3	B3-U0-G3	B3-U0-G3	B3-U0-G3

* Nominal data for 70 CRI.

CONTROL OPTIONS

0-10V (DIM)
This fixture is offered standard with 0-10V dimming driver(s). The DIM option provides 0-10V dimming wire leads for use with a lighting control panel or other control method.

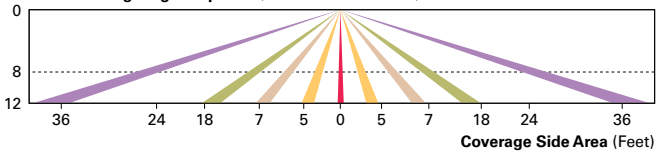
Photocontrol (P, 4 and 4N7)
Optional button-type photocontrol (P) and photocontrol receptacles (4 and 4N7) provide a flexible solution to enable "dusk-to-dawn" lighting by sensing light levels. Advanced control systems compatible with NEMA 7-pin standards can be utilized with the 4N7 receptacle.

After Hours Dim (AHD)
This feature allows photocontrol-enabled luminaires to achieve additional energy savings by dimming during scheduled portions of the night. The dimming profile will automatically take effect after a "dusk-to-dawn" period has been calculated from the photocontrol input. Specify the desired dimming profile for a simple, factory-shipped dimming solution requiring no external control wiring. Reference the After Hours Dim supplemental guide for additional information.

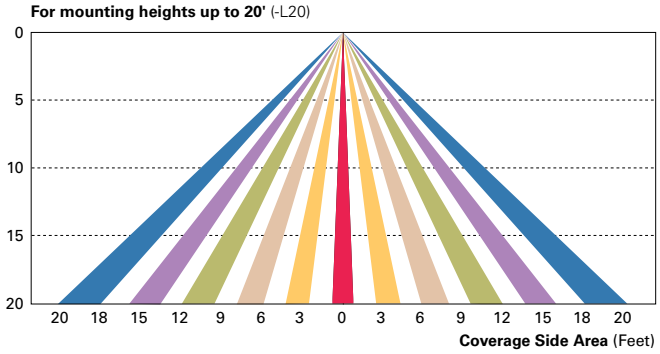
Dimming Occupancy Sensor (MS/DIM-LXX, MS/X-LXX and MS-LXX)
These sensors are factory installed in the luminaire housing. When the MS/DIM-LXX sensor option is selected, the occupancy sensor is connected to a dimming driver and the entire luminaire dims when there is no activity detected. When activity is detected, the luminaire returns to full light output. The MS/DIM sensor is factory preset to dim down to approximately 50 percent power with a time delay of five minutes. The MS-LXX sensor is factory preset to turn the luminaire off after five minutes of no activity. The MS/X-LXX is also preset for five minutes and only controls the specified number of light engines to maintain steady output from the remaining light engines.

These occupancy sensors includes an integral photocell that can be activated with the FSIR-100 accessory for "dusk-to-dawn" control or daylight harvesting - the factory preset is OFF. The FSIR-100 is a wireless tool utilized for changing the dimming level, time delay, sensitivity and other parameters. A variety of sensor lens are available to optimize the coverage pattern for mounting heights from 8'-40'.

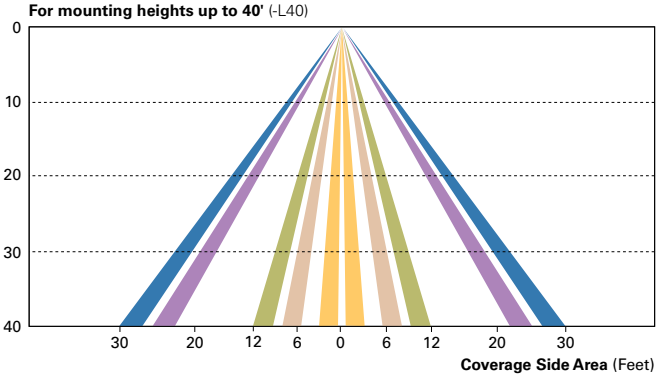
For mounting heights up to 8' (-L08 - Cutoff 8' to 24')



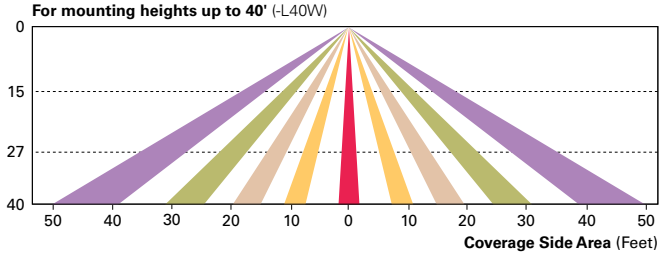
For mounting heights up to 20' (-L20)



For mounting heights up to 40' (-L40)

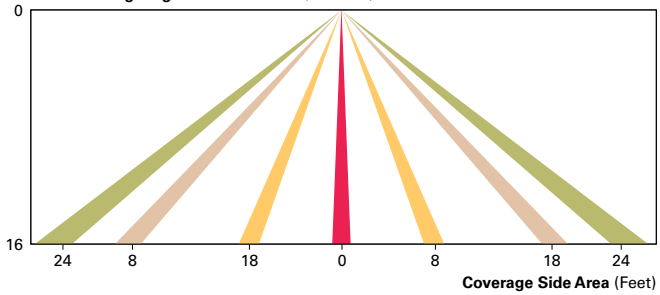


For mounting heights up to 40' (-L40W)

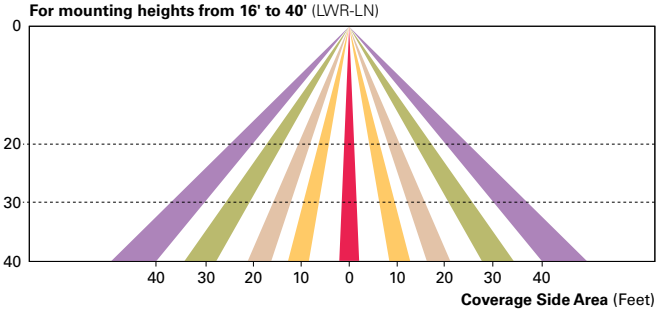


LumaWatt Pro Wireless Control and Monitoring System (LWR-LW and LWR-LN)
The LumaWatt Pro system is a peer-to-peer wireless network of luminaire-integral sensors for any sized project. Each sensor is capable of motion and photo sensing, metering power consumption and wireless communication. The end-user can securely create and manage sensor profiles with browser-based management software. The software will automatically broadcast to the sensors via wireless gateways for zone-based and individual luminaire control. The LumaWatt Pro software provides smart building solutions by utilizing the sensor to provide easy-to-use dashboard and analytic capabilities such as improved energy savings, traffic flow analysis, building management software integration and more. For additional details, refer to the LumaWatt product guides.

For mounting heights from 8' to 16' (LWR-LW)



For mounting heights from 16' to 40' (LWR-LN)



LumenSafe Integrated Network Security Camera (LD)
Eaton brings ease of camera deployment to a whole new level. No additional wiring is needed beyond providing line power to the luminaire. A variety of networking options allows security integrators to design the optimal solution for active surveillance. As the ideal solution to meet the needs for active surveillance, the LumenSafe integrated network camera is a streamlined, outdoor-ready fixed dome that provides HDTV 1080p video. This IP camera is optimally designed for deployment in the video management system or security software platform of choice.

ORDERING INFORMATION

Sample Number: GAN-AF-04-LED-U-T3R-BZ

Product Family [1, 2]	Light Engine	Number of Light Squares [3]	Lamp Type	Voltage	Distribution	Color	Mounting
GAN=Galleon	**AF**=1A Drive Current	**01**=1 **02**=2 **03**=3 **04**=4 **05**=5 [4] **06**=6 **07**=7 [5] **08**=8 [5] **09**=9 [6] **10**=10 [6]	**LED**=Solid State Light Emitting Diodes	**U**=Universal (120-277V) **8**=480V [7, 8] **9**=347V [7]	**T2**=Type II **T2R**=Type II Roadway **T3**=Type III **T3R**=Type III Roadway **T4FT**=Type IV Forward Throw **T4W**=Type IV Wide **5NQ**=Type V Narrow **5MQ**=Type V Square Medium **5WQ**=Type V Square Wide **SL2**=Type II w/Spill Control **SL3**=Type III w/Spill Control **SL4**=Type IV w/Spill Control **SLL**=90° Spill Light Eliminator Left **SLR**=90° Spill Light Eliminator Right **RW**=Rectangular Wide Type I **AFL**=Automotive Frontline	**AP**=Grey **BZ**=Bronze **BK**=Black **DP**=Dark Platinum **GM**=Graphite Metallic **WH**=White	**[Blank]**=Arm for Round or Square Pole **EA**=Extended Arm [9] **MA**=Mast Arm Adapter [10] **WM**=Wall Mount **QM**=Quick Mount Arm (Standard Length) [11] **QMEA**=Quick Mount Arm (Extended Length) [12]

Options (Add as Suffix)

7027=70 CRI 2700K [13]
7030=70 CRI 3000K [13]
7050=70 CRI 5000K [13]
7060=70 CRI 6000K [13]
8030=80 CRI 3000K [13]
600=Drive Current Factory Set to 600mA [14]
800=Drive Current Factory Set to 800mA [14]
1200=Drive Current Factory Set to 1200mA [14, 15]
2L=Two Circuits [16, 17]
DIM=External 0-10V Dimming Leads
3=Three-Position Terminal Block
P=Button Type Photocontrol (120, 208, 240 or 277V)
4=NEMA Twistlock Photocontrol Receptacle
4N7=NEMA 7-PIN Twistlock Photocontrol Receptacle
AHD145=After Hours Dim, 5 Hours [18]
AHD245=After Hours Dim, 6 Hours [18]
AHD255=After Hours Dim, 7 Hours [18]
AHD355=After Hours Dim, 8 Hours [18]
HA=50°C High Ambient
MS/DIM-L08=Motion Sensor for Dimming Operation, Maximum 8' Mounting Height [19]
MS/DIM-L20=Motion Sensor for Dimming Operation, 9' - 20' Mounting Height [19]
MS/DIM-L40=Motion Sensor for Dimming Operation, 21' - 40' Mounting Height [19]
MS/X-L08=Bi-Level Motion Sensor, Maximum 8' Mounting Height [19, 20]
MS/X-L20=Bi-Level Motion Sensor, 9' - 20' Mounting Height [19, 20]
MS/X-L40=Bi-Level Motion Sensor, 21' - 40' Mounting Height [19, 20]
LWR-LW=LumaWatt Pro Wireless Sensor, Wide Lens for 8' - 16' Mounting Height [21, (A)]
LWR-LN=LumaWatt Pro Wireless Sensor, Narrow Lens for 16' - 40' Mounting Height [21, (A)]
L90=Optics Rotated 90° Left
R90=Optics Rotated 90° Right
MT=Factory Installed Mesh Top
TH=Tool-less Door Hardware
LCF=Light Square Trim Plate Painted to Match Housing [22]
HSS=Factory Installed House Side Shield [23]
CE=CE Marking [24]

Accessories (Order Separately)

OA/RA1016=NEMA Photocontrol Multi-Tap - 105-285V
OA/RA1027=NEMA Photocontrol - 480V
OA/RA1201=NEMA Photocontrol - 347V
OA/RA1013=Photocontrol Shorting Cap
OA/RA1014=120V Photocontrol
SA1252=10kV Surge Module Replacement
SA1036-XX=Single Tenon Adapter for 2-3/8" O.D. Tenon
SA1037-XX=2 @ 180° Tenon Adapter for 2-3/8" O.D. Tenon
SA1197-XX=3 @ 120° Tenon Adapter for 2-3/8" O.D. Tenon
SA1188-XX=4 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon
SA1189-XX=2 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon
SA1190-XX=3 @ 90° Tenon Adapter for 2-3/8" O.D. Tenon
SA1191-XX=2 @ 120° Tenon Adapter for 2-3/8" O.D. Tenon
SA1038-XX=Single Tenon Adapter for 3-1/2" O.D. Tenon
SA1039-XX=2 @ 180° Tenon Adapter for 3-1/2" O.D. Tenon
SA1192-XX=3 @ 120° Tenon Adapter for 3-1/2" O.D. Tenon
SA1193-XX=4 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon
SA1194-XX=2 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon
SA1195-XX=3 @ 90° Tenon Adapter for 3-1/2" O.D. Tenon
FSIR-100=Wireless Configuration Tool for Occupancy Sensor [25]
GAN-MT1=Field Installed Mesh Top for 1-4 Light Squares
GAN-MT2=Field Installed Mesh Top for 5-6 Light Squares
GAN-MT3=Field Installed Mesh Top for 7-8 Light Squares
GAN-MT4=Field Installed Mesh Top for 9-10 Light Squares
GLEON-QM=Quick Mount Arm Kit [11]
GLEON-QMEA=Quick Mount Extended Length Arm Kit [12]
LS/HSS=Field Installed House Side Shield [25, 26]

NOTES:
1. Customer is responsible for engineering analysis to confirm pole and fixture compatibility for all applications. Refer to our white paper WP513001EN for additional support information.
2. DesignLights Consortium® Qualified. Refer to www.designlights.org Qualified Products List under Family Models for details.
3. Standard 4000K CCT and minimum 70 CRI.
4. Not compatible with MS/4-LXX or MS/1-LXX sensors.
5. Not compatible with extended quick mount arm (QMEA).
6. Not compatible with standard quick mount arm (QM) or extended quick mount arm (QMEA).
7. Requires the use of a step down transformer when combined with sesnor options. Not available with sensor at 1200mA. Not available in combination with the HA high ambient and sensor options at 1A.
8. Only for use with 480V Wye systems. Per NEC, not for use with ungrounded systems, impedance grounded systems or corner grounded systems (commonly known as Three Phase Three Wire Delta, Three Phase High Leg Delta and Three Phase Corner Grounded Delta systems).
9. May be required when two or more luminaires are oriented on a 90° or 120° drilling pattern. Refer to arm mounting requirement table.
10. Factory installed.
11. Maximum 8 light squares.
12. Maximum 6 light squares.
13. Use dedicated IES files for 2700K, 3000K, 5000K, 6000K when performing layouts. These files are published on the Galleon luminaire product page on the website.
14. 1 Amp standard. Use dedicated IES files for 600mA, 800mA and 1200mA when performing layouts. These files are published on the Galleon luminaire product page on the website.
15. Not available with HA option.
16. 2L is not available with MS/X or MS/DIM at 347V or 480V. 2L in AF-02 through AF-04 requires a larger housing, normally used for AF-05 or AF-06.
17. Not available with LumaWatt Pro wireless sensors.
18. Requires the use of P photocontrol or the 4N7 or 4 photocontrol receptacle with photocontrol accessory. See After Hours Dim supplemental guide for additional information.
19. The FSIR-100 accessory is required to adjust parameters.
20. Available in 2, 3, 4 or 6 Light Square configurations. Replace "X" with number of Light Squares in low output mode. Not available with dimming leads. No terminal block with bi-level operation.
21. LumaWatt Pro wireless sensors are factory installed only requiring network components LWP-EM-1, LWP-GW-1, and LWP-PoE8 in appropriate quantities. See www.eaton.com/lighting for LumaWatt Pro application information.
22. Not available with house side shield (HSS).
23. Only for use with SL2, SL3, SL4 and AFL distributions. The Light Square trim plate is painted black when the HSS option is selected.
24. CE is not available with the LWR, MS, MS/X, MS/DIM, P, 4 or 4N7 options. Available in 120-277V only.
25. This tool enables adjustment of parameters including high and low modes, sensitivity, time delay, cutoff and more. Consult your lighting representative at Eaton for more information.
26. One required for each Light Square.

LumenSafe Integrated Network Security Camera Technology Options (Add as Suffix)

Product Family	Camera Type	Data Backhaul	
L=LumenSafe Technology* LumenSafe Technology CLICK HERE	**D**=Dome Camera, Standard **H**=Dome Camera, Hi-Res **Z**=Dome Camera, Remote PTZ	**C**=Cellular, Customer Installed SIM Card **A**=Cellular, Factory Installed AT&T SIM Card **V**=Cellular, Factory Installed Verizon SIM Card **S**=Cellular, Factory Installed Sprint SIM Card	**W**=Wi-Fi Networking w/ Omni-Directional Antenna **E**=Ethernet Networking

*Consult LumenSafe system pages for additional details and compatibility.

Aluminum Poles



SSA SQUARE STRAIGHT ALUMINUM

Catalog #		**Type** SL
Project		
Comments		**Date**
Prepared by		

FEATURES
- Straight square shaft 6005-T6 aluminum alloy polished
- 356-T6 cast aluminum alloy base with aluminum knock-in bolt covers
- 8'-35' mounting heights
- Drilled or tenon (specify)

DESIGN CONSIDERATIONS

Wind induced vibrations resulting from steady, unidirectional winds and other aerodynamic forces, as well as vibration and coefficient of height factors for non-grounded mounted installations (e.g., installations on bridges or buildings) are not included in this document. The information contained herein is for general guidance only and is not a replacement for professional judgement. Consult with a professional, and local and federal standards, before ordering to ensure product is appropriate for the intended purpose and installation location. Also, please review Eaton's Light Pole White Paper for risk factors and design considerations. Learn more.

Specifications and dimensions subject to change without notice. Consult your lighting representative at Eaton or visit www.eaton.com/lighting for available options, accessories and ordering information.

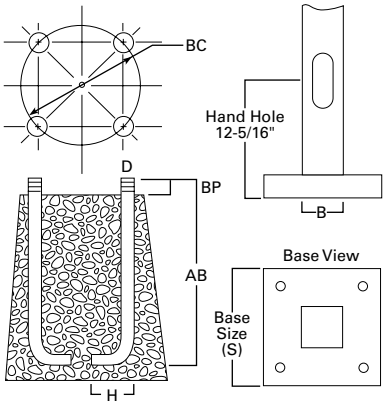
ORDERING INFORMATION

SAMPLE NUMBER: SSA4T08WXM1G

Product Family	Shaft Size (Inches) [1]	Wall Thickness (Inches)	Mounting Height (Feet)	Base Type	Finish	Mounting Type	Number and Location of Arms	Options (Add as Suffix)
SSA=Square Straight Aluminum	**4**=4" **5**=5" **6**=6" **9**=9" Steel; 6-3/4" Aluminum	**T**=0.125" **M**=0.188" **X**=0.250"	**08**=8' **10**=10' **12**=12' **15**=15' **18**=18' **20**=20' **25**=25' **30**=30' **35**=35'	**W**=Aluminum	**A**=Satin Brushed Aluminum **B**=Clear Anodized **C**=Dark Bronze Anodized **D**=Black Anodized **E**=Medium Bronze Anodized **F**=Dark Bronze **J**=Summit White **K**=Carbon Bronze **L**=Dark Platinum **R**=Hartford Green **S**=Silver **T**=Graphite Metallic **V**=Grey **W**=White **X**=Custom Color **Y**=Black	**2**=2-3/8" O.D. Tenon (4" Long) **3**=3-1/2" O.D. Tenon (5" Long) **4**=4" O.D. Tenon (6" Long) **9**=3" O.D. Tenon (4" Long) **6**=2-3/8" O.D. Tenon (6" Long) **7**=4" O.D. Tenon (10" Long) **A**=Type A Drilling **C**=Type C Drilling **E**=Type E Drilling **F**=Type F Drilling **G**=Type G Drilling **J**=Type J Drilling **K**=Type K Drilling **M**=Type M Drilling **N**=Type N Drilling **R**=Type R Drilling	**1**=Single **2**=2 at 180° **3**=Triple [2] **4**=4 at 90° **5**=2 at 90° **X**=None	**A**=1/2" Tapped Hub [3] **B**=3/4" Tapped Hub [3] **C**=Convenience Outlet [4] **E**=GFCI Convenience Outlet [4] **F**=Vibration Pad **G**=Ground Lug **H**=Additional Hand Hole [5] **V**=Vibration Dampener

NOTES: 1. All shaft sizes nominal. **2.** Square poles are 3 at 90°, round poles are 3 at 120°. **3.** Tapped Hub is located 5' below the pole top and on the same side of pole as hand hole, unless specified otherwise. **4.** Outlet is located 4' above base and on same side of pole as hand hole, unless specified otherwise. Receptacle not included, provision only. **5.** Additional hand hole is located 12" below pole top and 90° from standard hand hole location, unless otherwise specified.

ANCHORAGE DATA



See technical information.

Pole	Anchor Bolt and Template Package	Template Only	Bolt Circle (inches)	Number of Bolts	Anchor Bolt Size (inches)
SSA4TxxW	317QB404	229354D	9	4	3/4 x 17 x 3
SSA4MxxW	317QB404	229354D	9	4	3/4 x 17 x 3
SSA5TxxW	317QB405	229357D	11	4	3/4 x 17 x 3
SSA5MxxW	317QB405	229357D	11	4	3/4 x 17 x 3
SSA6MxxW	436QB406	229243D	12-1/2	4	1 x 36 x 4
SSA6XxxW	436QB406	229243D	12-1/2	4	1 x 36 x 4
SSA9XxxW	436QB468	228520D	14-1/4	4	1 x 36 x 4

Effective Projected Area (At Pole Top)

Mounting Height (Feet)	Catalog Number [1, 2]	Wall Thickness (Inches)	Base Square [3] (Inches)	Bolt Circle Diameter (Inches)	Anchor Bolt Projection [3] (Inches)	Shaft Size [3] (Inches)	Anchor Bolt Diameter x Length x Hook (Inches)	Net Weight (Pounds)	Maximum Effective Projected Area (Square Feet) [4]				Max. Fixture Load - Includes Bracket (Pounds)
MH			**S**	**BC**	**BP**	**B**	**D x AB x H**		**70 mph**	**80 mph**	**90 mph**	**100 mph**	
8	SSA4T08W	0.125	10	9	3-1/8	4	3/4 x 17 x 3	23	26.6	19.9	15.2	11.9	350
12	SSA4T12W	0.125	10	9	3-1/8	4	3/4 x 17 x 3	32	16.0	11.5	8.5	6.3	260
15	SSA4T15W	0.125	10	9	3-1/8	4	3/4 x 17 x 3	39	9.1	6.2	4.2	2.8	200
15	SSA4M15W	0.188	10	9	3-1/8	4	3/4 x 17 x 3	55	14.8	10.6	7.7	5.6	200
15	SSA5T15W	0.125	11-9/16	11	3-1/4	5	3/4 x 17 x 3	52	16.0	11.3	8.1	5.8	260
18	SSA4T18W	0.125	10	9	3-1/8	4	3/4 x 17 x 3	46	6.4	4.0	2.3	1.1	100
18	SSA4M18W	0.188	10	9	3-1/8	4	3/4 x 17 x 3	66	11.0	7.4	5.0	3.3	150
18	SSA5T18W	0.125	11-9/16	11	3-1/4	5	3/4 x 17 x 3	61	11.8	7.8	5.1	3.2	150
18	SSA5M18W	0.188	11-9/16	11	3-1/4	5	3/4 x 17 x 3	85	19.2	13.5	9.6	6.8	260
20	SSA4M20W	0.188	10	9	3-1/8	4	3/4 x 17 x 3	72	8.8	5.6	3.5	1.9	150
20	SSA5T20W	0.125	11-9/16	11	3-1/4	5	3/4 x 17 x 3	66	9.5	5.9	3.5	1.7	100
20	SSA5M20W	0.188	11-9/16	11-1/8	3-1/4	5	3/4 x 17 x 3	94	16.4	11.2	7.6	5.0	150
25	SSA5M25W	0.188	11-1/2	11	3-1/4	5	3/4 x 17 x 3	115	10.2	6.0	3.2	1.1	100
25	SSA6M25W	0.188	12-3/4	12-1/2	4	6	1 x 36 x 4	140	16.6	10.6	6.5	3.5	260
30	SSA6X30W	0.250	12-3/4	12-1/2	4	6	1 x 36 x 4	215	14.8	9.0	5.0	2.1	260
30	SSA9X30W [5]	0.250	15-1/8	14-5/8	4-1/8	6-3/4	1 x 36 x 4	237	21.1	13.5	8.2	4.5	260
35	SSA9X35W [5]	0.250	15-1/8	14-5/8	4-1/8	6-3/4	1 x 36 x 4	274	14.1	7.6	3.1	--	150

Effective Projected Area (18" Above Pole Top)

Mounting Height (Feet)	Catalog Number [1, 2]	Wall Thickness (Inches)	Base Square [3] (Inches)	Bolt Circle Diameter (Inches)	Anchor Bolt Projection [3] (Inches)	Shaft Size [3] (Inches)	Anchor Bolt Diameter x Length x Hook (Inches)	Net Weight (Pounds)	Maximum Effective Projected Area (Square Feet) [4]				Max. Fixture Load - Includes Bracket (Pounds)
MH			**S**	**BC**	**BP**	**B**	**D x AB x H**		**70 mph**	**80 mph**	**90 mph**	**100 mph**	
8	SSA4T08W	0.125	10	9	3-1/8	4	3/4 x 17 x 3	23	22.2	16.6	12.7	10	350
12	SSA4T12W	0.125	10	9	3-1/8	4	3/4 x 17 x 3	32	14.1	10.1	7.4	5.5	260
15	SSA4T15W	0.125	10	9	3-1/8	4	3/4 x 17 x 3	39	8.2	5.6	3.8	2.5	200
15	SSA4M15W	0.188	10	9	3-1/8	4	3/4 x 17 x 3	55	13.4	9.6	6.9	5.1	200
15	SSA5T15W	0.125	11-9/16	11	3-1/4	5	3/4 x 17 x 3	52	14.4	10.2	7.3	5.2	260
18	SSA4T18W	0.125	10	9	3-1/8	4	3/4 x 17 x 3	46	5.9	3.6	2.1	0.9	100
18	SSA4M18W	0.188	10	9	3-1/8	4	3/4 x 17 x 3	66	10.0	6.8	4.6	3.0	150
18	SSA5T18W	0.125	11-9/16	11	3-1/4	5	3/4 x 17 x 3	61	10.8	7.2	4.7	2.9	150
18	SSA5M18W	0.188	11-9/16	11	3-1/4	5	3/4 x 17 x 3	85	17.6	12.4	8.8	6.2	260
20	SSA4M20W	0.188	10	9	3-1/8	4	3/4 x 17 x 3	72	8.1	5.2	3.2	1.7	150
20	SSA5T20W	0.125	11-9/16	11	3-1/4	5	3/4 x 17 x 3	66	8.8	5.5	3.2	1.5	100
20	SSA5M20W	0.188	11-9/16	11-1/8	3-1/4	5	3/4 x 17 x 3	94	15.2	10.3	7.0	4.7	150
25	SSA5M25W	0.188	11-1/2	11	3-1/4	5	3/4 x 17 x 3	115	9.5	5.6	3.0	1.0	100
25	SSA6M25W	0.188	12-3/4	12-1/2	4	6	1 x 36 x 4	140	15.6	9.9	6.1	3.3	260
30	SSA6X30W	0.250	12-3/4	12-1/2	4	6	1 x 36 x 4	215	14.0	8.5	4.7	2.0	260
30	SSA9X30W [5]	0.250	15-1/8	14-5/8	4-1/8	6-3/4	1 x 36 x 4	237	20.0	12.8	7.8	4.3	260
35	SSA9X35W [5]	0.250	15-1/8	14-5/8	4-1/8	6-3/4	1 x 36 x 4	274	13.5	7.2	2.9	--	150

NOTES:

1. Catalog number includes pole with hardware kit. Anchor bolts not included. Before installing, make sure proper anchor bolts and templates are obtained.

2. Tenon size or machining for rectangular arms must be specified. Hand hole position relative to drill location.

3. Shaft size, base square, anchor bolts and projections may vary slightly. All dimensions nominal.

4. EPAs based on shaft properties with wind normal to flat. EPAs calculated using base wind velocity as indicated plus 30% gust factor.

5. Factory installed vibration damper.

ALPHABET LEDRA brands
Alphabet by Ledra Brands, Inc. | 15774 Gateway Circle Tustin, CA 92780 | PH: 714.259.9959 FAX: 714.259.9969 | AlphabetLighting.com

JOB NAME

CONTACT

ORDERING CODE

ECO NU6" Round Adjustable

COB

LUTRON OEM ADVANTAGE ACCOUNT

eldoLED your product | our drive

SS



DESCRIPTION

The EcoNU6RA is an economical and highly efficient spec grade 6" recessed adjustable with thoughtful construction and pleasing aesthetics. Standard with premium dimming using EldoLED 1% flicker free drivers in 120V, 277V, and step down transformer for 347V. A minimalistic look is achieved with an ultrathin 1/16" trim that is only 5/16" wide. Color choices of both trim and bezel are offered for a customized look. An adjustable hot-aiming system allows tilt adjustments from 0° to 40° with 360° rotation. The aiming adjustment and locking mechanisms are accessible from below the ceiling while the reflector is installed. A complex tilting mechanism positions the tilting axis for the maximum optical performance at all angles.

HOUSING

Electrocoated 16-gauge cold-rolled steel provides enhanced structural reinforcement and rust prevention. Superior, flame-retardant, UL-certified, injection-molded commercial-grade Lexan™ (PC) is used for the frame and regressed bezel trim. Lexan provides unmatched durability and impact resistance, 270°F heat deflection temperature, and is tested for UV resistance and water exposure in outdoor applications. The thermally-advanced, anodized heat sink uses 6063 aluminum alloy. A 90-minute constant-power IOTA emergency battery backup is available.

MOUNTING

An advanced mounting system allows for quick and secure installation with LED and driver serviceability from below the ceiling. The LED assembly uses die-cast aluminum mounting clamp grips (MCG) that swing out to tighten onto variable ceiling thicknesses ranging from 1/8" to 1-5/8". Integrated rubber feet on each MCG provide a non-slip vibration-resistant installation. The hidden MCG system is accessible from below ceiling by removing the snap-in lens/bezel assembly with either the included suction cup or a screwdriver blade. Integrated bar hangers feature integral toothed nails, T-bar mounting slots with locking holes, tabs for joist positioning, and extendibility from 14-3/4" to 26". Retrofit mounting option allows for installation from below ceiling by use of compact driver box. Ceiling cutout size is 6-3/8" diameter.

LISTINGS

- ETLus Listed to UL1598, cETL Listed to CSA C22.2 #250.0
- Type Non-IC, IC, CP, Airtight ASTM Standard E283
- Suitable for damp locations without lens
- Non-conductive, Lexan dead-front construction
- Made in the USA – meets the requirements of the Buy American provision within the ARRA

LED INFO

- 90 CRI: SDCM = 2-step MacAdam Ellipse, Lumen Maintenance: L_{70} > 38,500 hrs
- 80 CRI: SDCM = 3-step MacAdam Ellipse, Lumen Maintenance: L_{70} > 38,500 hrs

ORDERING CODE

made in the USA

LM-79

SERIES	NU6	
TYPE	RA	round adjustable
LED	SW	static white
DELIVERED LUMENS (3000K 80CRI SS30)	07LM	630 lm
	10LM	830 lm
	13LM	1025 lm
	20LM	1635 lm
	30LM	2465 lm
	40LM	3320 lm

Calculated Delivered Lumens = [Delivered Lumen Value] x [CCT Multiplier] x [Reflector Multiplier]

CCT	~~22K~~	2200K
	~~27K~~	2700K
	30K	3000K
	35K	3500K
	~~40K~~	4000K
	~~50K~~	5000K

CCT	2200K		2700K		3000K		3500K		4000K		5000K	
CRI	80+	90+	80+	90+	80+	90+	80+	90+	80+	90+	80+	90+
CCT MULTIPLIER FOR LUMEN OUTPUT	0.85	N/A	0.96	0.81	1.00	0.84	1.01	0.85	1.03	0.87	1.04	N/A

CRI	80	80CRI
	90[1]	90CRI
REFLECTOR & LM MULTIPLIER	SS30	30° semi-specular (1.00)
	SS45	45° semi-specular (0.89)
	SS60	60° semi-specular (0.98)
	D40	40° diffused (0.93)
	D50	50° diffused (0.94)
	D65	65° diffused (0.93)
VOLTAGE	120	120V
	277	277V
	See Electrical Options for 347V.	
DIMMING	DIM10[3]	standard driver with flicker free 0-10V dimming to 1%
	DIM10Z[3]	flicker free 0-10V dimming to 0%
	DALI[3]	flicker free DALI dimming to 1%
	DALIZ[3]	flicker free DALI dimming to 0%
	DMXZ	flicker free DMX dimming to 0%
	LTE	Lutron Hi-lume 2-Wire (Triac) dimming to 1%
	LUT	Lutron Hi-lume EcoSystem dimming to 1%, Soft-on & Fade-to-Black
	LUTP[6]	Lutron Hi-lume Premier EcoSystem dimming to 0.1%, Soft-on & Fade-to-Black
	ELV[4]	leading & trailing edge (Triac/ELV) dimming to <10%
	ELV1[4]	leading & trailing edge (Triac/ELV) dimming to 1%
MOUNTING OPTIONS	NC	new construction with ceiling fitting plate
	IC[2]	insulation contact housing
	ICAT[2]	insulation contact / airtight housing
	CP[2]	chicago plenum housing
	RET	retrofit, no ceiling fitting plate
TRIM COLOR	WH	white
	MC	matte chrome
	BK	black
	BZ	bronze
	WT	wheat
BEZEL COLOR	WH	white
	MC	matte chrome
	BK	black
	BZ	bronze
	WT	wheat
ELECTRICAL OPTIONS	EM7[5]	emergency battery backup, 90 minutes at 7 watts to LED
	EM12[5]	emergency battery backup, 90 minutes at 12 watts to LED
	FOR 347V	order separate “347 to 277V” step down transformer
	OPTION	p/n: P70489

ORDERING CODE

Follow the steps to specify your fixture, example:
NU6 - RA - SW - 30LM - 35K - 90 - D50 - 120 - DIM10 - NC - WH - WH - EM7

SW (LED)	POWER
DELIVERED LM	W (80CRI)
630	7
830	8
1025	11
1635	16
2465	26
3320	32

Power Factor ≥ 0.9

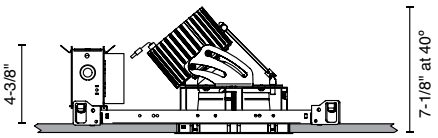
NOTES

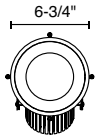
1. 90 CRI not available in 5000K.
2. IC/ICAT/CP not available in 40LM.
3. Driver uses logarithmic dimming curve as standard. For linear dimming curve add “LIN” after dimming code, i.e. DIM10LIN.
4. Triac/ELV dimming available in 120V only.
5. For integrated test switch add “ITS” after emergency backup code, i.e. EM12ITS. Test switch is mounted in the bezel of the fixture.
6. LUTP not available in 30LM or 40LM.

In a continuing effort to offer the best product possible we reserve the right to change, without notice, specifications or materials that in our opinion will not alter the function of the product.

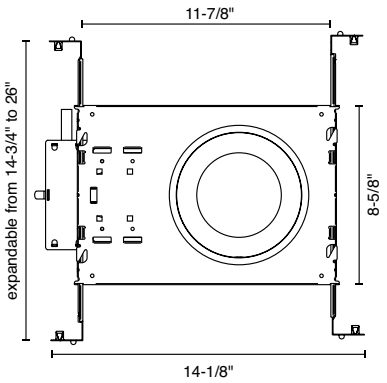
MOUNTING OPTIONS

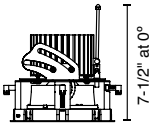
NC - NEW CONSTRUCTION

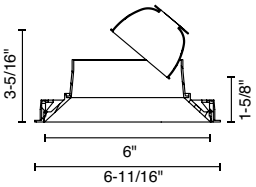




ceiling cutout
6-3/8" diameter

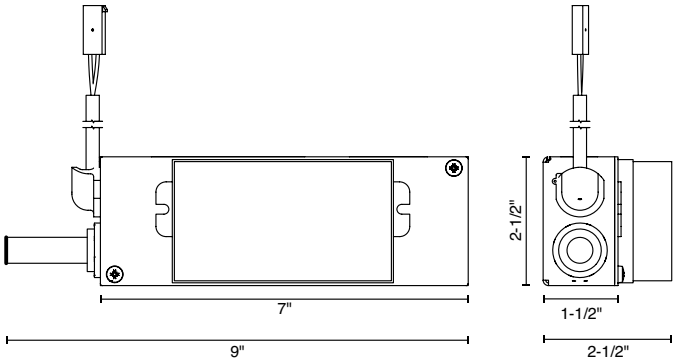




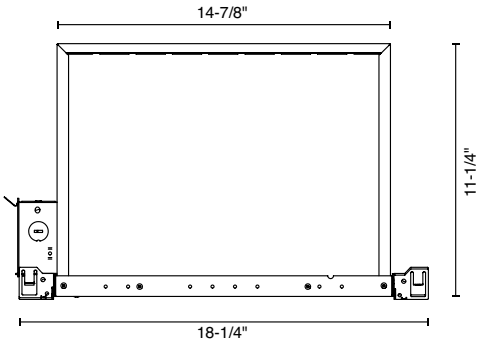


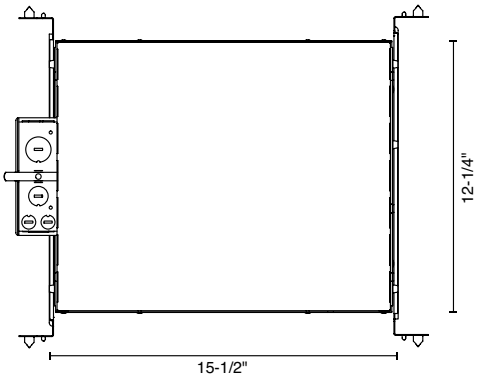
aperture dimensions

RET - RETROFIT

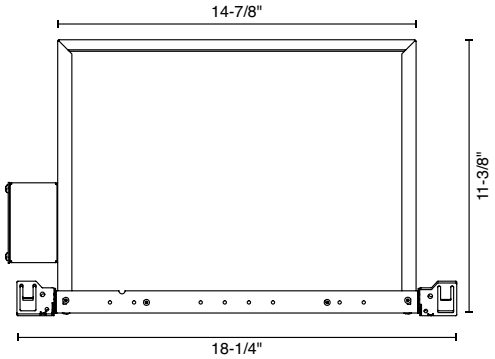


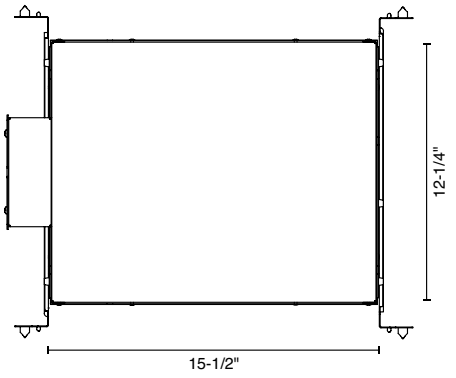
IC[1] - INSULATION CONTACT HOUSING





CP - CHICAGO PLENUM
ICAT - INSULATION CONTACT / AIR TIGHT





NOTES

1 Consult factory for smaller IC Housings when selecting lower lumen packages.

GARDCO by signify

Wall Mount

LED Wall Sconce

101L



Project:

Location:

Cat.No:

Type: WL

Lamps: Qty:

Notes:

Gardco 101 LED wall sconces feature a low-profile design that provides wide flexibility in high performance exterior wall illumination. Full cutoff performance, usable illumination patterns, and powerful wattages combine into a compact and architecturally pleasing design. 101L sconces are available in Type 2, 3, and 4 distributions, and provide output of up to 9500 lumens. Energy saving control options increase energy savings and offer California Title 24 compliance. Emergency Battery Backup option available for path of egress.

Ordering guide

example: 101L-32L-700-NW-G1-3-120-IMRI2-BZ

Prefix	Number of LEDs	Drive Current	LED Color – Generation	Distribution	Emergency	Voltage	Options: Controls	Options: Electrical	Options: Finish
101L									
101L LED Wall Sconce	**16L** 16 LEDs (1 module)	**530** 530mA **650** 650mA[1] **700** 700mA **1000** 1000mA **1200** 1200mA	**CW-G1** Cool White 5700K, 70 CRI Generation 1 **NW-G1** Neutral White 4000K, 70 CRI Generation 1 **WW-G1** Warm White 3000K, 70 CRI Generation 1	**2** Type 2 **3** Type 3 **4** Type 4	**EBPC** Emergency Battery Pack Cold Weather[3,4,6,12] Leave blank to omit an emergency option	**UNV** 120-277V **HVU** 347-480V **120** 120V **208** 208V **240** 240V **277** 277V **347** 347V **480** 480V	**DD** 0-10V Dimming Driver[5,6] **DCC** Dual Circuit Control[6,7,8] **DynaDimmer:** Automatic Profile Dimming **CS50** Safety 50% Dimming (7 hours)[7,9,10] **CM50** Median 50% Dimming (8 hours)[7,9,10] **CE50** Economy 50% Dimming (9 hours)[7,9,10] **DA50** All Night 50% Dimming[7,9,10] **Photoelectric/Receptacle systems (Twist Lock Receptacle)** **PCB** Photocontrol Button[5,10,11,12] **TLRD5** Twist Lock Receptacle 5-Pin[13] **TLRD7** Twist Lock Receptacle 7-Pin[13] **TLRPC** Twist Lock Receptacle w/ Photocell[11,12,16] **Infrared Motion Response systems** **IMRI2** Integral with #2 lens[9,12,14] **IMRI3** Integral with #4 lens[9,12,14] **Network system (SiteWise)** **SW** SW Integral module[4,17] **Wireless system** **LLC2** Integral module with #2 lens[5,7,9,15] **LLC3** Integral module with #3 lens[5,7,9,15]	**Fusing** **F1** Single (120, 277, 347VAC)[12] **F2** Double (208, 240, 480VAC)[12] **F3** Canadian Double Pull (208, 240, 480VAC)[12]	**Textured** **BK** Black **WH** White **BZ** Bronze **DGY** Dark Gray **MGY** Medium Gray **Customer specified** **RAL** Specify optional color or RAL (ex: OC-LGP or OC-RAL7024) **CC** Custom color (Must supply color chip for required factory quote)
	32L 32 LEDs (2 module)	**530** 530mA **650** 650mA[1] **700** 700mA **1000** 1000mA[2]							

1. 650mA only available with Emergency Battery Pack Cold Rated (EBPC) option
2. 32L rated for 30°C at 1000mA
3. Available for use with 16L and 32L in 530mA or 650mA only. Rated for -20°C to 35° C.
4. Available in 120 or 277V only.
5. Not available with Dual Circuit Control (DCC) option.
6. EBPC is not available with DCC.
7. Not available with Dimming Driver (DD) option.
8. Available in 32L with 530mA. Consult technical support center for use with photocell and CS/CM/CE/DA.
9. Available in 120-277V (UNV) only.
10. Not available with LLC, TLR and DCC.
11. Not available with 480V.
12. Must specify input voltage.
13. TLRD5/7 option not available with LLC, PCB, DCC. Works with 3 or 5 pin NEMA photocell dimming. Dimming will not be connected to TLR if ordering with DD, CS/CM/CE/DA and IMRI.
14. Not available with DD, DCC or LLC.
15. LLC2/3 Not available with TLR, PCB, IMRI, CS/CM/CE/DA. Ships with WS accessory attached to wireless module. Not for use with LLCR accessory.
16. Not available with PCB, TLRD5/7, DCC, LLC.
17. SW option is not available with any other control options with the exception of IMRI2, IMRI3 motion response options.

101L Sconce LED

Wall Mount

Luminaire Accessories (order separately)

Mounting accessories

Wall Mount

WS Wall Mounted Box for Surface Conduit

System accessories

Wireless system remote mount module

LLCR2-(F) #2 lens - specify finish in place of (F)
LLCR3-(F) #3 lens - specify finish in place of (F)

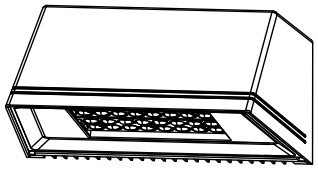
Central Remote Motion Response
(used connected to SiteWise main panel)

MS2-A-FVR-3
MS2-A-FVR-7

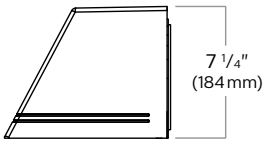
Wireless system remote controller accessory

Wireless system offers a remote radio/sensor module that allows to connected to a Limelight system (sold by other). Remote module can be mounted to wall or pole with j-box supplied. May be specified by choosing one of two different lenses to accommodate a variety of mounting heights/sensor detection ranges. Must specify option DD on luminaires that are planned to be used with remote mount controllers. See page 4 for Wireless system details.

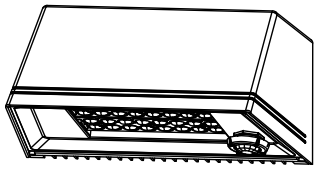
Dimensions

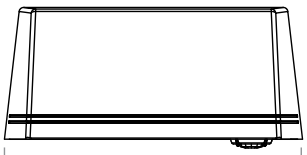


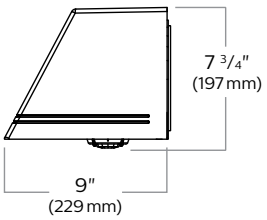




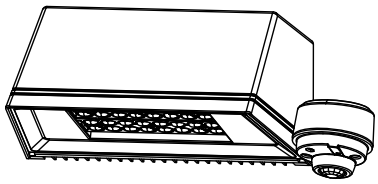
Motion Response

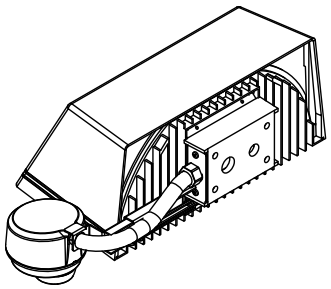


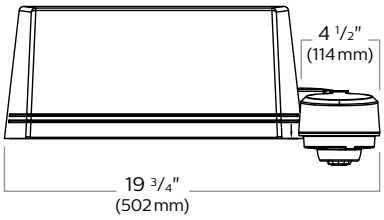


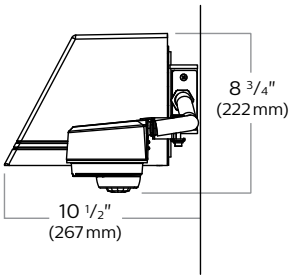


Wireless Controls









Luminaire Weights

LED Wall Sconce 101L	Weight
Luminaire	13.5 lbs
Luminaire - EBPC (EM battery pack)	17.0 lbs
Luminaire - Integrated system controls	16.3 lbs

101L Sconce LED

Wall Mount

LED Wattage and Lumen Values

Ordering Code	LED Qty	LED Current (mA)	Color Temp.	Average System Watts[1]	Type 2			Type 3			Type 4		
					Lumen Output[1,2]	BUG Rating	Efficacy (LPW)	Lumen Output[1,2]	BUG Rating	Efficacy (LPW)	Lumen Output[1,2]	BUG Rating	Efficacy (LPW)
101L-16L-530-NW-G1	16	530	4000K	28	2944	B1-U0-G0	106	2687	B1-U0-G1	97	2747	B1-U0-G1	99
101L-16L-700-NW-G1	16	700	4000K	37	3789	B1-U0-G1	103	3458	B1-U0-G1	94	3535	B1-U0-G1	96
101L-16L-1000-NW-G1	16	1000	4000K	55	5050	B1-U0-G1	92	4609	B1-U0-G1	84	4712	B1-U0-G1	86
101L-16L-1200-NW-G1	16	1200	4000K	65	5744	B2-U0-G1	89	5242	B1-U0-G2	81	5359	B1-U0-G2	83
101L-32L-530-NW-G1	32	530	4000K	52	5698	B2-U0-G1	110	5200	B1-U0-G2	100	5316	B1-U0-G2	102
101L-32L-700-NW-G1	32	700	4000K	70	7242	B2-U0-G1	103	6609	B1-U0-G2	94	6757	B1-U0-G2	96
101L-32L-1000-NW-G1	32	1000	4000K	107	9797	B2-U0-G1	92	8941	B2-U0-G2	84	9140	B2-U0-G2	86

LED Wattage and Lumen Values (Emergency Mode)[3]

Ordering Code	LED Qty	LED Current (mA)	Color Temp.	Ave. System Watts (charging mode)	Type 2	Type 3	Type 4
101L-16L-NW-EBPC	16	N/A	4000K	14	1345	1228	1255
101L-32L-NW-EBPC	32	N/A	4000K	14	1754	1600	1636

1. Wattage and lumen output may vary by +/- 8% due to LED manufacturer forward volt specification and ambient temperature. Wattage shown is average for 120V through 277V input. Actual wattage may vary by an additional +/- 10% due to actual input voltage.
2. Lumen values based on photometric tests performed in compliance with IESNA LM-79.
3. For emergency EBPC option, publish values are based on initial lumens.

Luminaire options

DD: 0-10V dimming driver with leads supplied through back of luminaire (for secondary dimming controls by others).

Dynadimmer Automatic Profile Dimming: Automatic dimming profiles (CS50/CM50/CE50) offer safety, median, or economy settings, for shorter or longer duration. Dimming profiles provide flexibility towards energy savings goals while optimizing light levels during specific dark hours. 50% dimming is standard. DA50 offers 50% instantaneous dimming all night (during all dark hours). Other dimming settings are also available if different light levels are required (contact Technical Support for details).

Profile	Dimming		
	Schedule	Duration	Level
Economy	9 PM - 6 AM	9 hours	50%
Median	10 PM - 6 AM	8 hours	50%
Safety	11 PM - 6 AM	7 hours	50%
Reactive 50	all night	dynamic	50%

TLRD5: Twist Lock Receptacle with 5 pins enabling dimming, can be used with a twistlock photoelectric cell or a shorting cap. Can also be used with third party control system.

TLRD7: Twist Lock Receptacle with 7 pins enabling dimming and additional functionality, can be used with twistlock photoelectric cell or a shorting cap. Can also be used with third party control system.

TLRDPC: Receptacle with twistlock photoelectric cell (must specify voltage). Receptacle located on top of luminaire housing.

IMRI2, IMRI3: Infrared Motion Response Integral (IMRI). IMRI module is mounted integral to the luminaire door and is available with two different sensor lens types to accommodate various mounting heights and occupancy detection ranges (see charts for approximate detection patterns). Motion response used in combination of Dynadimmer and SiteWise are not programmable and used to override controllers schedule when motion is detected. When used not combined with any controller, IMRI is set/operates in the following fashion: The motion sensor is set to a constant 50%. When motion is detected by the PIR sensor, the luminaire returns to 100% light output. Dimming on low is factory set to 50% with 5 minute default in "full power" prior to dimming back to low. When no motion is detected for 5 minutes, the motion response system reduces the wattage by 50% of the normal constant wattage reducing the light level. IMRI can also be specified with automatic profile dimming for the added benefit of a combined dimming profile with sensor detection, where the PIR sensor will override the dimming profile when occupancy is detected. Passive infrared (PIR) motion sensor, WattStopper FSP-211, equipped with lens choice specified. Available from 120V to 277V input only. Motion sensor off state power is 0.0 watts. The FSP-211 can also be reprogrammed with WattStopper's FS1R-100 remote programming tool accessory.

DCC: Dual Circuit Control permits separate switching of 32L models only, where a quantity of (2) 16 LED modules are controlled independently by use of two sets of leads, one for each module.

SW

SiteWise option is a fully integrated controller that connects to SiteWise system in order to offer a complete area lighting management system. The communication signal is based on patented central dimming technology. SiteWise delivers it deliver optimal energy savings using your site's existing cabling. No additional wiring required, installation and commissioning are simple. An intuitive, mobile app makes it easy for authorized users to set schedules to meet site specific lighting needs, local regulations, and energy codes.

Wireless system: 101L luminaires are available with optional wireless controllers ready to be connected to a Limelight system (sold by other). The system allows you to Wirelessly manage the entire site, independent lighting groups or individual luminaires while on-site or remotely.
Based on a high density mesh network with an easy to use web-based portal, you can conveniently access, monitor and manage your lighting network remotely. Wireless System can be combined with site and area, pedestrian, and parking garage luminaires as well, for a completely connected outdoor.

Luminaire options (continued)

F1: Fusing Single (for 120, 277 or 347VAC)

F2: Fusing Double (for 208, 240 or 480VAC)

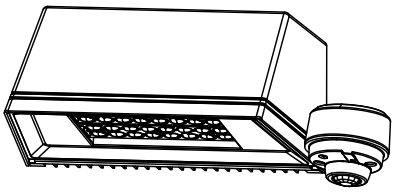
F3: Fusing Canadian Double Pull (for 208, 240 or 480VAC)

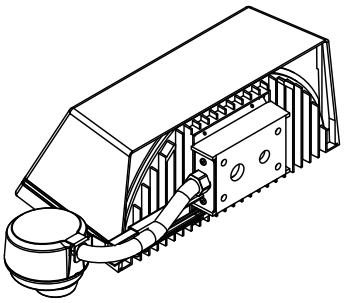
EBPC: Emergency battery pack is cold weather rated down to -20C (-4F) and integral to the luminaire , allowing for a consistent look between emergency and non-emergency sconces. A separate surface mount accessory box is not required. Dual light engines (32L) are wired in parallel, both operating in emergency mode to meet various redundancy lamp requirements. Also available with single light engine (16L). Secondary driver with relay immediately detects AC power loss and powers luminaire for a minimum of 90 minutes from the time power is lost.

Infrared Motion Response and Wireless system sensor coverage patterns

LLC2/3 Luminaire mounted controller

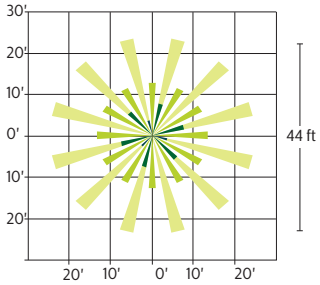
Controller attached to luminaire and Includes radio, photocell and motion sensor with #2 or #3 lens for 8-20' mounting heights.



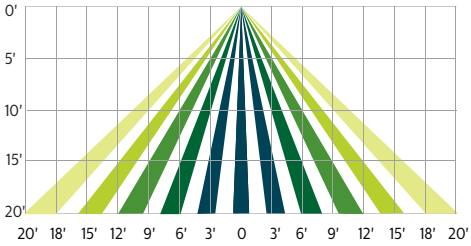


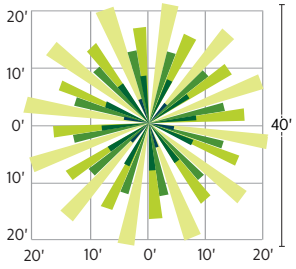
IMRI2/LLC2/LLCR2





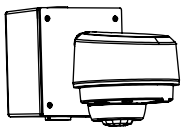
IMRI3/LLC3/LLCR3



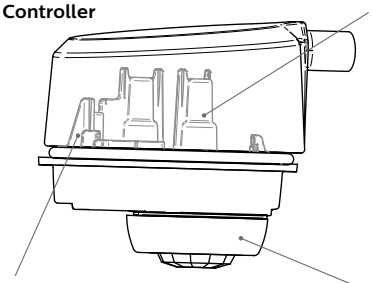


Remote Mount Wireless Controller

Used to extend the communication on site, to extend motion response and add other luminaires that are not pole mounted. Consult factory for more information.



Controller



Wireless Radio

- 1.8 Watts max (no load draw)
- Operating voltage 120-277 VAC RMS
- Communicates using the ZigBee protocol
- Carries out dimming commands from Gateway
- Reports ambient light readings to 1500 Ft-Cd
- Transmission Systems Operating within the band 2400-2483.5Mhz
- ROHS Compliant

Photocell

- Ambient light photocell on every wireless radio that averages the light levels of up to 5 controllers for an accurate reading and optimal light harvesting activity.
- Reports ambient light readings to 1500 Fc.

Motion Response

- Detects motion through passive infrared sensing technology with three different lens configurations
- Motion sensor coverage can be adjusted from a narrow to a wide detection range, which helps reduce false triggers to further increase energy savings.
- Sensing profiles can be updated to adapt to activity levels in the environment, such as occupancy level, wind, and mounting height

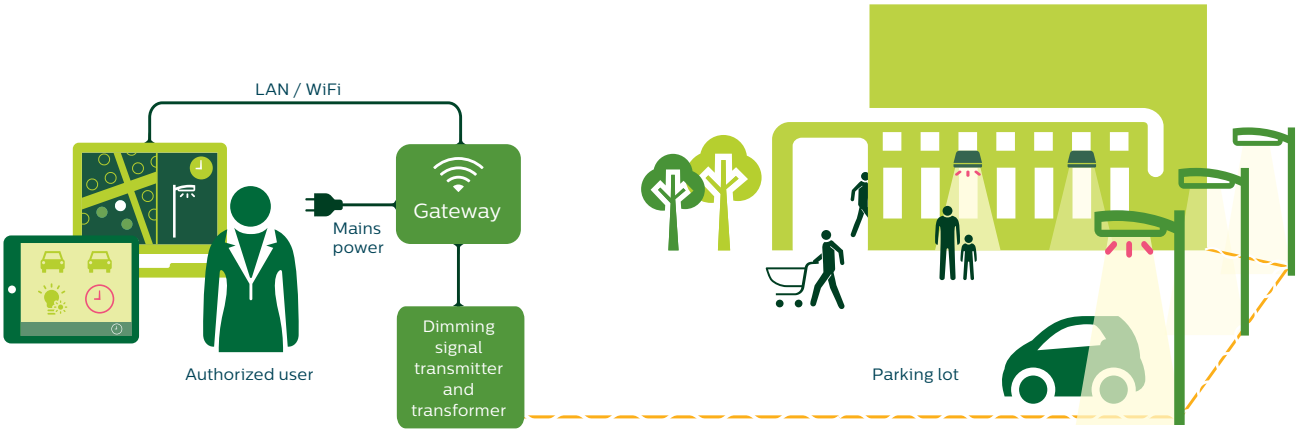
101L Sconce LED

Wall Mount

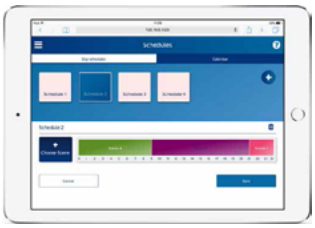
SiteWise system

SiteWise is a complete area lighting management system including a luminaire integrated controller, dimming signal transmitter cabinet, and locally accessible user interface. Installation and commissioning are simple. The cabinet communicates with the luminaires using a patented central dimming technology. The control signal is embedded on the existing electrical line – no new cabling is required. An intuitive, locally accessible interface makes it easy for authorized users to set schedules in order to meet site specific lighting needs, local regulations, and energy codes.

SiteWise system diagram



SiteWise system interface



SiteWise has an intuitive user interface that makes it easy to plan, edit, and implement lighting schedules for your site. Authorized users can access the interface via a local app.

To ensure that only authorized users can access your lighting, SiteWise offers two user types, each with different permissions. An advanced user, or administrator, can set and edit schedules using the ten pre-set scenes, assign those schedules to calendar days, and check system status.

For everyday use, a basic user can manually override a schedule that is currently running but cannot create or edit schedules.

SiteWise system specifications

The SiteWise system includes both luminaires and controls. The controls used for SiteWise are circuit load dependent. Required for a complete installation are the following SiteWise components: user interface, control kit, dimming signal transmitter cabinet, and dimming signal receiver located in the luminaire (**SW** option). Optional luminaire-integrated or external motion sensors may also be specified as required. Within the electrical closet, the control kit and dimming signal transmitter cabinet are installed into the electrical system between the existing breaker panel and the site luminaires. New LED luminaires containing the dimming signal receiver are installed on the site. Once completed, use of the interface allows for scheduling and override capabilities. Wireless access point and tablet should be supplied by others. Complete information on the control system can be found on the SiteWise website at **philips.com/sitewise**

101L Sconce LED

Wall Mount

Specifications

Housing

Main body cast housing and back plate made of a low copper die cast Aluminum alloy for a high resistance to corrosion, 0.100" (2.5mm) minimum thickness. Hinged door allows access to driver and LED compartment.

Mounting

Mounting is completed through integral back plate that features a separate recessed feature for hook and lock quick mount plate that secures with two set screws from bottom of luminaire. Mounting plate is located in the center of the luminaire width and 3.5" above the luminaire bottom (lens down position). Luminaire ships fully assembled, ready to install.

Light Engine

Composed of 4 main components: Heat Sink / LED Module / Optical System / Driver. Electrical components are RoHS compliant. IP66 sealed light engines. LEDs tested by ISO 17025-2005 accredited lab in accordance with IESNA LM-80 guidelines extrapolations in accordance with IESNA TM-21. Metal core board ensures greater heat transfer and longer lifespan.

Heat Sink

Integral door/heat sink design made of low copper die cast Aluminum alloy for a high resistance to corrosion.

LED Module

Composed of high performance white LEDs. Color temperature as per ANSI/NEMA bin Neutral White, 4000K nominal (+/- 275K), CRI 70 Min. Available in other color temperatures including Cool White, 5700K and Warm White, 3000K.

SiteWise Network System

SiteWise system includes a controller fully integrated in the luminaire that enables the luminaires to communicate with a dimming signal transmitter cabinet located on site using patented central dimming technology. A locally accessible mobile app allows users to access the system and set functionalities such as ON/OFF, dimming levels and scheduling. SiteWise is available with motion response options in order to bring the light back to 100% when motion is detected. Additional functionalities are available such as communication with indoor lighting and connection to BMS systems.

Hardware

All exposed screws shall be stainless and/or corrosion resistant and captive.

Optical System

The advanced LED optical systems provide IES Types 2, 3, 4. Composed of high performance UV stabilized optical grade polymer refractor lenses to achieve desired distribution optimized to get maximum spacing, target lumens and a superior lighting uniformity. System is rated IP66. Performance shall be tested per LM-63, LM-79 and TM-15 (IESNA) certifying its photometric performance. Dark sky compliant with 0% uplight and U0 per IESNA TM-15.

Driver

High power factor of 90% min. Electronic driver, operating range 50/60 Hz. Auto adjusting universal voltage input from 120 to 277 VAC or 347 to 480 VAC rated for both application line to line or line to neutral, Class I, THD of 20% max. The current supplying the LEDs will be reduced by the driver if the driver experiences internal overheating as a protection to the LEDs and the electrical components. Output is protected from short circuits, voltage overload and current overload. Automatic recovery after correction. Standard built in driver surge protection of 2.5kV (min).

Surge Protection

Each luminaire is provided as standard with surge protector (designed SP1) tested in accordance with ANSI/IEEE C62.45 per ANSI/IEEE C62.41.2 Scenario I Category C High Exposure 10kV/5kA waveforms for Line Ground, Line Neutral and Neutral Ground, and in accordance with U.S. DOE (Department of Energy) MSSLC (Municipal Solid State Street Lighting Consortium) Model Specification for LED Roadway Luminaires Appendix D Electrical Immunity High Test Level 10kV / 5kA.

Wiring (supplied by others)

Splices must be made in the junction box.

Finish

Five standard colors offered in textured black, white, bronze, dark gray and medium gray. Color in accordance with the AAMA 2604 standard. Application of polyester powder coat paint 2.5 mils minimum. The thermosetting resins provides a discoloration resistant finish in accordance with the ASTM D2244 standard, as well as luster retention in keeping with the ASTM D523 standard and humidity proof in accordance with the ASTM D2247 standard. RAL and custom color matching available.

LED Products Manufacturing Standard

The electronic components sensitive to electrostatic discharge (ESD) such as light emitting diodes (LEDs) are assembled in compliance with EC61340-5-1 and ANSI/ESD S20.20 standards so as to eliminate ESD events that could decrease the useful life of the product.

LED Useful Life

Luminaire Useful Life accounts for LED lumen maintenance. Refer to IES files for energy consumption and delivered lumens for each option. Based on ISTMT in situ thermal testing in accordance with UL1598 and UL8750, LED LM-80/TM-21, expected to reach 100,000 + hours with >L70 lumen maintenance @ 25°C.

Certifications and Compliance

cULus Listed for Canada and USA suitable for wet locations when mounted downward facing. cULus Listed for Canada and USA suitable for damp locations when inverted upward facing when mounted in covered ceiling application. Emergency Battery Pack option is tested and listed to UL924 and CSA C22.2 No. 141-10 DesignLights Consortium qualified on models as listed on DLC QPL. Luminaire is rated for operation in ambient temperature of -40°C (-40°F) up to +40°C (+104°F).

Limited Warranty

5-year limited warranty. See philips.com/warranties for details and restrictions.
Visit our eCatalog or contact your local sales representative for more information.

Wall Mount

LED Performance

Predicted lumen depreciation data[1]				
Ambient Temperature (°C)	Driver mA	Calculated L_{70} hours[1,2]	L_{70} per TM-21[2,3]	Lumen Maintenance % @ 60,000 hours
25°C	up to 1200 mA	>100,000	>60,000	88%

1. Predicted performance derived from LED manufacturer's data and engineering design estimates, based on IESNA LM-80 methodology. Actual experience may vary due to field application conditions.
2. L_{70} is the predicted time when LED performance depreciates to 70% of initial lumen output.
3. Calculated per IESNA TM21-11. Published L_{70} hours limited to 6 times actual LED test hours.

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Section 18
Solid Waste

Overview:

Chapter 373 §§ 3 of the Site Law Regulations requires that applicant demonstrate that adequate provision for solid waste disposal.

A. Anticipated Solid Waste Narrative

The proposed Maine Behavioral Healthcare building will handle solid waste in the same fashion and with the same contractors as is currently contracted at the adjacent Spring Harbor Hospital.

The construction and operation of this project will result in the following types of solid waste.

- Stumps and Grubbings
- Construction Debris
- Commercial Solid Waste
- Medical Waste
- Recycled Waste
  - Cardboard and Paper
  - Shredded documents

B. Stumps and Grubbings

Based on a typical generation rate of 400 cubic yards (cy) of stumps and grubbings per acre for forested area, the development anticipates generating the following quantities.

- Forested areas – 3.40 acres x 400 cy/acres = 1,360 cy

The selected contractor will contract for the transport and disposal of these materials debris to a MeDEP licensed local waste facility in accordance with all solid waste regulations.

C. Construction Debris

Due to the nature of the construction and waste management by the selected contractor, it is anticipated that 25 cubic yards or less will be produced. Based on an assumed generation rate of 10 cubic yards (cy)/ 1,500 sf of building area. The project is anticipated to produce the following quantities.

- 28,200 sf x 10 cy/1,500 sf = 188 cy

The selected contractor will utilize Waste Management for the disposal of all construction debris during the construction of this building. Waste Management will

transport all construction debris to a MeDEP licensed local waste facility in accordance with all solid waste regulations.

D. Commercial Solid Waste

Maine Behavioral Healthcare will be contracting with Waste Management for the ongoing disposal of all commercial solid waste generated in the operation of this proposed building. Waste Management will transport all commercial solid waste to an MeDEP licensed local waste facility in accordance with all solid waste regulations.

E. Medical Waste

Due to the nature of this building, very limited medical waste will be generated at this facility. Certified staff will transport sharps containers to be combined with Spring Harbor Hospital medical waste for disposal by Stericycle

E. Recyclable Waste

Secure Records Management Systems will prove secure collection, shredding and recycling of all confidential and non-confidential paper at the new Maine Behavioral Healthcare project. Cardboard will be collected and recycled by Waste Management.

F. Conclusion

The applicant has made adequate provisions for solid waste disposal by quantifying solid wastes that are anticipated to be generated by the project, specifying the methods of transport and disposal of the waste.

Attachments

Waste Management letter to Maine Behavioral Healthcare – July 22. 2019
Secure Records Management Systems letter to Maine Behavioral Healthcare – July 8. 2019

State and Federal Approvals

History

A Site Location of Development Act (SLODA) permit and a Natural Resources Protection Act (NRPA) Tier 2 Wetland Alteration permit were submitted on August 27, 2019. These permits were determined complete on September 18, 2019 and Jenifer McGill has been assigned as the project manager from the MDEP. The project is currently being reviewed.

On November 13, 2019 Frank Del Giudice of the Army Corps of Engineers authorized the placement of fill in freshwater wetlands as indicated on the NRPA Wetland Alteration Permit. A copy of the approval is attached.

The SLODA and State NRPA approvals are still pending and will be forwarded when they are received.

RANSOM Consulting, Inc.

Consulting Engineers and Scientists

Maine Behavioral Healthcare Stormwater Management Plan

LIST OF APPENDICES:

- Appendix A: Stormwater Treatment Calculations
- Appendix B: Stormwater BMP Inspection and Maintenance Requirements
- Appendix C: Pre-Development Calculations
- Appendix D: Post-Development Calculations

SITE DESCRIPTION:

The site (refer to Site Location Map) is an approximately 10.9-acre lot located on the west side of Hutchins Drive and adjacent to the Spring Harbor Hospital. The parcel is bisected by Andover Road. Both the Spring Harbor Hospital parcel and Andover Road were part of a previous development. The land north of Andover Road is primarily woods with heavy underbrush in good condition and the land south of Andover Road is primarily woods with light underbrush in good condition. The topography of the undeveloped site has several higher upland areas separated by pockets of wetlands. The native soil in this location are Hydrologic Soil Groups (HSG) C and D. Stormwater runoff from the site flows into the on-site wetlands and then off-site in 8 different locations. The site is in Zone X of FEMA's Flood Insurance Rate Map (FIRM), indicating that it is outside of the 500-year floodplain.

DEVELOPMENT DESCRIPTION:

Maine Behavioral Healthcare proposes to construct an approximately 32,000 sf, 1 story building as a Center for Autism and Developmental Delays. The site will have several parking lots with approximately 119 spaces (including 6 ADA spaces), 3 access aisles, sidewalks, outdoor sitting spaces, 10,250 sf playground areas and landscaped areas. The proposed developed area which includes the proposed building, pavement and sidewalk (Post-Development sub catchments 9-20) totals 128,971 sf; of which 93,700 sf is new impervious surface and 35,270 sf is landscaped area. There will also be two outlet control structures that discharge to two analysis points. The runoff will discharge to the same points both pre and post development, with equal or decreased flows in the post development with no changes in existing channel geometry.

The Stroudwater River is north of the site, and the development is not expected to impact the water quality or quantity draining to the river. There is roughly 1,000 feet of vegetated buffer between proposed site and the Stroudwater River, with pre-development flows exceeding the expected post-development flows for 2, 10, and 25-year storms. Since post-developed flows are less than that of pre-developed flows

at all discharge points, and the parcel and abutting parcels are outside of the 500-year floodplain, site runoff from the developed site is not expected to impact flood-sensitive areas.

Grading of the site slopes away from the perimeter of the building, while maintaining ADA accessibility and matching into the existing landscape where possible. The site was designed to have slopes of 3:1 or shallower, thereby removing the need for slope stabilization materials. However, guard rails may be used at some locations of the parking lot, such as from the western parking lot area to along the northern parking lot area, though it is not required. There is approximately 3,146 sf of wetland impact.

STORMWATER MANAGEMENT – BASIC STANDARDS:

Erosion and sedimentation control measures during construction are detailed within the design plans. Post-Construction stormwater management practices and good housekeeping practices will be in accordance with Maine DEP Best Management Practices. A post construction stormwater management plan as well as inspection and maintenance requirements are provided in *Appendix B* of this Stormwater Management Plan.

STORMWATER MANAGEMENT – QUALITY (GENERAL STANDARDS):

A project must meet Maine's *Chapter 500, Stormwater Management* general standards if the project results in one or more acres of impervious area, or 5 acres or more of developed area for projects that are not within the direct watershed of an urban impaired stream or a lake most at risk (as defined by Chapter 502). To meet the general standards, the project's stormwater management system must include treatment measures that will provide pollutant removal or treatment (or both), mitigate for the increased frequency and duration of channel erosive flows due to runoff from smaller storms, and mitigate potential temperature impacts. To do that a project must provide treatment of 95% of the impervious area and no less than 80% of the developed area. In addition, runoff from upgradient areas must either be redirected away from the project's stormwater treatment measures or that measure must be sized to address the runoff volume of the upgradient area at 50% of the sizing requirements. Although the amount of on-site treatment provided may be reduced by providing treatment on a currently untreated off-site area in the same watershed, this is not proposed for this project at this time.

Treatment of stormwater is addressed using Maine's Best Management Practices (BMPs). These BMPs are focused on meeting the following water quality objectives:

- Effective pollutant removal – removal of fine particles that carry nutrient and heavy metal load as well as dissolved pollutants and hydrocarbons.
- Cooling – to protect aquatic life within a river, stream, or brook watershed discharge must effectively cool down.
- Channel protection – discharge within a river, stream, or brook watershed must be released slowly to avoid destabilization and resulting sedimentation of receiving channels.
- Flood control – detention for large, infrequent storm events to avoid flooding infrastructure.

The water quality volume is the initial depth of runoff that is considered to carry the bulk of pollutants deposited since the last rain event. Studies have indicated that the first inch of runoff distributed over the watershed carries 90% of the pollutant load from a storm event. Maine's BMPs identified in Volume III of the Maine Stormwater Management Design Manual consider this when establishing the treatment volume identified within each BMP. The BMPs chosen for this site to meet the water quality objectives include:

- Bioretention: Filtration BMP discussed in Maine's Stormwater Management Manual, Volume III, Chapter 7.2, Bioretention Filters.
- Manmade Pervious Paver Systems: Filtration BMP discussed in Maine's Stormwater Management Manual, Volume III, Chapter 7.7, Manmade Pervious Surfaces.

PROJECT SPECIFIC WATER QUALITY TREATMENT MEASURES:

The existing site is currently a mix of vegetated (wooded/scrub brush) upland areas and wetlands. The site currently drains to the wetlands on site. For water quality treatment, the site design incorporates a 12560-sf porous paver filter system along the northern, middle, and southern parking lot areas, as well two FocalPoint bioretention filter systems.

- Bioretention Filter/FocalPoint (FP): The bioretention filters consist of FocalPoint systems that collect, filter, and treat stormwater runoff using conditioned planting soil beds, gravel, underdrained beds, and vegetation within shallow depressions. They capture and retain runoff and pass it through a filter that is comprised of 2-3" of mulch, underlain by an 18" layer of proprietary soil filter media and 6" of course gravel with R-Tank storage placed below grade. The systems are designed to remove a wide range of pollutants, including suspended solids, phosphorus, nitrogen, metals, hydrocarbons, and some dissolved pollutants. The filter also provides for attenuation of discharge which provides reduction of thermal impacts to the discharge points (Analysis Points A and G) as well as minimizing potential channel erosion. The system is sized to store the treatment volume (1.0 inches times the impervious area and 0.4 inches times the landscaped developed area). For larger storms, stormwater bypasses the filter through catch basin and grate to the R-Tank system below.

  FocalPoint 1 (FP1) is a 900-sf system with 1,264 cf of surficial storage in a landscaped area northeast of the building just beyond the playground area. It is used for treatment of the paved sidewalk and path, patio, playground, and southeast portion of the building roof (sub catchments 14B, 15, and 18 on the Post-Development Plan). Runoff from the sloped roof discharges to the surface and flows to the level spreader ahead of FP1 with runoff from the playground. Runoff from the flat portion of the roof is collected and discharged through scuppers and downspouts above-ground to a stormwater channel which also directs the runoff to the level spreader ahead of FP1. The level-spreader is provided as pre-treatment. Stormwater filtered through the FocalPoint is conveyed to the R-Tank storage installed below grade, and stormwater above the treatment volume is transferred to R-Tank storage system through a catch basin and grate.

FocalPoint 2 (FP2) is a 437-sf system with 495 cf of surficial storage located on the northeast corner of the building between the parking lot and playground. It is being used exclusively to treat runoff from the flat portion of the northwest section of the building roof. The water from the roof will be captured and discharged using scuppers and downspouts to this FocalPoint system. Both filtration through the FocalPoint and bypass via catch basin and grate is directed to a subsurface R-Tank storage system. The R-Tank storage below FP2 is connected to a series of subsurface R-Tank storage areas below the multiple pervious paver systems and are interconnected with piping to provide common storage.

- Manmade Pervious Pavers (MPP): Pervious paver systems are used almost exclusively for the treatment of paved areas on site, though some systems in parking areas may see some runoff from adjacent landscaped area discharging to the system. The MPP systems consist of the Power BLOCK porous paver system by ACF Environmental underlain by a layer of 3/8" stone, then a layer of 3/4" crushed stone and finally a layer of bio-filter media for filtration for the stormwater runoff. The Power BLOCK system overlays an R-Tank storage system that will be used for detention during larger storm events. Stormwater beyond the water quality volume will be captured by catch basins which discharge to the R-tank system. The area of pervious pavers must be no less than 20% of the area being treated and the flow path to the pervious paver section must be no greater than 50 feet. Catch basins in the pervious area capture overflow from larger storms and discharge to the R-Tank system below which is interconnected with piping to provide common storage.

  The pervious pavers proposed are in sub catchments 9, 10a, 10b, 11a, 11b, 12, 13a, 13b, 13c, 16, 17, 19 shown on the Post-Development Plan and the depth of the paver systems were sized based on the magnitude of the impervious areas draining to those locations.

STORMWATER MANAGEMENT – QUANTITY (FLOODING STANDARDS):

A project must meet Maine's *Chapter 500, Stormwater Management* flooding standards if the project results in three or more acres of impervious area, or 20 acres or more of developed area. To meet the flooding standard, the project's stormwater management systems must:

- detain, retain, or result in the infiltration of stormwater from 24-hour storms of the 2-year, 10-year, and 25-year frequencies such that peak flow of stormwater from the project site do not exceed the peak flows of stormwater prior to undertaking the project;

- design the piped or open channel systems based on a 10-year, 24-hour storm without overloading or flooding beyond channel limits;

- not flood the primary access road to the project and any public roads bordering the project as a result of a 25-year, 24-hour storm event

A project is eligible for a waiver from the flooding standard for insignificant increases in peak flow rates from a project site. A waiver is also available for a project in the watershed of a coastal wetland, great pond, or major river segment provided the stormwater is conveyed via sheet flow, in a manmade open channel, or in a piped system directly into one of these resources.

The use of the R-Tank modules by ACF Environmental will detain the stormwater runoff to below pre-development conditions to comply with the Flooding Standard. The proposed detention system consists of a series of R-Tanks located below all pervious paver systems as well as FocalPoint filtration systems. The R-Tanks below the pavers and FP2 are interconnected with corrugated polyethylene, smooth interior pipe to capture and store the larger volume storms prior to discharge. A separate R-Tank system is used to store runoff from FP2.

Each storage system discharges through an outlet control structure that ultimately discharges to a plunge pool. For the northern R-Tank system (MPP and FP2), the R-Tanks were all placed at an elevation of 55.20 ft. Therefore, the water level throughout the system rises at an equal rate. The surface area of the R-Tank was sized as to not exceed the bottom of the filter layer of the paver system. Discharge from the R-Tank storage systems goes through an outlet control structure that uses orifices and a weir to release the discharge to Analysis Points A and G at a controlled rate; commensurate with a particular rainfall event.

Additionally, it should be noted that there is an existing 18" culvert at station 19+60 that drains from the southern to northern side of Andover Road. However, the flow rate discharged through the culvert has no affect on the development of Maine Behavioral Healthcare as the culvert drains to the same wetland both before and after the development. The project does not propose to upgrade the existing culvert because post-development flows are the same as pre-development flows. The site layout was designed to minimize impact on this wetland.

Stormwater runoff in the pre and post-development conditions are evaluated at Analysis Points A-H. The development of the site influences only Analysis Points A, F, G, and H. Sub catchments in the post-development condition were established based on subareas used to define treatment boundaries. The runoff at all analysis points in the post-development condition are either equal to or less than the flow in the pre-development condition. Pre-Development stormwater plans and pre-development HydroCAD calculations are included in *Appendix C* while Post-Development stormwater plans and post-development HydroCAD calculations are included in *Appendix D*.

- HydroCAD Modeling Assumptions: All soils in the developed areas have a Hydrologic Soil Group (HSG) rating of C/D or D. To provide a conservative estimate of expected flows discharging from the site, it was assumed that all soils had a HSG rating of D, since these soils have less permeability and higher runoff potential than that of C.
    - Areas of sub catchments were determined using AutoCAD.
    - Times of concentration beginning at Andover Road and ending at analyses points was assumed to flow 15 feet as sheet flow from the crown to the side of the road over a smooth surface with a Manning's number of 0.011 and a slope of 5%. The water then flows an additional 135 feet as sheet flow (150 feet of sheet flow total), and the remainder of the time of concentration path flowing as shallow concentrated flow.
    - Slopes of time of concentration paths were based on the survey conducted by Titcomb Associates in May of 1997, overlaid with the grading plan of Andover Road.

- For flow over developed impervious areas with a curve number of 98, the time of concentration was assumed to be 6 minutes in accordance with Maine DEP guidance documents. The non-developed vegetated areas north of Andover Road was assumed to be in good condition with a curve number of 77, with sheet flow traveling over dense underbrush woods with a Manning number of 0.8, and shallow concentrated flow traveling over forest with heavy litter with a velocity factor of 2.5.

- The non-developed vegetated areas south of Andover Road were assumed to be in good condition with a curve number of 77, with sheet flow traveling over light underbrush woods with a Manning number of 0.4, and shallow concentrated flow traveling over forest with heavy litter with a velocity factor of 2.5.

- Developed landscaped areas were assumed to be >75% grass cover in good condition with a curve number of 80 and paved impervious areas were assumed to have a curve number of 98.

- Because the playground material has not yet been finalized it was assumed to be impervious with a curve number of 98 as a conservative estimate to predict runoff.

HYDRAULIC ANALYSIS:

Stormwater runoff calculations for quantity were made using the HydroCAD 10.00 computer program, which is based on the Soil Conservation Service's TR-20 methodology. Runoff hydrographs are generated based on a standard Type III 24-hour storm for Cumberland County identified in Appendix H of *Maine DEP Chapter 500, Stormwater Management.*

Four storm events were evaluated as follows:

- 2-year frequency flood event: 3.1" rainfall

- 10-year frequency flood event: 4.6" rainfall

- 25-year frequency flood event: 5.8" rainfall

Runoff Curve numbers were determined based on land coverage and hydro-geological soil type D. Times of concentration were developed based on runoff flow paths for each subarea and shown on the Pre and Post-Development plans. A minimum Tc of 6 minutes was used in the HydroCAD model.

Peak runoff flow rates and runoff volumes are provided at the analysis points, which are identified on the Pre and Post-Development plans. Comparison of the runoff peak flow rates are provided at each analysis point on Tables 1-3 below :

Table 1 – 2-year, 24-hour Storm

Analysis Point	Pre-Development	Post-Development
A	1.08 cfs	1.01 cfs
B	0.63 cfs	0.63 cfs
C	1.18 cfs	1.18 cfs
D	1.46 cfs	1.46 cfs
E	0.32 cfs	0.32 cfs
F	0.39 cfs	0.33 cfs
G	0.56 cfs	0.35 cfs
H	0.34 cfs	0.09 cfs

Table 2 – 10-year, 24-hour Storm

Analysis Point	Pre-Development	Post-Development
A	2.20 cfs	2.05 cfs
B	1.28 cfs	1.28 cfs
C	2.39 cfs	2.39 cfs
D	2.95 cfs	2.95 cfs
E	0.58 cfs	0.58 cfs
F	0.77 cfs	0.59 cfs
G	1.16 cfs	0.79 cfs
H	0.71 cfs	0.18 cfs

Table 3 – 25-year, 24-hour Storm

Analysis Point	Pre-Development	Post-Development
A	3.19 cfs	2.84 cfs
B	1.84 cfs	1.84 cfs
C	3.43 cfs	3.43 cfs
D	4.24 cfs	4.24 cfs
E	0.79 cfs	0.79 cfs
F	1.10 cfs	0.81 cfs
G	1.68 cfs	1.64 cfs
H	1.03 cfs	0.26 cfs

RANSOM Consulting, LLC

Consulting Engineers and Scientists

Maine Behavioral Healthcare Stormwater Management Plan

LIST OF APPENDICES:

- Appendix A: Stormwater Treatment Calculations
- Appendix B: Stormwater BMP Inspection and Maintenance Requirements
- Appendix C: Pre-Development Calculations
- Appendix D: Post-Development Calculations

SITE DESCRIPTION:

The site (refer to Site Location Map) is an approximately 10.9-acre lot located on the west side of Hutchins Drive and adjacent to the Spring Harbor Hospital. The parcel is bisected by Andover Road. Both the Spring Harbor Hospital parcel and Andover Road were part of a previous development. The land north of Andover Road is primarily woods with heavy underbrush in good condition and the land south of Andover Road is primarily woods with light underbrush in good condition. The topography of the undeveloped site has several higher upland areas separated by pockets of wetlands. The native soil in this location are Hydrologic Soil Groups (HSG) C and D. Stormwater runoff from the site flows into the on-site wetlands and then off-site in 8 different locations. The site is in Zone X of FEMA's Flood Insurance Rate Map (FIRM), indicating that it is outside of the 500-year floodplain.

DEVELOPMENT DESCRIPTION:

Maine Behavioral Healthcare proposes to construct an approximately 30,000 sf, 1 story building as a Center for Autism and Developmental Delays. The site will have several parking lots with approximately 119 spaces (including 6 ADA spaces), 3 access aisles, sidewalks, outdoor sitting spaces, playground areas and landscaped areas. The proposed developed area which includes the proposed building, pavement and sidewalk (Post-Development sub catchments 9-20) totals 130333; of which 97,619 sf is new impervious surface and 32,714 sf is landscaped area. There will also be two outlet control structures that discharge to two analysis points. The runoff will discharge to the same points both pre and post development, with equal or decreased flows in the post development with no changes in existing channel geometry.

The Stroudwater River is north of the site, and the development is not expected to impact the water quality or quantity draining to the river. There is roughly 1,000 feet of vegetated buffer between proposed site and the Stroudwater River, with pre-development flows exceeding the expected post-development flows for 2, 10, and 25-year storms. Since post-developed flows are less than that of pre-developed flows

at all discharge points, and the parcel and abutting parcels are outside of the 500-year floodplain, site runoff from the developed site is not expected to impact flood-sensitive areas.

Grading of the site slopes away from the perimeter of the building, while maintaining ADA accessibility and matching into the existing landscape where possible. The site was designed to have slopes of 3:1 or shallower, thereby removing the need for slope stabilization materials. However, guard rails may be used at some locations of the parking lot, such as from the western parking lot area to along the northern parking lot area, though it is not required. There is approximately 3,146 sf of wetland impact.

STORMWATER MANAGEMENT – BASIC STANDARDS:

Erosion and sedimentation control measures during construction are detailed within the design plans. Post-Construction stormwater management practices and good housekeeping practices will be in accordance with Maine DEP Best Management Practices. A post construction stormwater management plan as well as inspection and maintenance requirements are provided in *Appendix B* of this Stormwater Management Plan.

STORMWATER MANAGEMENT – QUALITY (GENERAL STANDARDS):

A project must meet Maine's *Chapter 500, Stormwater Management* general standards if the project results in one or more acres of impervious area, or 5 acres or more of developed area for projects that are not within the direct watershed of an urban impaired stream or a lake most at risk (as defined by Chapter 502). To meet the general standards, the project's stormwater management system must include treatment measures that will provide pollutant removal or treatment (or both), mitigate for the increased frequency and duration of channel erosive flows due to runoff from smaller storms, and mitigate potential temperature impacts. To do that a project must provide treatment of 95% of the impervious area and no less than 80% of the developed area. In addition, runoff from upgradient areas must either be redirected away from the project's stormwater treatment measures or that measure must be sized to address the runoff volume of the upgradient area at 50% of the sizing requirements. Although the amount of on-site treatment provided may be reduced by providing treatment on a currently untreated off-site area in the same watershed, this is not proposed for this project at this time.

Treatment of stormwater is addressed using Maine's Best Management Practices (BMPs). These BMPs are focused on meeting the following water quality objectives:

- Effective pollutant removal – removal of fine particles that carry nutrient and heavy metal load as well as dissolved pollutants and hydrocarbons.
- Cooling – to protect aquatic life within a river, stream, or brook watershed discharge must effectively cool down.
- Channel protection – discharge within a river, stream, or brook watershed must be released slowly to avoid destabilization and resulting sedimentation of receiving channels.
- Flood control – detention for large, infrequent storm events to avoid flooding infrastructure.

The water quality volume is the initial depth of runoff that is considered to carry the bulk of pollutants deposited since the last rain event. Studies have indicated that the first inch of runoff distributed over the watershed carries 90% of the pollutant load from a storm event. Maine's BMPs identified in Volume III of the Maine Stormwater Management Design Manual consider this when establishing the treatment volume identified within each BMP. The BMPs chosen for this site to meet the water quality objectives include:

- Bioretention: Filtration BMP discussed in Maine's Stormwater Management Manual, Volume III, Chapter 7.2, Bioretention Filters.

- Manmade Pervious Paver Systems: Filtration BMP discussed in Maine's Stormwater Management Manual, Volume III, Chapter 7.7, Manmade Pervious Surfaces.

PROJECT SPECIFIC WATER QUALITY TREATMENT MEASURES:

The existing site is currently a mix of vegetated (wooded/scrub brush) upland areas and wetlands. The site currently drains to the wetlands on site. For water quality treatment, the site design incorporates a 13,950-sf porous paver filter system along the northern, middle, and southern parking lot areas, as well two FocalPoint bioretention filter systems.

- Bioretention Filter/FocalPoint (FP): The bioretention filters consist of FocalPoint systems that collect, filter, and treat stormwater runoff using conditioned planting soil beds, gravel, underdrained beds, and vegetation within shallow depressions. They capture and retain runoff and pass it through a filter that is comprised of 2-3" of mulch, underlain by an 18" layer of proprietary soil filter media and 6" of course gravel with R-Tank storage placed below grade. The systems are designed to remove a wide range of pollutants, including suspended solids, phosphorus, nitrogen, metals, hydrocarbons, and some dissolved pollutants. The filter also provides for attenuation of discharge which provides reduction of thermal impacts to the discharge points (Analysis Points A and G) as well as minimizing potential channel erosion. The system is sized to store the treatment volume (1.0 inches times the impervious area and 0.4 inches times the landscaped developed area). For larger storms, stormwater bypasses the filter through catch basin and grate to the R-Tank system below.

  FocalPoint 1 (FP1) is a 900-sf system with 1,305 cf of surficial storage in a landscaped area northeast of the building just beyond the playground area. It is used for treatment of the paved sidewalk and path, patio, playground, southeast portion of the building roof, and proposed addition (sub catchments 14D, 15, and 18 on the Post-Development Plan). Runoff from the sloped roof discharges to the surface and flows to the level spreader ahead of FP1 with runoff from the playground. Runoff from the flat portion of the roof is collected and discharged through scuppers and downspouts above-ground to a stormwater channel which also directs the runoff to the level spreader ahead of FP1. The level-spreader is provided as pre-treatment. Stormwater filtered through the FocalPoint is conveyed to the R-Tank storage installed below grade, and stormwater above the treatment volume is transferred to R-Tank storage system through a catch basin and grate.

FocalPoint 2 (FP2) is a 386-sf system with 296 cf of surficial storage located on the northeast corner of the building between the parking lot and playground. It is being used exclusively to treat runoff from the flat portion of the northwest section of the building roof. The water from the roof will be captured and discharged using scuppers and downspouts to this FocalPoint system. Both filtration through the FocalPoint and bypass via catch basin and grate is directed to a subsurface R-Tank storage system. The R-Tank storage below FP2 is connected to a series of subsurface R-Tank storage areas below the multiple pervious paver systems and are interconnected with piping to provide common storage. The FocalPoint is next to the proposed staff patio. An ACF Environmental PRETX Drop Inlet is used as a pretreatment system and decreases the flow rate from the roof drains to the biofiltration system.

FocalPoint 3 (FP3) is a 325-sf with 203 cf of surficial storage located on the northwest side of the rear entrance. It is being used exclusively to treat runoff from the flat portion of the north-central section of the building roof. The water from the roof will be captured and discharged using scuppers and downspouts to this FocalPoint system. Both filtration through the FocalPoint and bypass via catch basin and grate is directed to a subsurface R-Tank storage system. The R-Tank storage below FP3 is connected to a series of subsurface R-Tank storage areas below FP 1, 3, and 4 in the playground area, and are interconnected with piping to provide common storage. The FocalPoint is next to the proposed staff patio. An ACF Environmental PRETX Drop Inlet is used as a pretreatment system and decreases the flow rate from the roof drains to the biofiltration system.

FocalPoint 4 (FP4) is a 158-sf system with 109 cf of surficial storage location on the southeast side of the rear entrance. It is being used exclusively to treat runoff from the flat portion of the south-central section of the building roof and the 3064 sf overhang of the north side of the building. The water from the roof will be captured and discharged using scuppers and downspouts to this FocalPoint system. Both filtration through the FocalPoint and bypass via catch basin and grate is directed to a subsurface R-Tank storage system. The R-Tank storage below FP3 is connected to a series of subsurface R-Tank storage areas below FP 1, 3, and 4 in the playground area, and are interconnected with piping to provide common storage. The FocalPoint is next to the proposed staff patio. An ACF Environmental PRETX Drop Inlet is used as a pretreatment system and decreases the flow rate from the roof drains to the biofiltration system.

- Manmade Pervious Pavers (MPP): Pervious paver systems are used almost exclusively for the treatment of paved areas on site, though some systems in parking areas may see some runoff from adjacent landscaped area discharging to the system. The MPP systems consist of the Power BLOCK porous paver system by ACF Environmental underlain by a layer of 3/8" stone, then a layer of 3/4" crushed stone and finally a layer of bio-filter media for filtration for the stormwater runoff. The Power BLOCK system overlays an R-Tank storage system that will be used for detention during larger storm events. Stormwater beyond the water quality volume will be captured by catch basins which discharge to the R-tank system. The area of pervious pavers must be no less than 20% of the area being treated and the flow path to the pervious paver section must be no greater than 50 feet. Catch basins in the pervious area capture overflow from larger storms and discharge to the R-Tank system below which is interconnected with piping to provide common storage.

The pervious pavers proposed are in sub catchments 9, 10a, 10b, 11a, 11b, 12, 13a, 13b, 13c, 16, 17, 19 shown on the Post-Development Plan and the depth of the paver systems were sized based on the magnitude of the impervious areas draining to those locations.

STORMWATER MANAGEMENT – QUANTITY (FLOODING STANDARDS):

A project must meet Maine's *Chapter 500, Stormwater Management* flooding standards if the project results in three or more acres of impervious area, or 20 acres or more of developed area. To meet the flooding standard, the project's stormwater management systems must:

- detain, retain, or result in the infiltration of stormwater from 24-hour storms of the 2-year, 10-year, and 25-year frequencies such that peak flow of stormwater from the project site do not exceed the peak flows of stormwater prior to undertaking the project;

- design the piped or open channel systems based on a 10-year, 24-hour storm without overloading or flooding beyond channel limits;

- not flood the primary access road to the project and any public roads bordering the project as a result of a 25-year, 24-hour storm event

A project is eligible for a waiver from the flooding standard for insignificant increases in peak flow rates from a project site. A waiver is also available for a project in the watershed of a coastal wetland, great pond, or major river segment provided the stormwater is conveyed via sheet flow, in a manmade open channel, or in a piped system directly into one of these resources.

The use of the R-Tank modules by ACF Environmental will detain the stormwater runoff to below pre-development conditions to comply with the Flooding Standard. The proposed detention system consists of a series of R-Tanks located below all pervious paver systems as well as FocalPoint filtration systems. The R-Tanks below the pavers and FP2 are interconnected with corrugated polyethylene, smooth interior pipe to capture and store the larger volume storms prior to discharge. A separate R-Tank system is used to store runoff from FP2.

Each storage system discharges through an outlet control structure that ultimately discharges to a plunge pool. For the northern R-Tank system (MPP and FP2), the R-Tanks were all placed at an elevation of 54 ft. Therefore, the water level throughout the system rises at an equal rate. The surface area of the R-Tank was sized as to not exceed the bottom of the filter layer of the paver system. Discharge from the R-Tank storage systems goes through an outlet control structure that uses orifices and a weir to release the discharge to Analysis Points A and G at a controlled rate; commensurate with a particular rainfall event.

Additionally, it should be noted that there is an existing 18" culvert at station 19+60 that drains from the southern to northern side of Andover Road. However, the flow rate discharged through the culvert has no affect on the development of Maine Behavioral Healthcare as the culvert drains to the same wetland both before and after the development. The project does not propose to upgrade the existing culvert because post-development flows are the same as pre-development flows. The site layout was designed to minimize impact on this wetland.

Stormwater runoff in the pre and post-development conditions are evaluated at Analysis Points A-H. The development of the site influences only Analysis Points A, F, G, and H. Sub catchments in the post-development condition were established based on subareas used to define treatment boundaries. The runoff at all analysis points in the post-development condition are either equal to or less than the flow in the pre-development condition. Pre-Development stormwater plans and pre-development HydroCAD calculations are included in *Appendix C* while Post-Development stormwater plans and post-development HydroCAD calculations are included in *Appendix D*.

- HydroCAD Modeling Assumptions: All soils in the developed areas have a Hydrologic Soil Group (HSG) rating of C/D or D. To provide a conservative estimate of expected flows discharging from the site, it was assumed that all soils had a HSG rating of D, since these soils have less permeability and higher runoff potential than that of C.
    - Areas of sub catchments were determined using AutoCAD.
    - Times of concentration beginning at Andover Road and ending at analyses points was assumed to flow 15 feet as sheet flow from the crown to the side of the road over a smooth surface with a Manning's number of 0.011 and a slope of 5%. The water then flows an additional 135 feet as sheet flow (150 feet of sheet flow total), and the remainder of the time of concentration path flowing as shallow concentrated flow.
    - Slopes of time of concentration paths were based on the survey conducted by Titcomb Associates in May of 1997, overlaid with the grading plan of Andover Road.
    - For flow over developed impervious areas with a curve number of 98, the time of concentration was assumed to be 6 minutes in accordance with Maine DEP guidance documents. The non-developed vegetated areas north of Andover Road was assumed to be in good condition with a curve number of 77, with sheet flow traveling over dense underbrush woods with a Manning number of 0.8, and shallow concentrated flow traveling over forest with heavy litter with a velocity factor of 2.5.
    - The non-developed vegetated areas south of Andover Road were assumed to be in good condition with a curve number of 77, with sheet flow traveling over light underbrush woods with a Manning number of 0.4, and shallow concentrated flow traveling over forest with heavy litter with a velocity factor of 2.5.
    - Developed landscaped areas were assumed to be >75% grass cover in good condition with a curve number of 80 and paved impervious areas were assumed to have a curve number of 98.
    - Because the playground material has not yet been finalized it was assumed to be impervious with a curve number of 98 as a conservative estimate to predict runoff.

HYDRAULIC ANALYSIS:

Stormwater runoff calculations for quantity were made using the HydroCAD 10.00 computer program, which is based on the Soil Conservation Service's TR-20 methodology. Runoff hydrographs are generated based on a standard Type III 24-hour storm for Cumberland County identified in Appendix H of *Maine DEP Chapter 500, Stormwater Management.*

Four storm events were evaluated as follows:

- 2-year frequency flood event: 3.1" rainfall
- 10-year frequency flood event: 4.6" rainfall
- 25-year frequency flood event: 5.8" rainfall

Runoff Curve numbers were determined based on land coverage and hydro-geological soil type D. Times of concentration were developed based on runoff flow paths for each subarea and shown on the Pre and Post-Development plans. A minimum Tc of 6 minutes was used in the HydroCAD model.

Peak runoff flow rates and runoff volumes are provided at the analysis points, which are identified on the Pre and Post-Development plans. Comparison of the runoff peak flow rates are provided at each analysis point on Tables 1-3 below :

Table 1 – 2-year, 24-hour Storm

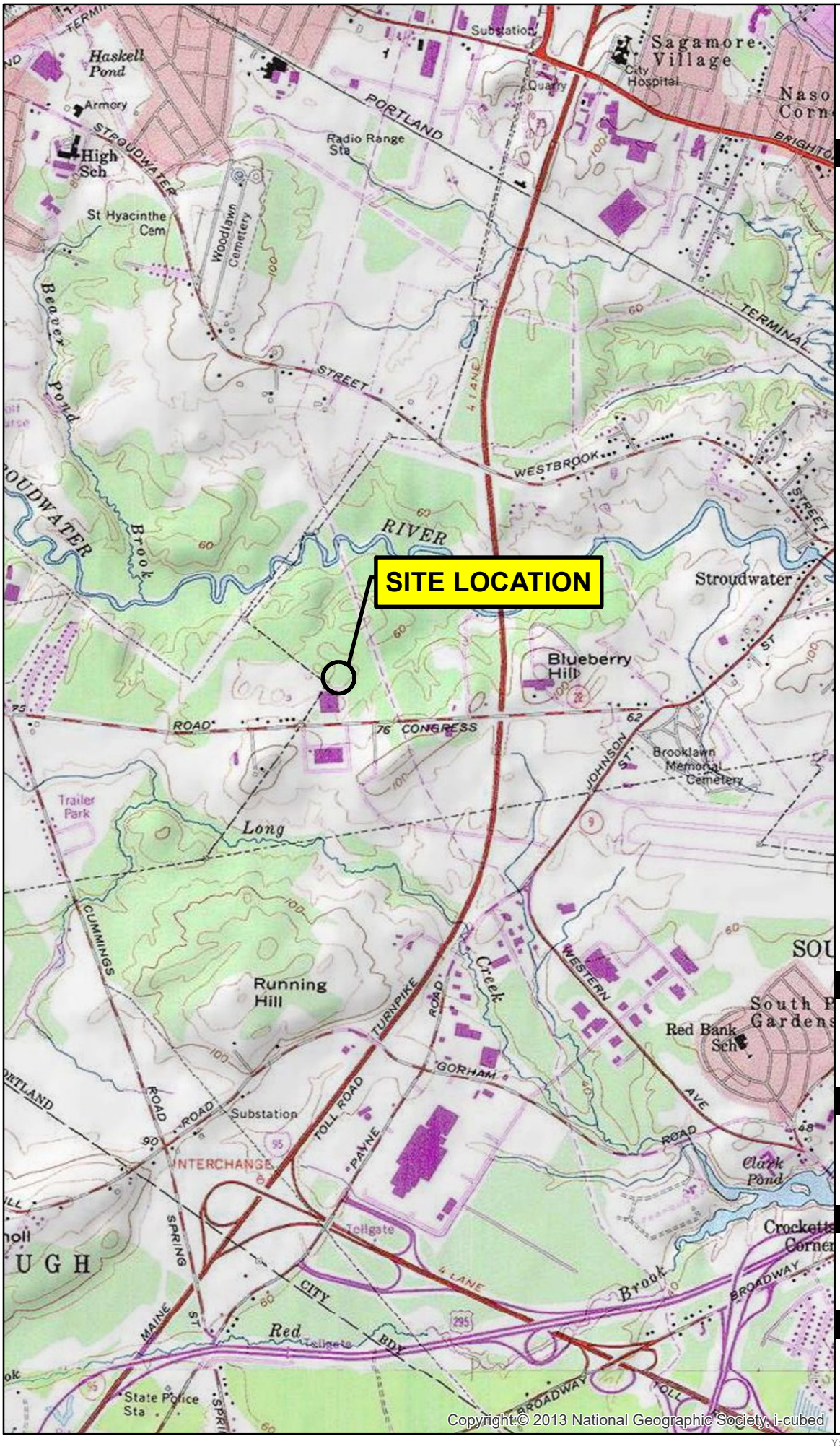
Analysis Point	Pre-Development	Post-Development
A	1.08 cfs	0.94 cfs
B	0.63 cfs	0.63 cfs
C	1.18 cfs	1.18 cfs
D	1.46 cfs	1.46 cfs
E	0.32 cfs	0.32 cfs
F	0.39 cfs	0.19 cfs
G	0.56 cfs	0.40 cfs
H	0.34 cfs	0.09 cfs

Table 2 – 10-year, 24-hour Storm

Analysis Point	Pre-Development	Post-Development
A	2.20 cfs	1.93 cfs
B	1.28 cfs	1.28 cfs
C	2.39 cfs	2.39 cfs
D	2.95 cfs	2.95 cfs
E	0.58 cfs	0.58 cfs
F	0.77 cfs	0.33 cfs
G	1.16 cfs	0.80 cfs
H	0.71 cfs	0.19 cfs

Table 3 – 25-year, 24-hour Storm

Analysis Point	Pre-Development	Post-Development
A	3.19 cfs	2.73 cfs
B	1.84 cfs	1.84 cfs
C	3.43 cfs	3.43 cfs
D	4.24 cfs	4.24 cfs
E	0.79 cfs	0.79 cfs
F	1.10 cfs	0.44 cfs
G	1.68 cfs	1.33 cfs
H	1.03 cfs	0.28 cfs



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Consulting Engineers and Scientists

Regional Locator Map

N

Notes

1. Data Source: USGS National Map Seamless Server, 24K DRG, 1/3" NED
2. USGS Quad Name: Portland
3. Latitude: 43° 39' 11" N
   Longitude: 70° 20' 27" W
   UTM Northing: 4834213 mN
   UTM Easting: 391875 mE
   UTM Zone: 19T

Scale and Orientation

0 1,000 2,000

1:24,000

Prepared For

e4h Environments for Health Architectu
163 Fore Street, 4th floor
Portland, Maine 04101

Site Address

Andover Road
Portland, Maine

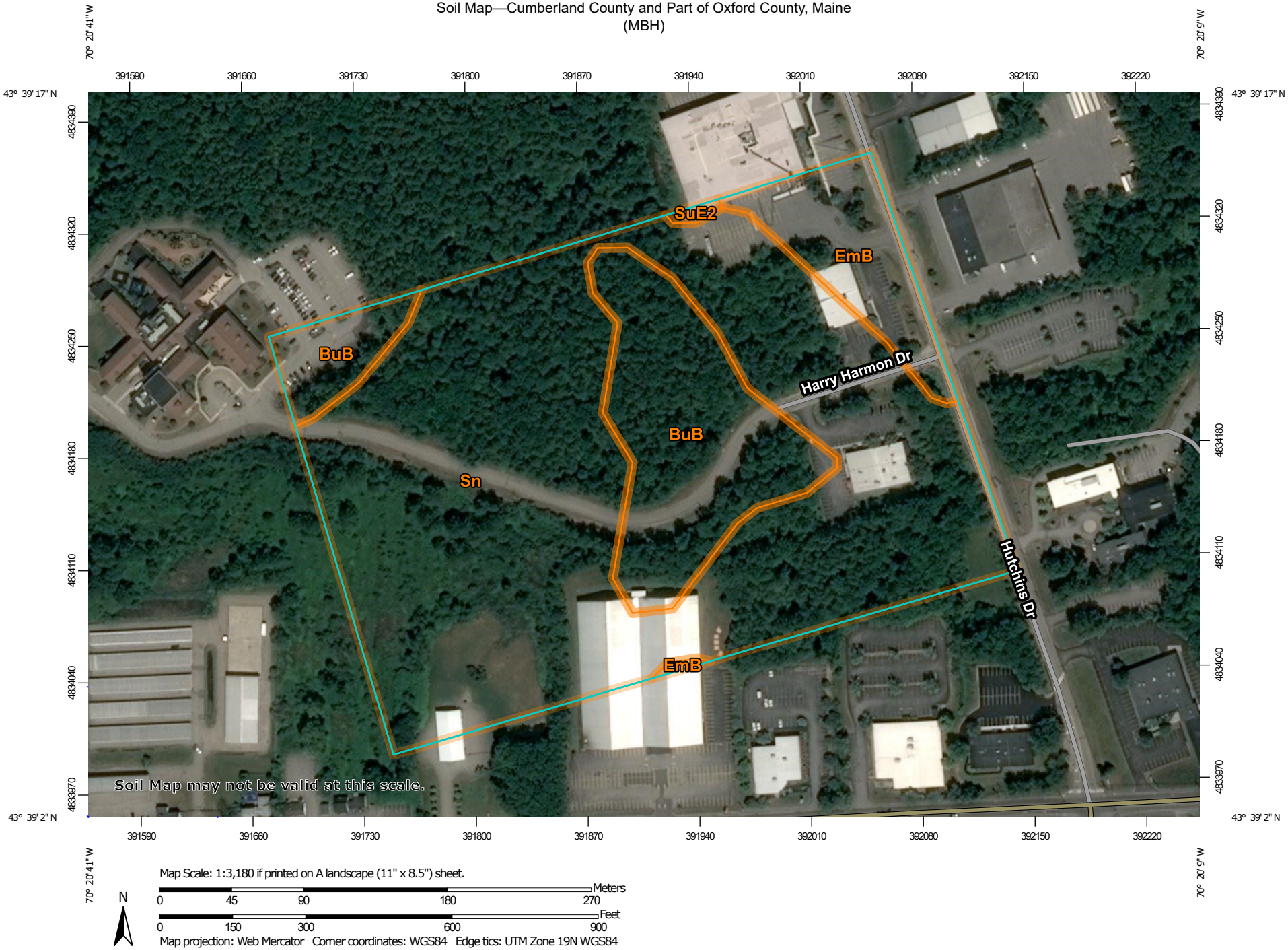
181.06068 | July 2019

Figure 1

Site Location Map

Y:\2018\181.06068\stormwater\Location Map.mxd

Soil Map—Cumberland County and Part of Oxford County, Maine
(MBH)



Map Scale: 1:3,180 if printed on A landscape (11" x 8.5") sheet.

N

Meters: 0 45 90 180 270

Feet: 0 150 300 600 900

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 19N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Cumberland County and Part of Oxford County, Maine
Survey Area Data: Version 15, Sep 6, 2018

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Data not available.

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
BuB	Lamoine silt loam, 3 to 8 percent slopes	5.3	19.3%
EmB	Elmwood fine sandy loam, 0 to 8 percent slopes	2.1	7.6%
Sn	Scantic silt loam, 0 to 3 percent slopes	19.9	72.9%
SuE2	Suffield silt loam, 25 to 45 percent slopes, eroded	0.1	0.2%
Totals for Area of Interest		**27.3**	**100.0%**

APPENDIX A

Stormwater Treatment Calculations

Table 1: Stormwater Treatment						
Subcatchment Area #	**Total Area (sq.ft)**	**Impervious (sq. ft)**	**Treated Impervious (sq. ft)**	**Landscaped (sq. ft)**	**Treated Landscaped (sq. ft)**	**Treatment System**
9	1858	1707	1707	151	151	MPP9
10a	2983	2901	2901	82	82	MPP10a
10b	2544	2473	2473	71	71	MPP10b
11a	2308	2226	2226	82	82	MPP11a
11b	2126	2055	2055	71	71	MPP11b
12	3472	3321	3321	151	151	MPP12
13a	5251	4911	4911	340	340	MPP13a
13b	9927	9865	9865	62	62	MPP13b
13c	3729	3695	3695	34	34	MPP13c
14a	7143	7143	7143	0	0	FP2
14b	6772	6772	6772	0	0	FP3
14c	6642	6642	6642	0	0	FP4
14d	3649	3649	3649	0	0	FP1
15	21848	9803	9803	12045	12045	FP1
16	11093	10738	10435	355	345	MPP16
17	4970	4769	4020	201	169	MPP17
18	9273	1354	1354	7919	7919	FP1
19	15647	9785	9785	5862	5862	MPP19
20	9098	3810	0	5288	0	----------
Total (sq. ft)	**130333**	**97619**	**92757**	**32714**	**27384**	----------

% Impervious Treated	95.0%
% Landscape Treated	83.7%

FOCALPOINT

HIGH PERFORMANCE MODULAR BIOFILTRATION SYSTEM

MAINE – CHAPTER 500 DESIGN WORKSHEET/CHECKLIST

1. FocalPoint Bed Area (min 174 square feet per acre of impervious area (e.g. 0.2 acres = 35 sf))

- Tributary Impervious area = _____ ac. (A)
- Tributary Pervious area = _____ ac. (B)
- Min FocalPoint bed area req'd = (((A) x 1.0) + ((B) x 0.4)) * 174 = _____ sf.
- FocalPoint Bed Area provided * = _____ sf.
- Dimensions of Proposed FocalPoint = _____ft x _____ft

* see criteria 2. to determine if minimum size is appropriate.

2. A 0.95 inch Type III 24hr rainfall event shall be modelled to demonstrate the entire storm volume is treated prior to activation of the overflow (typically set at 6-12" above the mulch)

- Temporary storage depth provided = _____ inches (typ 6" to 12")
- Temporary storage volume provided at above depth = _____ cubic feet.
- Peak ponding depth from 0.95" 24hr storm event = _____ inches

3. Ratio of the surface area of the filter media (sf) to the temporary ponding volume (cf) shall be no less that 1:5

- Ratio of FocalPoint Bed Area : Temporary Storage Vol = _____ : _____

4. Subsurface R-Tank or Chamber Treatment Row must be sized to treat the peak flow from a 1 yr-24hr storm event.

- 1yr 24hr Peak Flowrate = _____ cfs
- Chamber model selected
  - Cultec 330 XLHD (1 chamber per 0.227 cfs) ☐
  - Cultec 150XLHD (1 chamber per 0.185 cfs) ☐
  - R-Tank modules (1 module per 0.02 cfs) ☐

- Number of Chambers/modules required = _____

5. Controlled release of the Channel Protection over 24-48 hrs

- Controlled release of the channel protection volume is being achieved by:
  - Expanded subsurface storage basin with OCS ☐
  - Surface detention basin with OCS ☐

6. A landscape plan for the FocalPoint bed area has been prepared ☐

7. The Design shall be reviewed by the manufacturer's representative prior to submission and installation will be overseen by the manufacturer's representative.

- The Design has been reviewed by ACF Environmental ☐
- Engineer will coordinate installation inspection with ACF ☐

Contact ACF Environmental at 1800 448 3636 with any questions
or contact Rob Woodman – Senior Stormwater Engineer at rwoodman@acfenv.com

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Consulting, Inc.

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Providence, Rhode Island 401-433-2160
Portsmouth, New Hampshire 603-436-1490
Portland, Maine 207-772-2891
Hamilton, New Jersey 609-584-0090

PROJECT NO. 18106068 SITE MBH
SHEET NO. _____ OF _____
CALCULATED BY JRP DATE _____
CHECKED BY _____ DATE _____
SCALE _____

Focal Point sizing - FP1

Subcatchments 15, 18, 14D

1 acre = 43560 sf

1) B Tributary Pervious Area = 16811 sf = 0.386 acre
A Tributary Impervious Area = 15858 sf = 0.364 acre

(1A + 0.4B) 174 = (0.364 + 0.4 × 0.386) × 174
= 90.21 sf = min FocalPoint bed area

FocalPoint Bed Area Provided = 12 × 75 = 900 sf

2) Temporary Storage depth = 12"
Temporary Storage volume = 1305 cf
Peak ponding depth from 0.95" 24-hr storm = 0"

3) FP filter area : Temp storage volume = 900 : 1305 > 1:5 ✓

4) 1.R-tank module Per 0.02 cfs
1 yr 24 hr peak flow rate = 1.33 cfs
1.33/.02 = 67 modules required
41 × 32 = 1408 modules Provided

5) Expanded Subsurface storage basin with QC)

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SHEET NO. _____ OF _____

CALCULATED BY JRP DATE _____

CHECKED BY _____ DATE _____

SCALE _____

Focal Point sizing FP_2 1 acre = 43560 sf

1) Tributary Impervious Area = 0.175 acre
= 7641 sf

Min Focal Point bed Area = 0.175 × 174 = 30.5 sf

Focal Point bed area Provided = 185 sf

2) Temporary storage depth = 9"
Temporary storage volume = 296 CF
peak ponding depth from 0.95" 24 hr Storm = 0'

3) FP Filter area : Temp storage volume = 185 : 296 > 1.5

4) 1 R-tank module per 0.02 cfs
1 yr 24 hr peak flow rate = 0.44 cfs
0.44 cfs / 0.02 = 22 modules required
10 × 10 = 100 modules Provided

5) Expanded Subsurface storage basin with OCS

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SHEET NO. _____ OF _____
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CHECKED BY _____ DATE _____
SCALE _____

Focal Point sizing - FP3
1 acre = 43560 sf

1) Tributary Impervious Area = 6943 sf = 0.159 acre
min Focal Point bed Area = 0.159 acres/174 = 28 sf
Focal Point bed area provided = 98 sf

2) Temporary storage depth = 9"
Temporary storage volume = 203 cf
Peak ponding depth from 0.95" 24hr storm = 0"

3) FP Filter area: Temp storage volume = 98:203 > 1:5 ✓

4) 1 R-tank module per 0.02 cfs
1 yr 24 hr Peak flow rate = 0.4 cfs
0.4 cfs / 0.02 = 20 modules required
20 + 15 = 300 modules provided

5) Expanded subsurface storage basin with OCS

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CHECKED BY ____ DATE ____
SCALE ____

Focal Point Sizing - FP4

1 acre = 43560 sf

1) Tributary Impervious Area = 7724 sf
= 0.177 acre

Min Focal Point bed area = 0.177 × 174 = 31 sf

Focal Point bed area Provided = 32 sf

2) Temporary Storage depth = 12"
Temporary Storage Volume = 109 cf
Peak Ponding depth from 0.95" 24hr storm = 4.68"

3) FP Filter area: Temp Storage volume = 32:109 > 1:5 ✓

4) 1 R-tank module per 0.02 cfs
1-yr 24hr Peak flow rate = 0.44 cfs
0.44/0.02 = 22 modules required

20 × 9 = 180 modules Provided

5) Expanded Subsurface Storage basin w/ 4 oc ✓

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5" Paver block
3" bedding
4" base course
12" Subbase
12" filter
3" Stone
39" = 3.25'

R-tank single height = 17.3"
R-tank min. height = 9.4"

Total height$_1$ = $3.25' + \frac{17.3'}{12} = 4.69'$

Total height$_{0.5}$ = 4.03'

From geotech report, groundwater ranges from 45'-55'

Farthest distance from Paver to building = 145.93'

what grade do we need?

HD_1
$54 + 4.69 = 58.69$

$59.5 - 145.93 \times x = 58.69$

$x = 0.554\%$

round down 0.1%

0.5%

$HD_{0.5}$
$54 + 4.03 = 58.03$

$59.5 - 145.93x = 58.03$

$x = 1.0[illegible]\%$

1.3%

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SCALE

Subcats 14b, 15, 18

$\frac{1''}{12in/ft} \times 20409 ft^2 + \frac{0.4''}{12in/ft} \times 20528 SF = 2385$

Subcats 9, 10a, 10b, 11a, 11b, 12, 13a, 13b, 13c, 14a, 16, 17,

Impervious = 71116 SF
Land = 9507 SF

$\frac{0.4''}{12in/ft} \times 71116 + \frac{1in}{12in/ft} \times 9507 = 6243 CF$

Channel Sizing to FP1

Maine DEP Best management Practices
Chapter 8 - conveyance and distribution systems
8.1 - Vegetated Swale
Design and construction, Flow velocity
A velocity of 1 fps is the max design storm flow velocity when being used as BMP
The max allowable 10-yr 24 hr storm velocity should be less than 3 fps

Try ① 1 fps @ 25-yr and ② 10-yr @ 3 fps

Subcat	Rainfall Event	Runoff (cfs)
14B	10-yr	1
14B	25-yr	1.27
15	10-yr	1.9
15	25-yr	2.52
18	10-yr	0.69
18	25-yr	0.95

10-yr Flow = 3.59 cfs
25-yr flow = 4.74 cfs

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PROJECT NO. ~BH SITE
SHEET NO. OF
CALCULATED BY JRP DATE
CHECKED BY DATE
SCALE

Channel Sizing

$Q = VA$

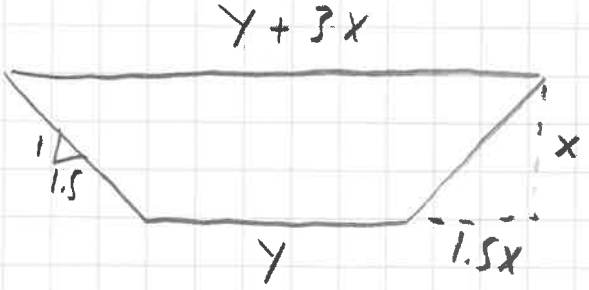
$A = \frac{Q}{V}$

10-yr @ 3fps $= \frac{3.59\ ft^3/s}{3\ ft/s} = 1.2\ ft^2$

25-yr @ 1fps $= \frac{4.74\ ft^3/s}{1\ ft/s} = 4.74\ ft^2$

25-yr @ 3fps $= \frac{4.74\ ft^3/s}{3\ ft/s} = 1.58\ ft^2$

Trapezoidal Channel



$A = \frac{1}{2}(b_1 + b_2)h$

$1.58 = \frac{1}{2}(b_1 + b_2)h$

$A = \frac{1}{2}(2y + 3x)x = 1.58$

$(y + \frac{3}{2}x)x = xy + 1.5x^2 - 1.58 = 0$

Try $y = 1'$

$3.16 = (2y + 3x)x$

$x = 0.746$ (0.75" or 9")

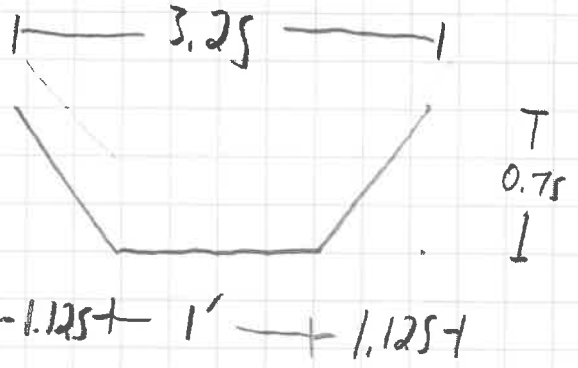
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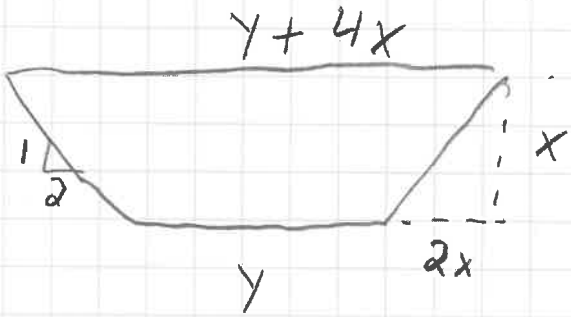
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CHECKED BY DATE
SCALE



$A = \frac{1}{2}(b_1+b_2)h = \frac{1}{2}(1+3.25)(0.75) = 1.59375\,ft^2 > 1.58\,ft^2$ ✓

Try 2:1 Side slopes



$A = \frac{1}{2}(b_1+b_2)h = 1.58$

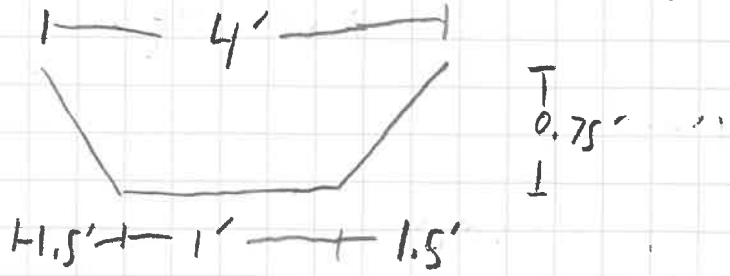
$3.16 = (b_1+b_2)h$

$3.16 = (2y+4x)x$

$A = \frac{1}{2}(5)0.75$

$A = 1.875\,ft^2 > 1.58\,ft^2$ ✓

Try $y = 1' \rightarrow x = 0.673 \rightarrow 0.75 = 9''$



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Part No: G 311900605

APPENDIX B

Stormwater BMP Inspection and Maintenance

RANSOM Consulting, Inc.

Consulting Engineers and Scientists

Maine Behavioral Healthcare Stormwater Post Construction Stormwater Inspection and Maintenance Plan

Note: This plan addresses Post Construction Inspection and Maintenance only. Inspection and Maintenance during construction can be found in Section 14 with the Sedimentation and Erosion Control Plan

Introduction:

This Post Construction Stormwater Inspection and Maintenance Plan outlines the anticipated inspection and maintenance procedures for the stormwater management devices proposed for the project. These procedures should be followed to ensure the intended function of the designed measures and to prevent unreasonable adverse impacts to the surrounding environment. These procedures are provided as an overview of the anticipated practices to be used on this site. In some instances, additional measures may be required due to unexpected conditions. For additional detail, refer to the most recent edition of the "Maine Stormwater Best Practices Manual (BMPs)" as published by the Maine Department of Environmental Protection (MEDEP)

Inspection and Maintenance Contract:

After construction, it is the responsibility of the owner or assigned heirs to comply with the inspection and maintenance procedures outlined in this section. All measures shall be maintained in good operating condition. A person with knowledge of stormwater control, including the standards and conditions in all applicable permits, shall conduct the inspections.

Long-term inspection and maintenance by a DEP approved stormwater maintenance inspector shall be regularly provided under a five-year binding inspection and maintenance contract that must be renewed prior to contract expiration. A legal agreement shall be established with responsibility for inspection and maintenance and should list specific maintenance responsibilities (including timetables) as well as provide for funding for the long-term inspection and maintenance. As the project moves forward it is anticipated a contract for the provider of these services will be provided.

Parking Lot and Road:

Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring. Accumulations on pavement must be removed with pure vacuum, vacuum assist, or

regenerative air. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader. Grading of gravel paths, or grading of the gravel shoulders of gravel or paved roads, must be routinely performed to ensure that stormwater drains immediately off the road surface to adjacent BMPs, and is not impeded by accumulations of graded material on the road shoulder or by excavation of false ditches in the shoulder. Snow must be removed from the road and parking lot at a location with a minimum of 25 feet from the wetlands.

Stormwater Management Devices:

During the first year of operation, filtration BMPs shall be inspected twice annually and following major storm events. Thereafter, the filter should be inspected every six months to ensure that it is draining no less than 24 hours and within 48 hours following a 1-inch storm or greater. Additionally, a storm that fills the system to overflow should be monitored to confirm in drains in no less than 36 hours and within 60 hours.

A. MANMADE PERVIOUS SURFACES:

Inspect bi-monthly during the first six months following construction, then inspect annually. Inspections should be made after significant storm events to check for surface ponding that could indicate failure due to clogging. Non-routine maintenance may require reconstruction of the surface treatment, and possibly the filter and reservoir layers, to relieve major clogging.

Maintenance criteria for manmade pervious surfaces are as follows:

- Debris and sediment buildup shall be removed from the paver system using a vac truck as needed and shall be disposed properly.
- Remove sediment when the surface infiltration rates of more than 75% of the surface area fall below 10% of the post-installation verified surface infiltration rate.
- Remove sediment when surface ponding remains for more than 24 hours after the storm event in an area larger than 10 square feet.
- Restrain vehicles with muddy wheels from accessing pervious pavement areas.
- Limit salt use for deicing and do not use sand.
- Remove leaves and organic debris in the fall.
- Sweep, vacuum and/or pressure wash pavement twice annually at a minimum.

B. FOCALPOINTS:

- A first inspection to determine if maintenance is necessary should be performed at least twice annually after storm events of greater than (1) one-inch total depth (subject to regional climate). Please refer to the maintenance checklist for specific conditions that indicate if maintenance is necessary.

- Check for standing water and that the bypass inlet is clear of debris.
- Check embankments for erosion.
- Check outlet control structure for accumulation of sediment.
- Dig out silt (if any) and mulch and remove trash & foreign items.
- After removal of mulch and debris, measure distance from the top of the FocalPoint® HPMBS engineered media soil to the flow line elevation of the adjacent overflow conveyance. If this distance is greater than that specified on the plans (typ. 6" - 12"), add media (not topsoil or other) to recharge to the distance specified.
- Replace mulch when/where necessary.
- Examine the plant's health and replace if dead or dying. Prune as necessary to encourage growth in the correct directions.
- The pond should drain in 24-48 hours. If the pond begins draining at a time approaching or exceeding 48 hours, the filter media must be removed and replaced.

C. R-TANK STORMWATER DETENTION:

Inspection and Maintenance of the R-Tank shall be in accordance with the recommended practices of the manufacture, ACF Environmental, to provide the performance required by the design. The R-Tank system includes inspection ports and maintenance ports, each of which has a cover at the surface. A visual inspection of all ports should be used to determine the depth of sediments deposited in the R-Tank system. The system should be backflushed once the sediment accumulation has reached the manufacturer's limits. Once removed, sediment-laden water must be disposed of properly.

Re-Certification:

Long-term inspection and maintenance by a DEP approved stormwater maintenance inspector shall be regularly provided under a five-year binding inspection and maintenance contract that must be renewed prior to contract expiration. Submit a certification of the following to the MEDEP within three months of the expiration of each five-year interval from the date of issuance of the permit. The form is provided below.

- Identification and repair of erosion problems. Certification that all areas of the development have been inspected for erosion, and appropriate steps have been taken to permanently stabilize these areas.

- Identification and repair of stormwater control system. Certification that all aspects of the stormwater control system have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the failing systems.

- Maintenance. Certification that the erosion control and stormwater maintenance plan for the site is being implemented as written, and a maintenance log has been created and is being maintained.

DEPARTMENT OF ENVIRONMENTAL PROTECTION
Bureau of Land and Water Quality
17 State House Station
Augusta, Maine 04333

FIVE-YEAR RECERTIFICATION FOR LONG-TERM MAINTENANCE OF STORMWATER MANAGEMENT SYSTEMS

For Site Location & Stormwater Projects

This form complies with the condition that requires reporting every 5 years on the long-term maintenance of stormwater management structures of projects permitted under the Stormwater Management Law since 2005. Complete the following sections, include appropriate photos if available, and use additional paper if needed. A copy of the report if the inspection was performed by a professional experienced in BMP maintenance should be included. This form is available on the Maine DEP website at: http://www.maine.gov/dep/ODQG/stormwater/stormwaterbmps/

			Please type or print in black ink only
Owner/Licensee or Homeowners Association Representative:		**Inspector/operator or preparer of report:**	
Company:		**Company:**	
Mailing Address:		**Mailing Address:**	
Daytime Phone #:		**Daytime Phone #:**	

LOCATION OF DEVELOPMENT	
Name of Project:	
Address and Town:	
DEP Permit Number:	

PROJECT SPECIFICS	
If the project is unfinished, please describe its current status and your plans for the future of the development. Filing this report to the Department of on-site long-term maintenance activities is still required.	
If the project is within a MPDES Regulated Town and a maintenance report has been prepared for this project, please attach the existing report.	
If the project is a subdivision with a Homeowner's association, identify the responsible party.	
Confirm that the required recording of deed restrictions for the protection of buffers or conservation land has been done and that the buffers are being maintained in accordance with the restrictions.	
Identify the contractor for the renewed 5-year maintenance contract for the inspection, cleaning and maintenance of manufactured proprietary structures.	
Is a maintenance log available for review?	

LONG-TERM MAINTENANCE (please comment on the following):
All areas of the development have been inspected for erosion, and appropriate steps have been taken to permanently stabilize these areas.
All stormwater control structures have been inspected for damage, wear, malfunction, and appropriate steps have been taken to repair or replace the failing systems
The erosion control and stormwater maintenance plan for the site is being implemented as written, and a maintenance log has been created and is being maintained.

CERTIFICATIONS/SIGNATURES
By signing below. the owner (or authorized agent) certifies that all stormwater management structures at the project described above are stable and operational as designed.
Signed:_____ **Title**_____**Date:**_____
This completed form and all supporting documents summarized above shall be sent to the following address. An emailed report is appropriate and should be sent to kerem.gungor@maine.gov Kerem Gungor, Bureau of Land and Water Quality 17 State House Station Augusta, ME 04333 Tel: (207) 446-3915

STORMWATER INSPECTION AND MAINTENANCE LOG: MANMADE PERVIOUS PAVERS

Maine Behavioral Healthcare, Portland, ME

Inspector: _____ Date: _____

Maintenance Personnel: _____

	Inspection		Maintenance	
SITE AREA	Date	Comments	Date	Corrective Action

Sediment/Debris Disposal

Location of Sediment/Debris Accumulation	Location of Sediment/Debris Disposal	Date of Disposal

STORMWATER INSPECTION AND MAINTENANCE LOG: BIORETENTION FILTER

Maine Behavioral Healthcare, Portland, ME

Inspector: _____ Date: _____

Maintenance Personnel: _____

	Inspection		Maintenance	
SITE AREA	Date	Comments	Date	Corrective Action

Sediment/Debris Disposal

Location of Sediment/Debris Accumulation	Location of Sediment/Debris Disposal	Date of Disposal

APPENDIX C

Pre-Development HydroCAD and Backup Calculations

NORTH

GENERAL NOTES

1. SITE AREA: 478,030 SF OR 10.97 ACRES

SOILS TABLE			
SOIL NAME	SYMBOL	HSG	DESCRIPTION
LAMOINE SILT LOAM, 3–8% SLOPES	BuB	C/D	POORLY DRAINED
SCANTIC SILT LOAM, 0–3% SLOPES	Sn	D	POORLY DRAINED

NOTE: SOIL DATA OBTAINED FROM USDA WEB SOIL SURVEY

DRAINAGE LEGEND

- 4S — SUBCATCHMENT LABEL
- 4P — POND LABEL
- 3R — REACH LABEL
- EDGE OF WELTANDS
- B — TIME OF CONCENTRATION (TC) PATH
- SUBCATCHMENT DIVIDE
- SOIL BOUNDARY
- AP — ANALYSIS POINT



PRE–DEVELOPMENT STORM WATER PLAN

SCALE: 1" = 40'

SCALE
0 20 40 80
SCALE in FEET
1"=40'

ENVIRONMENTS FOR HEALTH ARCHITECTURE
e4h
163 Fore Street, Portland, ME 04101
207.773.8441
888.781.8441 – Environments For Health, LLC
e4harchitecture.com

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Maine Behavioral Healthcare
MaineHealth

RANSOM
Consulting, Inc.
400 Commercial Street, Suite 404
Portland, ME 04101
Tel. (207) 772-2891
Fax (207) 772-3248
www.ransomenv.com

KEY PLAN

C
B A

MAINE BEHAVIORAL HEALTHCARE CENTER OF EXCELLENCE IN AUTISM AND DEVELOPMENTAL DISORDERS
100 ANDOVER ROAD
PORTLAND, ME

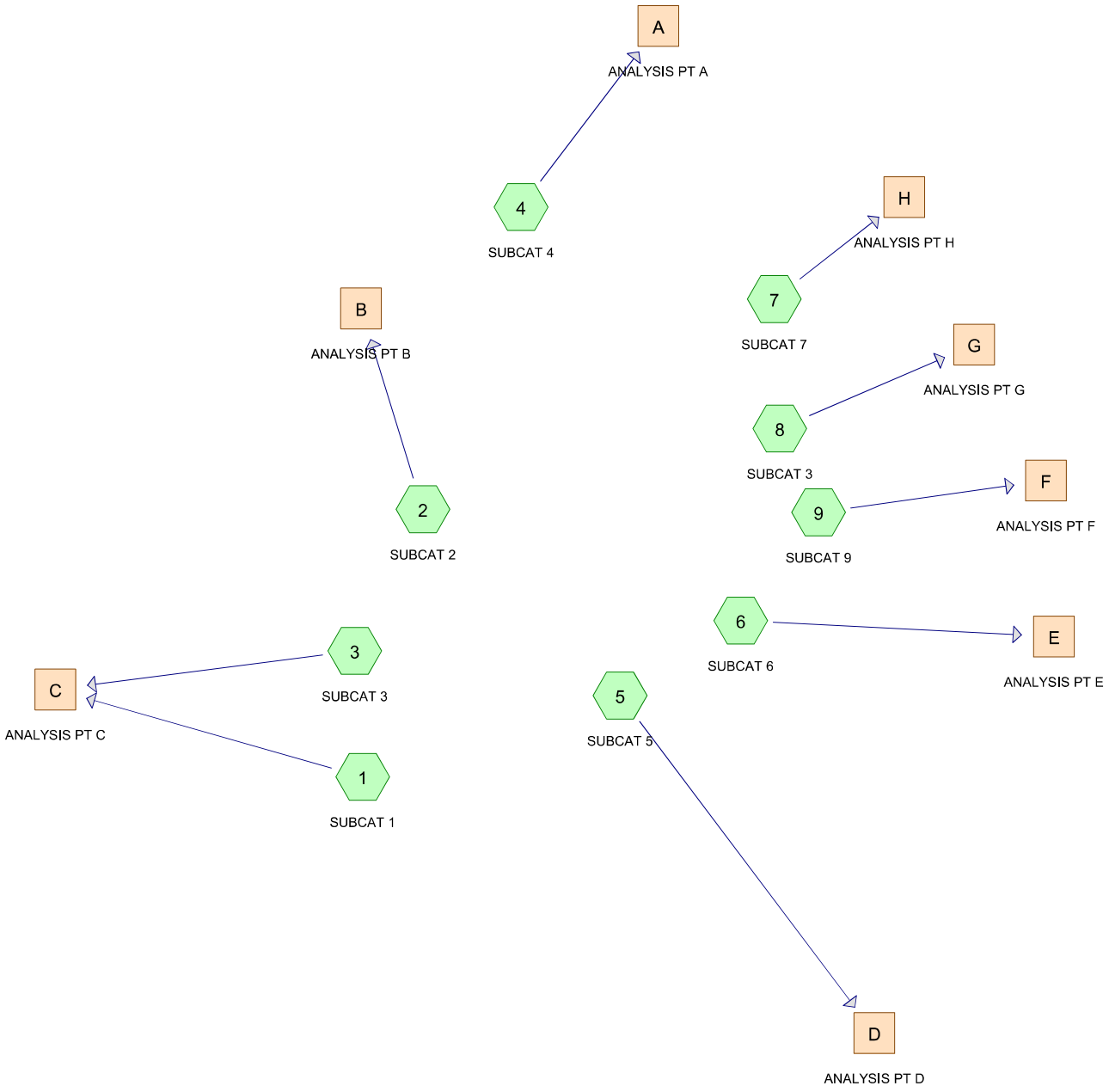
REV	DESCRIPTION	DATE
A	DEP PERMITTING	8/23/19
B	DEP REVISIONS	10/22/19
C	DEP REVISIONS	01/29/20

STATE OF MAINE
MAUREEN P. McCLONE
#7705
LICENSED PROFESSIONAL ENGINEER
SEAL:

PROJECT NUMBER: 181.06068
DATE: 08/22/2019
SHEET TITLE AND NUMBER:

PRE-DEVELOPMENT STORMWATER PLAN

SW-100



Subcat Reach Pond Link

Routing Diagram for PRE-Development Conditions
Prepared by Ransom Consulting, Inc., Printed 10/31/2019
HydroCAD® 10.00-12 s/n 05121 © 2014 HydroCAD Software Solutions LLC

Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.650	98	ROAD (1, 2, 3, 4, 5, 6, 9)
10.324	77	Woods, Good, HSG D (1, 2, 3, 4, 5, 6, 7, 8, 9)

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
10.324	HSG D	1, 2, 3, 4, 5, 6, 7, 8, 9
0.650	Other	1, 2, 3, 4, 5, 6, 9

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subcatchment Numbers
0.000	0.000	0.000	0.000	0.650	0.650	ROAD	1, 2, 3, 4, 5, 6, 9
0.000	0.000	0.000	10.324	0.000	10.324	Woods, Good	1, 2, 3, 4, 5, 6, 7, 8, 9

Summary for Subcatchment 1: SUBCAT 1

Runoff = 0.39 cfs @ 12.31 hrs, Volume= 0.043 af, Depth> 1.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	13,344	77	Woods, Good, HSG D
*	2,917	98	ROAD
	16,261	81	Weighted Average
	13,344		82.06% Pervious Area
	2,917		17.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	15	0.0500	1.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
18.0	135	0.0593	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
4.0	60	0.0100	0.25		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
22.2	210	Total			

Summary for Subcatchment 2: SUBCAT 2

Runoff = 0.63 cfs @ 12.62 hrs, Volume= 0.095 af, Depth> 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	38,835	77	Woods, Good, HSG D
*	2,917	98	ROAD
	41,752	78	Weighted Average
	38,835		93.01% Pervious Area
	2,917		6.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.8	150	0.0400	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.1	64	0.0400	0.50		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
41.9	214	Total			

Summary for Subcatchment 3: SUBCAT 3

Runoff = 1.06 cfs @ 12.88 hrs, Volume= 0.197 af, Depth> 1.18"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	81,695	77	Woods, Good, HSG D
*	5,574	98	ROAD
	87,269	78	Weighted Average
	81,695		93.61% Pervious Area
	5,574		6.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	150	0.0530	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
41.6	540	0.0075	0.22		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
62.0	690	Total			

Summary for Subcatchment 4: SUBCAT 4

Runoff = 1.08 cfs @ 13.85 hrs, Volume= 0.336 af, Depth> 1.15"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	144,430	77	Woods, Good, HSG D
*	7,562	98	ROAD
	151,992	78	Weighted Average
	144,430		95.02% Pervious Area
	7,562		4.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	15	0.0500	1.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
54.2	135	0.0150	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
81.1	544	0.0020	0.11		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
135.5	694	Total			

Summary for Subcatchment 5: SUBCAT 5

Runoff = 1.46 cfs @ 12.47 hrs, Volume= 0.192 af, Depth> 1.19"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	81,208	77	Woods, Good, HSG D
*	2,937	98	ROAD
	84,145	78	Weighted Average
	81,208		96.51% Pervious Area
	2,937		3.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	15	0.0500	1.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
20.2	135	0.0444	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
11.4	260	0.0230	0.38		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
31.8	410	Total			

Summary for Subcatchment 6: SUBCAT 6

Runoff = 0.32 cfs @ 12.15 hrs, Volume= 0.026 af, Depth> 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	5,928	77	Woods, Good, HSG D
*	2,733	98	ROAD
	8,661	84	Weighted Average
	5,928		68.44% Pervious Area
	2,733		31.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	95	0.1100	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"

Summary for Subcatchment 7: SUBCAT 7

Runoff = 0.34 cfs @ 12.38 hrs, Volume= 0.041 af, Depth> 1.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
19,108	77	Woods, Good, HSG D
19,108		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.9	150	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
2.6	96	0.0625	0.63		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
25.5	246	Total			

Summary for Subcatchment 8: SUBCAT 3

Runoff = 0.56 cfs @ 12.64 hrs, Volume= 0.088 af, Depth> 1.13"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
40,823	77	Woods, Good, HSG D
40,823		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.8	150	0.0400	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
5.5	164	0.0400	0.50		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
45.3	314	Total			

Summary for Subcatchment 9: SUBCAT 9

Runoff = 0.39 cfs @ 12.82 hrs, Volume= 0.070 af, Depth> 1.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	24,324	77	Woods, Good, HSG D
*	3,683	98	ROAD
	28,007	80	Weighted Average
	24,324		86.85% Pervious Area
	3,683		13.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
52.5	150	0.0200	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
5.2	111	0.0200	0.35		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
57.7	261	Total			

Summary for Reach A: ANALYSIS PT A

Inflow Area = 3.489 ac, 4.98% Impervious, Inflow Depth > 1.15" for 2-Year event
Inflow = 1.08 cfs @ 13.85 hrs, Volume= 0.336 af
Outflow = 1.08 cfs @ 13.85 hrs, Volume= 0.336 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach B: ANALYSIS PT B

Inflow Area = 0.958 ac, 6.99% Impervious, Inflow Depth > 1.19" for 2-Year event
Inflow = 0.63 cfs @ 12.62 hrs, Volume= 0.095 af
Outflow = 0.63 cfs @ 12.62 hrs, Volume= 0.095 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach C: ANALYSIS PT C

Inflow Area = 2.377 ac, 8.20% Impervious, Inflow Depth > 1.21" for 2-Year event
Inflow = 1.18 cfs @ 12.81 hrs, Volume= 0.240 af
Outflow = 1.18 cfs @ 12.81 hrs, Volume= 0.240 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach D: ANALYSIS PT D

Inflow Area = 1.932 ac, 3.49% Impervious, Inflow Depth > 1.19" for 2-Year event
Inflow = 1.46 cfs @ 12.47 hrs, Volume= 0.192 af
Outflow = 1.46 cfs @ 12.47 hrs, Volume= 0.192 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach E: ANALYSIS PT E

Inflow Area = 0.199 ac, 31.56% Impervious, Inflow Depth > 1.60" for 2-Year event
Inflow = 0.32 cfs @ 12.15 hrs, Volume= 0.026 af
Outflow = 0.32 cfs @ 12.15 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach F: ANALYSIS PT F

Inflow Area = 0.643 ac, 13.15% Impervious, Inflow Depth > 1.31" for 2-Year event
Inflow = 0.39 cfs @ 12.82 hrs, Volume= 0.070 af
Outflow = 0.39 cfs @ 12.82 hrs, Volume= 0.070 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach G: ANALYSIS PT G

Inflow Area = 0.937 ac, 0.00% Impervious, Inflow Depth > 1.13" for 2-Year event
Inflow = 0.56 cfs @ 12.64 hrs, Volume= 0.088 af
Outflow = 0.56 cfs @ 12.64 hrs, Volume= 0.088 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach H: ANALYSIS PT H

Inflow Area = 0.439 ac, 0.00% Impervious, Inflow Depth > 1.13" for 2-Year event
Inflow = 0.34 cfs @ 12.38 hrs, Volume= 0.041 af
Outflow = 0.34 cfs @ 12.38 hrs, Volume= 0.041 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 1: SUBCAT 1

Runoff = 0.75 cfs @ 12.31 hrs, Volume= 0.082 af, Depth> 2.62"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	13,344	77	Woods, Good, HSG D
*	2,917	98	ROAD
	16,261	81	Weighted Average
	13,344		82.06% Pervious Area
	2,917		17.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	15	0.0500	1.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
18.0	135	0.0593	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
4.0	60	0.0100	0.25		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
22.2	210	Total			

Summary for Subcatchment 2: SUBCAT 2

Runoff = 1.28 cfs @ 12.61 hrs, Volume= 0.188 af, Depth> 2.35"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	38,835	77	Woods, Good, HSG D
*	2,917	98	ROAD
	41,752	78	Weighted Average
	38,835		93.01% Pervious Area
	2,917		6.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.8	150	0.0400	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.1	64	0.0400	0.50		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
41.9	214	Total			

Summary for Subcatchment 3: SUBCAT 3

Runoff = 2.15 cfs @ 12.88 hrs, Volume= 0.391 af, Depth> 2.34"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	81,695	77	Woods, Good, HSG D
*	5,574	98	ROAD
	87,269	78	Weighted Average
	81,695		93.61% Pervious Area
	5,574		6.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	150	0.0530	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
41.6	540	0.0075	0.22		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
62.0	690	Total			

Summary for Subcatchment 4: SUBCAT 4

Runoff = 2.20 cfs @ 13.85 hrs, Volume= 0.668 af, Depth> 2.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	144,430	77	Woods, Good, HSG D
*	7,562	98	ROAD
	151,992	78	Weighted Average
	144,430		95.02% Pervious Area
	7,562		4.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	15	0.0500	1.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
54.2	135	0.0150	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
81.1	544	0.0020	0.11		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
135.5	694	Total			

Summary for Subcatchment 5: SUBCAT 5

Runoff = 2.95 cfs @ 12.44 hrs, Volume= 0.380 af, Depth> 2.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	81,208	77	Woods, Good, HSG D
*	2,937	98	ROAD
	84,145	78	Weighted Average
	81,208		96.51% Pervious Area
	2,937		3.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	15	0.0500	1.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
20.2	135	0.0444	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
11.4	260	0.0230	0.38		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
31.8	410	Total			

Summary for Subcatchment 6: SUBCAT 6

Runoff = 0.58 cfs @ 12.14 hrs, Volume= 0.048 af, Depth> 2.90"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	5,928	77	Woods, Good, HSG D
*	2,733	98	ROAD
	8,661	84	Weighted Average
	5,928		68.44% Pervious Area
	2,733		31.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	95	0.1100	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"

Summary for Subcatchment 7: SUBCAT 7

Runoff = 0.71 cfs @ 12.36 hrs, Volume= 0.083 af, Depth> 2.28"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
19,108	77	Woods, Good, HSG D
19,108		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.9	150	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
2.6	96	0.0625	0.63		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
25.5	246	Total			

Summary for Subcatchment 8: SUBCAT 3

Runoff = 1.16 cfs @ 12.63 hrs, Volume= 0.177 af, Depth> 2.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
40,823	77	Woods, Good, HSG D
40,823		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.8	150	0.0400	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
5.5	164	0.0400	0.50		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
45.3	314	Total			

Summary for Subcatchment 9: SUBCAT 9

Runoff = 0.77 cfs @ 12.76 hrs, Volume= 0.135 af, Depth> 2.52"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	24,324	77	Woods, Good, HSG D
*	3,683	98	ROAD
	28,007	80	Weighted Average
	24,324		86.85% Pervious Area
	3,683		13.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
52.5	150	0.0200	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
5.2	111	0.0200	0.35		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
57.7	261	Total			

Summary for Reach A: ANALYSIS PT A

Inflow Area = 3.489 ac, 4.98% Impervious, Inflow Depth > 2.30" for 10-Year event
Inflow = 2.20 cfs @ 13.85 hrs, Volume= 0.668 af
Outflow = 2.20 cfs @ 13.85 hrs, Volume= 0.668 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach B: ANALYSIS PT B

Inflow Area = 0.958 ac, 6.99% Impervious, Inflow Depth > 2.35" for 10-Year event
Inflow = 1.28 cfs @ 12.61 hrs, Volume= 0.188 af
Outflow = 1.28 cfs @ 12.61 hrs, Volume= 0.188 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach C: ANALYSIS PT C

Inflow Area = 2.377 ac, 8.20% Impervious, Inflow Depth > 2.39" for 10-Year event
Inflow = 2.39 cfs @ 12.75 hrs, Volume= 0.473 af
Outflow = 2.39 cfs @ 12.75 hrs, Volume= 0.473 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach D: ANALYSIS PT D

Inflow Area = 1.932 ac, 3.49% Impervious, Inflow Depth > 2.36" for 10-Year event
Inflow = 2.95 cfs @ 12.44 hrs, Volume= 0.380 af
Outflow = 2.95 cfs @ 12.44 hrs, Volume= 0.380 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach E: ANALYSIS PT E

Inflow Area = 0.199 ac, 31.56% Impervious, Inflow Depth > 2.90" for 10-Year event
Inflow = 0.58 cfs @ 12.14 hrs, Volume= 0.048 af
Outflow = 0.58 cfs @ 12.14 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach F: ANALYSIS PT F

Inflow Area = 0.643 ac, 13.15% Impervious, Inflow Depth > 2.52" for 10-Year event
Inflow = 0.77 cfs @ 12.76 hrs, Volume= 0.135 af
Outflow = 0.77 cfs @ 12.76 hrs, Volume= 0.135 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach G: ANALYSIS PT G

Inflow Area = 0.937 ac, 0.00% Impervious, Inflow Depth > 2.27" for 10-Year event
Inflow = 1.16 cfs @ 12.63 hrs, Volume= 0.177 af
Outflow = 1.16 cfs @ 12.63 hrs, Volume= 0.177 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach H: ANALYSIS PT H

Inflow Area = 0.439 ac, 0.00% Impervious, Inflow Depth > 2.28" for 10-Year event
Inflow = 0.71 cfs @ 12.36 hrs, Volume= 0.083 af
Outflow = 0.71 cfs @ 12.36 hrs, Volume= 0.083 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Subcatchment 1: SUBCAT 1

Runoff = 1.04 cfs @ 12.31 hrs, Volume= 0.115 af, Depth> 3.69"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	13,344	77	Woods, Good, HSG D
*	2,917	98	ROAD
	16,261	81	Weighted Average
	13,344		82.06% Pervious Area
	2,917		17.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	15	0.0500	1.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
18.0	135	0.0593	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
4.0	60	0.0100	0.25		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
22.2	210	Total			

Summary for Subcatchment 2: SUBCAT 2

Runoff = 1.84 cfs @ 12.57 hrs, Volume= 0.269 af, Depth> 3.37"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	38,835	77	Woods, Good, HSG D
*	2,917	98	ROAD
	41,752	78	Weighted Average
	38,835		93.01% Pervious Area
	2,917		6.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.8	150	0.0400	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.1	64	0.0400	0.50		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
41.9	214	Total			

Summary for Subcatchment 3: SUBCAT 3

Runoff = 3.08 cfs @ 12.87 hrs, Volume= 0.561 af, Depth> 3.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	81,695	77	Woods, Good, HSG D
*	5,574	98	ROAD
	87,269	78	Weighted Average
	81,695		93.61% Pervious Area
	5,574		6.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	150	0.0530	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
41.6	540	0.0075	0.22		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
62.0	690	Total			

Summary for Subcatchment 4: SUBCAT 4

Runoff = 3.19 cfs @ 13.71 hrs, Volume= 0.959 af, Depth> 3.30"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	144,430	77	Woods, Good, HSG D
*	7,562	98	ROAD
	151,992	78	Weighted Average
	144,430		95.02% Pervious Area
	7,562		4.98% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	15	0.0500	1.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
54.2	135	0.0150	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
81.1	544	0.0020	0.11		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
135.5	694	Total			

Summary for Subcatchment 5: SUBCAT 5

Runoff = 4.24 cfs @ 12.44 hrs, Volume= 0.544 af, Depth> 3.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	81,208	77	Woods, Good, HSG D
*	2,937	98	ROAD
	84,145	78	Weighted Average
	81,208		96.51% Pervious Area
	2,937		3.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	15	0.0500	1.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
20.2	135	0.0444	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
11.4	260	0.0230	0.38		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
31.8	410	Total			

Summary for Subcatchment 6: SUBCAT 6

Runoff = 0.79 cfs @ 12.14 hrs, Volume= 0.066 af, Depth> 4.00"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	5,928	77	Woods, Good, HSG D
*	2,733	98	ROAD
	8,661	84	Weighted Average
	5,928		68.44% Pervious Area
	2,733		31.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	95	0.1100	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"

Summary for Subcatchment 7: SUBCAT 7

Runoff = 1.03 cfs @ 12.35 hrs, Volume= 0.120 af, Depth> 3.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (sf)	CN	Description
19,108	77	Woods, Good, HSG D
19,108		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
22.9	150	0.0400	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
2.6	96	0.0625	0.63		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
25.5	246	Total			

Summary for Subcatchment 8: SUBCAT 3

Runoff = 1.68 cfs @ 12.63 hrs, Volume= 0.256 af, Depth> 3.27"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (sf)	CN	Description
40,823	77	Woods, Good, HSG D
40,823		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.8	150	0.0400	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
5.5	164	0.0400	0.50		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
45.3	314	Total			

Summary for Subcatchment 9: SUBCAT 9

Runoff = 1.10 cfs @ 12.76 hrs, Volume= 0.191 af, Depth> 3.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	24,324	77	Woods, Good, HSG D
*	3,683	98	ROAD
	28,007	80	Weighted Average
	24,324		86.85% Pervious Area
	3,683		13.15% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
52.5	150	0.0200	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
5.2	111	0.0200	0.35		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
57.7	261	Total			

Summary for Reach A: ANALYSIS PT A

Inflow Area = 3.489 ac, 4.98% Impervious, Inflow Depth > 3.30" for 25-Year event
Inflow = 3.19 cfs @ 13.71 hrs, Volume= 0.959 af
Outflow = 3.19 cfs @ 13.71 hrs, Volume= 0.959 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach B: ANALYSIS PT B

Inflow Area = 0.958 ac, 6.99% Impervious, Inflow Depth > 3.37" for 25-Year event
Inflow = 1.84 cfs @ 12.57 hrs, Volume= 0.269 af
Outflow = 1.84 cfs @ 12.57 hrs, Volume= 0.269 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach C: ANALYSIS PT C

Inflow Area = 2.377 ac, 8.20% Impervious, Inflow Depth > 3.41" for 25-Year event
Inflow = 3.43 cfs @ 12.75 hrs, Volume= 0.675 af
Outflow = 3.43 cfs @ 12.75 hrs, Volume= 0.675 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach D: ANALYSIS PT D

Inflow Area = 1.932 ac, 3.49% Impervious, Inflow Depth > 3.38" for 25-Year event
Inflow = 4.24 cfs @ 12.44 hrs, Volume= 0.544 af
Outflow = 4.24 cfs @ 12.44 hrs, Volume= 0.544 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach E: ANALYSIS PT E

Inflow Area = 0.199 ac, 31.56% Impervious, Inflow Depth > 4.00" for 25-Year event
Inflow = 0.79 cfs @ 12.14 hrs, Volume= 0.066 af
Outflow = 0.79 cfs @ 12.14 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach F: ANALYSIS PT F

Inflow Area = 0.643 ac, 13.15% Impervious, Inflow Depth > 3.56" for 25-Year event
Inflow = 1.10 cfs @ 12.76 hrs, Volume= 0.191 af
Outflow = 1.10 cfs @ 12.76 hrs, Volume= 0.191 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach G: ANALYSIS PT G

Inflow Area = 0.937 ac, 0.00% Impervious, Inflow Depth > 3.27" for 25-Year event
Inflow = 1.68 cfs @ 12.63 hrs, Volume= 0.256 af
Outflow = 1.68 cfs @ 12.63 hrs, Volume= 0.256 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

Summary for Reach H: ANALYSIS PT H

Inflow Area = 0.439 ac, 0.00% Impervious, Inflow Depth > 3.29" for 25-Year event
Inflow = 1.03 cfs @ 12.35 hrs, Volume= 0.120 af
Outflow = 1.03 cfs @ 12.35 hrs, Volume= 0.120 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-24.00 hrs, dt= 0.01 hrs

APPENDIX D

Post-Development HydroCAD and Backup Calculations

NORTH

GENERAL NOTES

SITE AREA: 478,030 S.F. OR 10.97 ACRES

1. IMPERVIOUS AREA: 97,619 S.F.
2. LANDSCAPED AREA: 32,714 S.F.
3. SUBCATCHMENTS 1–6 DID NOT CHANGE FROM SW–100
4. SUBCATCHMENTS 9–21 HAVE TIMES OF CONCENTRATION EQUAL TO 6 MINUTES

STORMWATER PEAK DISCHARGE SUMMARY TABLE

AP	PRE–DEVELOPMENT (CFS)			POST–DEVELOPMENT (CFS)		
	2–YR	10–YR	25–YR	2–YR	10–YR	25–YR
A	1.07	2.19	3.17	0.93	1.92	2.72
B	0.60	1.22	1.75	0.60	1.22	1.75
C	1.19	2.41	3.47	1.19	2.41	3.47
D	1.47	2.97	4.27	1.47	2.97	4.27
E	0.33	0.60	0.82	0.33	0.60	0.82
F	0.42	0.80	1.13	0.19	0.33	0.44
G	0.55	1.15	1.66	0.40	0.80	1.33
H	0.34	0.70	1.02	0.09	0.19	0.28

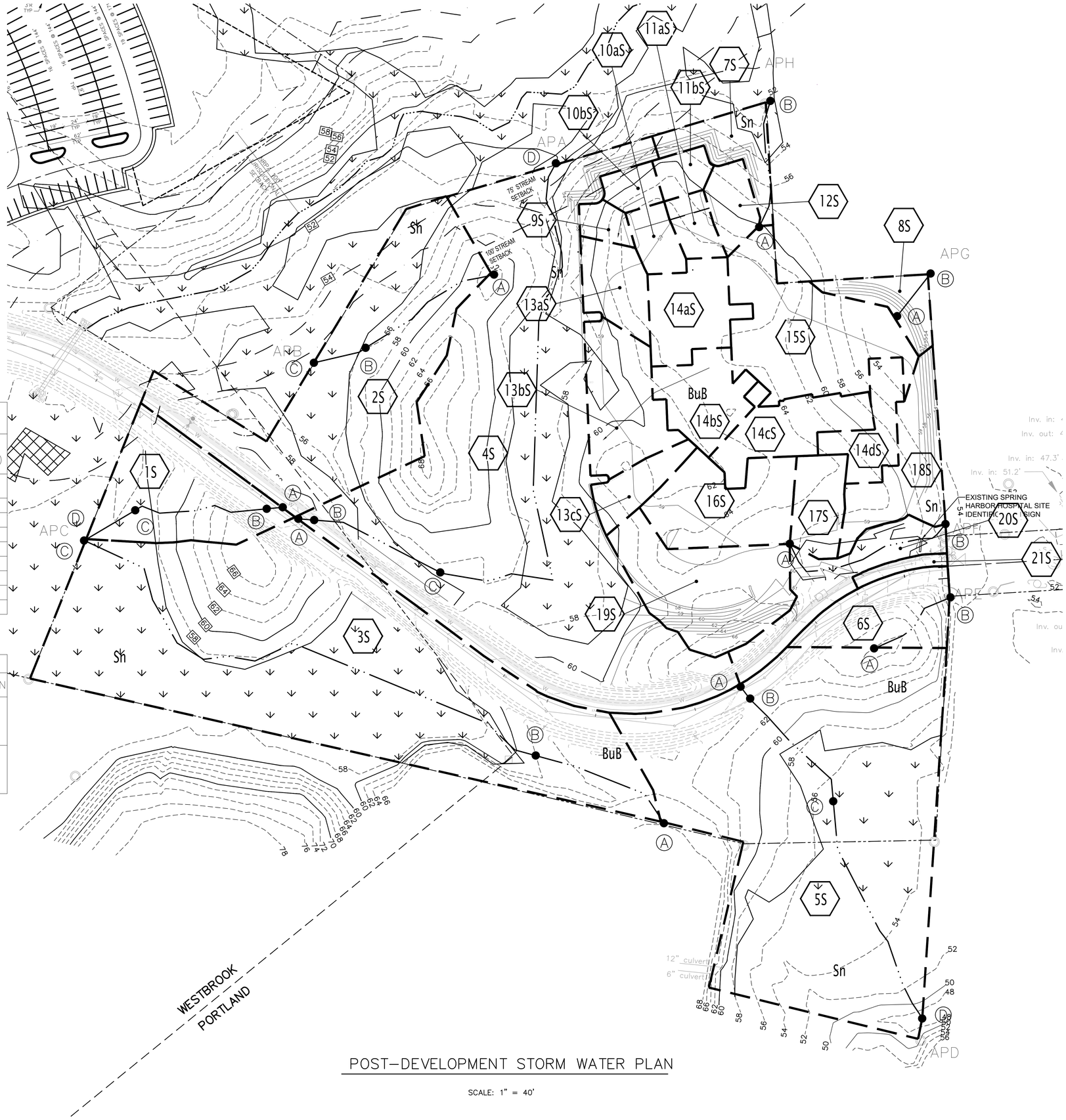
SOILS TABLE

SOIL NAME	SYMBOL	HSG	DESCRIPTION
LAMOINE SILT LOAM, 3–8% SLOPES	BuB	C/D	POORLY DRAINED
SCANTIC SILT LOAM, 0–3% SLOPES	Sn	D	POORLY DRAINED

NOTE: SOIL DATA OBTAINED FROM USDA WEB SOIL SURVEY

DRAINAGE LEGEND

- 4S — SUBCATCHMENT LABEL
- 4P — POND LABEL
- 3R — REACH LABEL
- EDGE OF WELTANDS
- B — TIME OF CONCENTRATION (TC) PATH
- SUBCATCHMENT DIVIDE
- SOIL BOUNDARY
- AP — ANALYSIS POINT



POST–DEVELOPMENT STORM WATER PLAN

SCALE: 1" = 40'

SCALE

0 20 40 80

SCALE in FEET
1"=40'

ENVIRONMENTS FOR HEALTH ARCHITECTURE
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KEY PLAN

C
B A

MAINE BEHAVIORAL HEALTHCARE CENTER OF EXCELLENCE IN AUTISM AND DEVELOPMENTAL DISORDERS
100 ANDOVER ROAD
PORTLAND, ME

REV	DESCRIPTION	DATE
A	DEP PERMITTING	08/23/19
B	DEP REVISION	11/19/19
C	90% CD OWNER REVIEW	11/20/19
D	DEP REVISION	01/29/20

STATE OF MAINE
MAUREEN P. McGLONE #7705
REGISTERED PROFESSIONAL ENGINEER
CIVIL ENGINEER

MAUREEN P. McGLONE, PE #7705
400 COMMERCIAL STREET, SUITE 404
PORTLAND, ME 04101
207-772-2891

SEAL:

PROJECT NUMBER: 181.06068

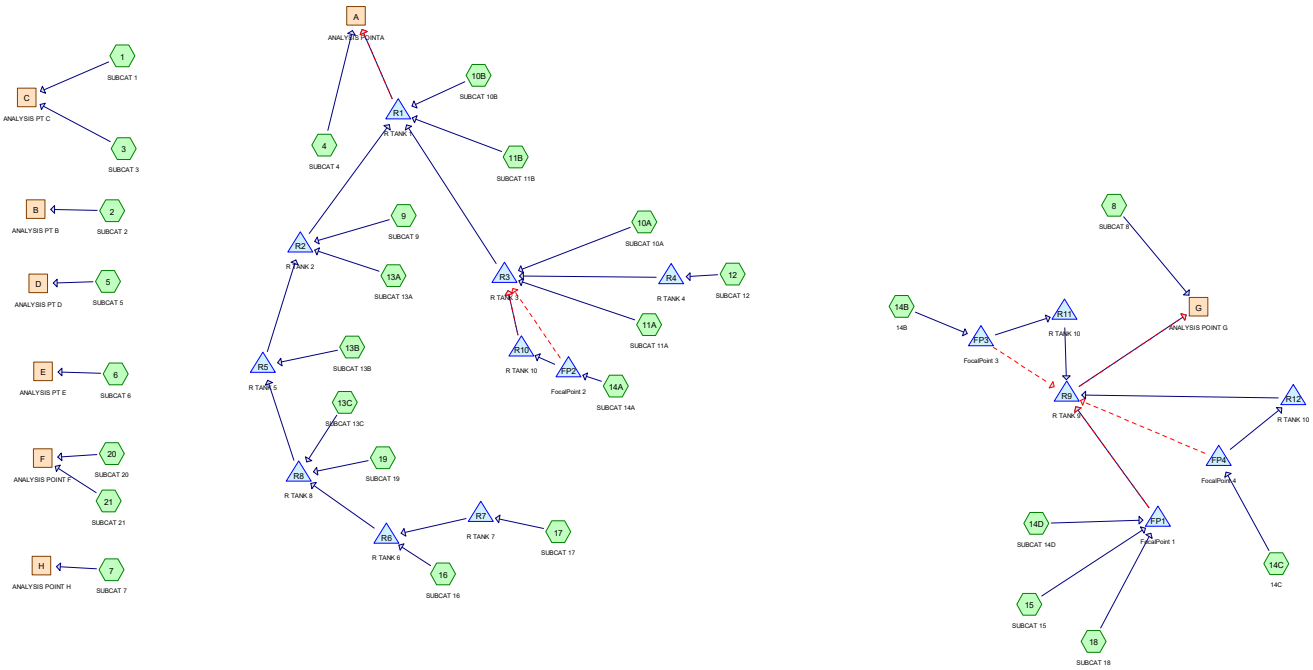
DATE: 08/22/2019

SHEET TITLE AND NUMBER:

POST-DEVELOPMENT STORMWATER PLAN

SW-101

Detention	Detains Subcatchments	Impervious Area of Subcatchment (sf)	Landscaped Area of Subcatchment (sf)	WQV (cf)	WQV of Parking Lot Detention System	WQV of Playground Detention System	Number of Chambers	Length (ft)	Width (ft)	Area (sf)	Detention Volume (cf)
R1 - ACF HD 0.5	10B	2473	71	208	382		484	107.22	18.44	1977	2211
	11B	2055	71	174							
R2 - ACF HD 0.5	9	1707	151	147	568		484	107.22	18.44	1977	2126
	13A	4911	340	421							
R3 - ACF HD 0.5	10A	2901	82	244	433		725	72.03	36.81	2651	3127
	11a	2226	82	188							
R4 - ACF HD 0.5	12	3321	151	282	282		300	62.65	19.75	1237	1383
R5 - ACF HD 0.5	13B	9865	62	824	824		704	154.13	18.44	2842	3254
R6 - ACF HD 0.5	16	10738	355	907	907		768	116.60	25.00	2915	3399
R7 - ACF HD 0.5	17	4769	201	404	404		342	46.22	28.93	1337	1546
R8 - ACF HD 0.5	13C	3695	34	309	1320		1152	229.20	19.75	4527	5058
	19	9785	5862	1011							
R9 - ACF HD 0.5						1899	279	76.72	15.81	1213	1361
R9 - ACF HD 1.0						1899	1440	79.07	63.06	4986	8891
	14D	3649	0	304							
	15	9803	12045	1218							
	18	1354	7919	377							
R10 - ACF HD 1.0	14A	7143	0	595	595		100	27.46	17.12	470	751
R11 - ACF HD 1.0	14B	6772	0	564		564	300	39.19	30.25	1185	2010
R12 - ACF HD 1.0	14C	6642	0	554		554	180	25.11	30.25	760	1258
Total		65589	7462		5714	1899	6678			25663	32356



Subcat Reach Pond Link

Routing Diagram for POST-Development Conditions - 01-29-19

Prepared by Ransom Consulting, Inc., Printed 1/29/2020

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Area Listing (all nodes)

Area (acres)	CN	Description (subcatchment-numbers)
0.427	80	>75% Grass cover, Good, HSG D (9, 10A, 10B, 11A, 11B, 12, 13A, 13B, 13C, 15, 16, 17, 18, 19)
0.480	98	ROAD (1, 2, 3, 5, 6, 20)
7.652	77	Woods, Good, HSG D (1, 2, 3, 4, 5, 6, 7, 8, 19, 20)
0.424	98	central parking lot (13A, 13B, 13C)
0.225	98	lower parking lot bottom (19)
0.109	98	lower parking lot right (17)
0.247	98	lower parking lot top (16)
0.031	98	maintenance access east side of building (18)
0.117	98	northeast parking lot left (11A, 11B)
0.076	98	northeast parking lot right (12)
0.039	98	northwest parking lot left (9)
0.123	98	northwest parking lot right (10A, 10B)
0.213	98	playground (15)
0.179	98	road (4, 21)
0.632	98	roof (14A, 14B, 14C, 14D)

Soil Listing (all nodes)

Area (acres)	Soil Group	Subcatchment Numbers
0.000	HSG A	
0.000	HSG B	
0.000	HSG C	
8.079	HSG D	1, 2, 3, 4, 5, 6, 7, 8, 9, 10A, 10B, 11A, 11B, 12, 13A, 13B, 13C, 15, 16, 17, 18, 19, 20
2.895	Other	1, 2, 3, 4, 5, 6, 9, 10A, 10B, 11A, 11B, 12, 13A, 13B, 13C, 14A, 14B, 14C, 14D, 15, 16, 17, 18, 19, 20, 21

Ground Covers (all nodes)

HSG-A (acres)	HSG-B (acres)	HSG-C (acres)	HSG-D (acres)	Other (acres)	Total (acres)	Ground Cover	Subca Numb
0.000	0.000	0.000	0.427	0.000	0.427	>75% Grass cover, Good	
0.000	0.000	0.000	0.000	0.480	0.480	ROAD	
0.000	0.000	0.000	7.652	0.000	7.652	Woods, Good	
0.000	0.000	0.000	0.000	0.424	0.424	central parking lot	
0.000	0.000	0.000	0.000	0.225	0.225	lower parking lot bottom	
0.000	0.000	0.000	0.000	0.109	0.109	lower parking lot right	
0.000	0.000	0.000	0.000	0.247	0.247	lower parking lot top	
0.000	0.000	0.000	0.000	0.031	0.031	maintenance access east side of building	
0.000	0.000	0.000	0.000	0.117	0.117	northeast parking lot left	
0.000	0.000	0.000	0.000	0.076	0.076	northeast parking lot right	
0.000	0.000	0.000	0.000	0.039	0.039	northwest parking lot left	
0.000	0.000	0.000	0.000	0.123	0.123	northwest parking lot right	
0.000	0.000	0.000	0.000	0.213	0.213	playground	
0.000	0.000	0.000	0.000	0.179	0.179	road	
0.000	0.000	0.000	0.000	0.632	0.632	roof	

Summary for Subcatchment 1: SUBCAT 1

Runoff = 0.39 cfs @ 12.31 hrs, Volume= 0.043 af, Depth= 1.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	13,344	77	Woods, Good, HSG D
*	2,917	98	ROAD
	16,261	81	Weighted Average
	13,344		82.06% Pervious Area
	2,917		17.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	15	0.0500	1.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
18.0	135	0.0593	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
4.0	60	0.0100	0.25		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
22.2	210	Total			

Summary for Subcatchment 2: SUBCAT 2

Runoff = 0.63 cfs @ 12.62 hrs, Volume= 0.096 af, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	38,835	77	Woods, Good, HSG D
*	2,917	98	ROAD
	41,752	78	Weighted Average
	38,835		93.01% Pervious Area
	2,917		6.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.8	150	0.0400	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.1	64	0.0400	0.50		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
41.9	214	Total			

Summary for Subcatchment 3: SUBCAT 3

Runoff = 1.06 cfs @ 12.88 hrs, Volume= 0.200 af, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	81,695	77	Woods, Good, HSG D
*	5,574	98	ROAD
	87,269	78	Weighted Average
	81,695		93.61% Pervious Area
	5,574		6.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	150	0.0530	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
41.6	540	0.0075	0.22		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
62.0	690	Total			

Summary for Subcatchment 4: SUBCAT 4

Runoff = 0.70 cfs @ 13.85 hrs, Volume= 0.226 af, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	6,629	98	road
	91,843	77	Woods, Good, HSG D
	98,472	78	Weighted Average
	91,843		93.27% Pervious Area
	6,629		6.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	15	0.0500	1.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
54.2	135	0.0150	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
81.1	544	0.0020	0.11		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
135.5	694	Total			

Summary for Subcatchment 5: SUBCAT 5

Runoff = 1.46 cfs @ 12.47 hrs, Volume= 0.193 af, Depth= 1.20"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	81,208	77	Woods, Good, HSG D
*	2,937	98	ROAD
	84,145	78	Weighted Average
	81,208		96.51% Pervious Area
	2,937		3.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	15	0.0500	1.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
20.2	135	0.0444	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
11.4	260	0.0230	0.38		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
31.8	410	Total			

Summary for Subcatchment 6: SUBCAT 6

Runoff = 0.32 cfs @ 12.15 hrs, Volume= 0.026 af, Depth= 1.60"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	5,928	77	Woods, Good, HSG D
*	2,733	98	ROAD
	8,661	84	Weighted Average
	5,928		68.44% Pervious Area
	2,733		31.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	95	0.1100	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"

Summary for Subcatchment 7: SUBCAT 7

Runoff = 0.09 cfs @ 12.43 hrs, Volume= 0.012 af, Depth= 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
5,500	77	Woods, Good, HSG D
5,500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.5	129	0.0625	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"

Summary for Subcatchment 8: SUBCAT 8

Runoff = 0.08 cfs @ 12.30 hrs, Volume= 0.009 af, Depth= 1.14"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

Area (sf)	CN	Description
4,022	77	Woods, Good, HSG D
4,022		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	65	0.0400	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"

Summary for Subcatchment 9: SUBCAT 9

Runoff = 0.13 cfs @ 12.08 hrs, Volume= 0.010 af, Depth= 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	1,707	98	northwest parking lot left
	151	80	>75% Grass cover, Good, HSG D
	1,858	97	Weighted Average
	151		8.13% Pervious Area
	1,707		91.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 10A: SUBCAT 10A

Runoff = 0.21 cfs @ 12.08 hrs, Volume= 0.016 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	2,901	98	northwest parking lot right
	82	80	>75% Grass cover, Good, HSG D
	2,983	98	Weighted Average
	82		2.75% Pervious Area
	2,901		97.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 10B: SUBCAT 10B

Runoff = 0.17 cfs @ 12.08 hrs, Volume= 0.013 af, Depth= 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	2,473	98	northwest parking lot right
	71	80	>75% Grass cover, Good, HSG D
	2,544	97	Weighted Average
	71		2.79% Pervious Area
	2,473		97.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 11A: SUBCAT 11A

Runoff = 0.16 cfs @ 12.08 hrs, Volume= 0.012 af, Depth= 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	2,226	98	northeast parking lot left
	82	80	>75% Grass cover, Good, HSG D
	2,308	97	Weighted Average
	82		3.55% Pervious Area
	2,226		96.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 11B: SUBCAT 11B

Runoff = 0.20 cfs @ 12.08 hrs, Volume= 0.016 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	2,849	98	northeast parking lot left
	71	80	>75% Grass cover, Good, HSG D
	2,920	98	Weighted Average
	71		2.43% Pervious Area
	2,849		97.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 12: SUBCAT 12

Runoff = 0.24 cfs @ 12.08 hrs, Volume= 0.018 af, Depth= 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	3,321	98	northeast parking lot right
	151	80	>75% Grass cover, Good, HSG D
	3,472	97	Weighted Average
	151		4.35% Pervious Area
	3,321		95.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 13A: SUBCAT 13A

Runoff = 0.36 cfs @ 12.08 hrs, Volume= 0.028 af, Depth= 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	4,911	98	central parking lot
	340	80	>75% Grass cover, Good, HSG D
	5,251	97	Weighted Average
	340		6.47% Pervious Area
	4,911		93.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 13B: SUBCAT 13B

Runoff = 0.69 cfs @ 12.08 hrs, Volume= 0.054 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	9,865	98	central parking lot
	62	80	>75% Grass cover, Good, HSG D
	9,927	98	Weighted Average
	62		0.62% Pervious Area
	9,865		99.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 13C: SUBCAT 13C

Runoff = 0.26 cfs @ 12.08 hrs, Volume= 0.020 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	3,695	98	central parking lot
	34	80	>75% Grass cover, Good, HSG D
	3,729	98	Weighted Average
	34		0.91% Pervious Area
	3,695		99.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 14A: SUBCAT 14A

Runoff = 0.53 cfs @ 12.08 hrs, Volume= 0.042 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	7,641	98	roof
	7,641		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 14B: 14B

Runoff = 0.48 cfs @ 12.08 hrs, Volume= 0.038 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	6,943	98	roof
	6,943		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, roof**

Summary for Subcatchment 14C: 14C

Runoff = 0.53 cfs @ 12.08 hrs, Volume= 0.042 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	7,724	98	roof
	7,724		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, roof**

Summary for Subcatchment 14D: SUBCAT 14D

Runoff = 0.36 cfs @ 12.08 hrs, Volume= 0.029 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	5,204	98	roof
	5,204		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 15: SUBCAT 15

Runoff = 0.97 cfs @ 12.09 hrs, Volume= 0.069 af, Depth= 1.99"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	9,300	98	playground
	8,892	80	>75% Grass cover, Good, HSG D
	18,192	89	Weighted Average
	8,892		48.88% Pervious Area
	9,300		51.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 16: SUBCAT 16

Runoff = 0.75 cfs @ 12.08 hrs, Volume= 0.059 af, Depth= 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	10,738	98	lower parking lot top
	355	80	>75% Grass cover, Good, HSG D
	11,093	97	Weighted Average
	355		3.20% Pervious Area
	10,738		96.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 17: SUBCAT 17

Runoff = 0.34 cfs @ 12.08 hrs, Volume= 0.026 af, Depth= 2.76"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	4,769	98	lower parking lot right
	201	80	>75% Grass cover, Good, HSG D
	4,970	97	Weighted Average
	201		4.04% Pervious Area
	4,769		95.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 18: SUBCAT 18

Runoff = 0.38 cfs @ 12.09 hrs, Volume= 0.027 af, Depth= 1.53"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	1,354	98	maintenance access east side of building
	7,919	80	>75% Grass cover, Good, HSG D
	9,273	83	Weighted Average
	7,919		85.40% Pervious Area
	1,354		14.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 19: SUBCAT 19

Runoff = 0.87 cfs @ 12.09 hrs, Volume= 0.062 af, Depth= 2.08"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	9,785	98	lower parking lot bottom
	5,675	77	Woods, Good, HSG D
	187	80	>75% Grass cover, Good, HSG D
	15,647	90	Weighted Average
	5,862		37.46% Pervious Area
	9,785		62.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 20: SUBCAT 20

Runoff = 0.18 cfs @ 12.73 hrs, Volume= 0.030 af, Depth= 1.75"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
	5,288	77	Woods, Good, HSG D
*	3,810	98	ROAD
	9,098	86	Weighted Average
	5,288		58.12% Pervious Area
	3,810		41.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
52.5	150	0.0200	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.5	32	0.0200	0.35		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
54.0	182	Total			

Summary for Subcatchment 21: SUBCAT 21

Runoff = 0.08 cfs @ 12.08 hrs, Volume= 0.007 af, Depth= 2.87"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 2-Year Rainfall=3.10"

	Area (sf)	CN	Description
*	1,190	98	road
	1,190		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Reach A: ANALYSIS POINTA

Inflow Area = 3.967 ac, 42.54% Impervious, Inflow Depth > 1.49" for 2-Year event
Inflow = 0.94 cfs @ 13.85 hrs, Volume= 0.493 af
Outflow = 0.94 cfs @ 13.85 hrs, Volume= 0.493 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach B: ANALYSIS PT B

Inflow Area = 0.958 ac, 6.99% Impervious, Inflow Depth = 1.20" for 2-Year event
Inflow = 0.63 cfs @ 12.62 hrs, Volume= 0.096 af
Outflow = 0.63 cfs @ 12.62 hrs, Volume= 0.096 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach C: ANALYSIS PT C

Inflow Area = 2.377 ac, 8.20% Impervious, Inflow Depth = 1.23" for 2-Year event
Inflow = 1.18 cfs @ 12.81 hrs, Volume= 0.244 af
Outflow = 1.18 cfs @ 12.81 hrs, Volume= 0.244 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach D: ANALYSIS PT D

Inflow Area = 1.932 ac, 3.49% Impervious, Inflow Depth = 1.20" for 2-Year event
Inflow = 1.46 cfs @ 12.47 hrs, Volume= 0.193 af
Outflow = 1.46 cfs @ 12.47 hrs, Volume= 0.193 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach E: ANALYSIS PT E

Inflow Area = 0.199 ac, 31.56% Impervious, Inflow Depth = 1.60" for 2-Year event
Inflow = 0.32 cfs @ 12.15 hrs, Volume= 0.026 af
Outflow = 0.32 cfs @ 12.15 hrs, Volume= 0.026 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach F: ANALYSIS POINT F

Inflow Area = 0.236 ac, 48.60% Impervious, Inflow Depth = 1.88" for 2-Year event
Inflow = 0.19 cfs @ 12.72 hrs, Volume= 0.037 af
Outflow = 0.19 cfs @ 12.72 hrs, Volume= 0.037 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach G: ANALYSIS POINT G

Inflow Area = 1.179 ac, 59.44% Impervious, Inflow Depth > 1.91" for 2-Year event
Inflow = 0.40 cfs @ 12.51 hrs, Volume= 0.187 af
Outflow = 0.40 cfs @ 12.51 hrs, Volume= 0.187 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach H: ANALYSIS POINT H

Inflow Area = 0.126 ac, 0.00% Impervious, Inflow Depth = 1.14" for 2-Year event
Inflow = 0.09 cfs @ 12.43 hrs, Volume= 0.012 af
Outflow = 0.09 cfs @ 12.43 hrs, Volume= 0.012 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Pond FP1: FocalPoint 1

Inflow Area = 0.750 ac, 48.54% Impervious, Inflow Depth = 2.00" for 2-Year event
Inflow = 1.71 cfs @ 12.09 hrs, Volume= 0.125 af
Outflow = 1.71 cfs @ 12.09 hrs, Volume= 0.125 af, Atten= 0%, Lag= 0.1 min
Primary = 1.71 cfs @ 12.09 hrs, Volume= 0.125 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 56.03' @ 12.09 hrs Surf.Area= 900 sf Storage= 15 cf

Plug-Flow detention time= 0.1 min calculated for 0.125 af (100% of inflow)
Center-of-Mass det. time= 0.1 min (804.7 - 804.5)

Volume	Invert	Avail.Storage	Storage Description
#1	55.95'	405 cf	**12.00'W x 75.00'L x 2.25'H FocalPoint** 2,025 cf Overall x 20.0% Voids
#2	58.20'	900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		1,305 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.20	900	0	0
59.20	900	900	900

Device	Routing	Invert	Outlet Devices
#1	Primary	55.95'	**100.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	58.95'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=1.71 cfs @ 12.09 hrs HW=56.03' TW=54.61' (Dynamic Tailwater)
↑—**1=Exfiltration** (Exfiltration Controls 1.71 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=55.95' TW=54.00' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond FP2: FocalPoint 2

Inflow Area = 0.175 ac,100.00% Impervious, Inflow Depth = 2.87" for 2-Year event
Inflow = 0.53 cfs @ 12.08 hrs, Volume= 0.042 af
Outflow = 0.42 cfs @ 12.05 hrs, Volume= 0.042 af, Atten= 20%, Lag= 0.0 min
Primary = 0.42 cfs @ 12.05 hrs, Volume= 0.042 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 57.57' @ 12.14 hrs Surf.Area= 183 sf Storage= 30 cf

Plug-Flow detention time= 0.2 min calculated for 0.042 af (100% of inflow)
Center-of-Mass det. time= 0.2 min (757.3 - 757.1)

Volume	Invert	Avail.Storage	Storage Description
#1	56.75'	82 cf	**10.00'W x 18.30'L x 2.25'H FocalPoint** 412 cf Overall x 20.0% Voids
#2	59.00'	213 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		296 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
59.00	183	0	0
59.75	386	213	213

Device	Routing	Invert	Outlet Devices
#1	Primary	56.75'	**100.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	59.60'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.42 cfs @ 12.05 hrs HW=56.91' TW=54.74' (Dynamic Tailwater)
↑—**1=Exfiltration** (Exfiltration Controls 0.42 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=56.75' TW=54.00' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond FP3: FocalPoint 3

Inflow Area = 0.159 ac,100.00% Impervious, Inflow Depth = 2.87" for 2-Year event
Inflow = 0.48 cfs @ 12.08 hrs, Volume= 0.038 af
Outflow = 0.25 cfs @ 12.21 hrs, Volume= 0.038 af, Atten= 47%, Lag= 7.6 min
Primary = 0.23 cfs @ 11.98 hrs, Volume= 0.038 af
Secondary = 0.03 cfs @ 12.21 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 59.47' @ 12.21 hrs Surf.Area= 98 sf Storage= 124 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 1.8 min (758.9 - 757.1)

Volume	Invert	Avail.Storage	Storage Description
#1	56.75'	44 cf	**4.00'W x 24.50'L x 2.25'H FocalPoint** 221 cf Overall x 20.0% Voids
#2	59.00'	159 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		203 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
59.00	98	0	0
59.75	325	159	159

Device	Routing	Invert	Outlet Devices
#1	Primary	56.75'	**100.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	59.40'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.23 cfs @ 11.98 hrs HW=56.90' TW=54.54' (Dynamic Tailwater)
↑—**1=Exfiltration** (Exfiltration Controls 0.23 cfs)

Secondary OutFlow Max=0.03 cfs @ 12.21 hrs HW=59.47' TW=54.73' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Orifice Controls 0.03 cfs @ 0.90 fps)

Summary for Pond FP4: FocalPoint 4

Inflow Area = 0.177 ac,100.00% Impervious, Inflow Depth = 2.87" for 2-Year event
Inflow = 0.53 cfs @ 12.08 hrs, Volume= 0.042 af
Outflow = 0.53 cfs @ 12.10 hrs, Volume= 0.042 af, Atten= 1%, Lag= 0.8 min
Primary = 0.07 cfs @ 11.62 hrs, Volume= 0.032 af
Secondary = 0.45 cfs @ 12.10 hrs, Volume= 0.011 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 59.59' @ 12.10 hrs Surf.Area= 32 sf Storage= 86 cf

Plug-Flow detention time= 2.6 min calculated for 0.042 af (100% of inflow)
Center-of-Mass det. time= 2.6 min (759.7 - 757.1)

Volume	Invert	Avail.Storage	Storage Description
#1	56.50'	14 cf	**4.00'W x 8.00'L x 2.25'H FocalPoint** 72 cf Overall x 20.0% Voids
#2	58.75'	95 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		109 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.75	32	0	0
59.75	158	95	95

Device	Routing	Invert	Outlet Devices
#1	Primary	56.50'	**100.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	59.30'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.07 cfs @ 11.62 hrs HW=56.63' TW=54.45' (Dynamic Tailwater)
↑—**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Secondary OutFlow Max=0.45 cfs @ 12.10 hrs HW=59.59' TW=54.62' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Orifice Controls 0.45 cfs @ 1.85 fps)

Summary for Pond R1: R TANK 1

Inflow Area = 1.707 ac, 89.96% Impervious, Inflow Depth > 1.95" for 2-Year event
Inflow = 0.53 cfs @ 12.10 hrs, Volume= 0.278 af
Outflow = 0.26 cfs @ 12.86 hrs, Volume= 0.267 af, Atten= 52%, Lag= 46.0 min
Primary = 0.26 cfs @ 12.86 hrs, Volume= 0.267 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 54.75' @ 12.86 hrs Surf.Area= 1,977 sf Storage= 999 cf

Plug-Flow detention time= 107.2 min calculated for 0.267 af (96% of inflow)
Center-of-Mass det. time= 55.6 min (1,266.1 - 1,210.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	1,142 cf	**18.44'W x 107.22'L x 2.04'H Field A** 4,027 cf Overall - 1,173 cf Embedded = 2,854 cf x 40.0% Voids
#2A	54.25'	1,115 cf	**ACF R-Tank HD 0.5** x 484 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 11 Rows of 44 Chambers
		2,256 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round Culvert**
			L= 15.0' CMP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 54.25' / 53.50' S= 0.0500 '/' Cc= 0.900
			n= 0.013, Flow Area= 0.20 sf
#2	Device 1	54.40'	**12.0" W x 1.0" H Vert. Orifice/Grate** C= 0.600
#3	Device 1	54.70'	**12.0" W x 1.0" H Vert. Orifice/Grate** C= 0.600
#4	Device 1	54.80'	**12.0" W x 1.0" H Vert. Orifice/Grate** C= 0.600
#5	Secondary	55.60'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.26 cfs @ 12.86 hrs HW=54.75' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.26 cfs of 0.37 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.22 cfs @ 2.66 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.03 cfs @ 0.70 fps)
  └─**4=Orifice/Grate** (Controls 0.00 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=54.00' TW=0.00' (Dynamic Tailwater)
└─**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond R10: R TANK 10

Inflow Area = 0.175 ac,100.00% Impervious, Inflow Depth = 2.87" for 2-Year event
Inflow = 0.42 cfs @ 12.05 hrs, Volume= 0.042 af
Outflow = 0.35 cfs @ 12.22 hrs, Volume= 0.039 af, Atten= 18%, Lag= 10.0 min
Primary = 0.35 cfs @ 12.22 hrs, Volume= 0.039 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 54.90' @ 12.22 hrs Surf.Area= 470 sf Storage= 281 cf

Plug-Flow detention time= 106.8 min calculated for 0.039 af (94% of inflow)
Center-of-Mass det. time= 74.2 min (831.5 - 757.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	329 cf	**17.12'W x 27.46'L x 2.69'H Field A**
			1,266 cf Overall - 444 cf Embedded = 822 cf x 40.0% Voids
#2A	54.25'	422 cf	**ACF R-Tank HD 1.0** x 100 Inside #1
			Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
			Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf
			10 Rows of 10 Chambers
		751 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round Culvert**
			L= 10.0' CMP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.34 cfs @ 12.22 hrs HW=54.90' TW=54.69' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.34 cfs @ 1.73 fps)

Summary for Pond R11: R TANK 10

Inflow Area = 0.159 ac,100.00% Impervious, Inflow Depth = 2.85" for 2-Year event
Inflow = 0.23 cfs @ 11.98 hrs, Volume= 0.038 af
Outflow = 0.17 cfs @ 12.60 hrs, Volume= 0.034 af, Atten= 27%, Lag= 37.0 min
Primary = 0.17 cfs @ 12.60 hrs, Volume= 0.034 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 54.90' @ 12.60 hrs Surf.Area= 1,185 sf Storage= 754 cf

Plug-Flow detention time= 249.0 min calculated for 0.034 af (90% of inflow)
Center-of-Mass det. time= 198.8 min (957.8 - 759.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	744 cf	**30.25'W x 39.19'L x 2.69'H Field A** 3,193 cf Overall - 1,333 cf Embedded = 1,859 cf x 40.0% Voids
#2A	54.25'	1,267 cf	**ACF R-Tank HD 1.0** x 300 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 20 Rows of 15 Chambers
		2,010 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.16 cfs @ 12.60 hrs HW=54.90' TW=54.85' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.16 cfs @ 0.83 fps)

Summary for Pond R12: R TANK 10

Inflow Area = 0.177 ac,100.00% Impervious, Inflow Depth = 2.14" for 2-Year event
Inflow = 0.07 cfs @ 11.62 hrs, Volume= 0.032 af
Outflow = 0.08 cfs @ 13.22 hrs, Volume= 0.029 af, Atten= 0%, Lag= 96.0 min
Primary = 0.08 cfs @ 13.22 hrs, Volume= 0.029 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 54.85' @ 12.90 hrs Surf.Area= 760 sf Storage= 444 cf

Plug-Flow detention time= 196.6 min calculated for 0.029 af (92% of inflow)
Center-of-Mass det. time= 152.7 min (922.7 - 770.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	498 cf	**30.25'W x 25.11'L x 2.69'H Field A** 2,046 cf Overall - 800 cf Embedded = 1,246 cf x 40.0% Voids
#2A	54.25'	760 cf	**ACF R-Tank HD 1.0** x 180 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 20 Rows of 9 Chambers
		1,258 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.08 cfs @ 13.22 hrs HW=54.84' TW=54.83' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.08 cfs @ 0.42 fps)

Summary for Pond R2: R TANK 2

Inflow Area = 1.205 ac, 86.65% Impervious, Inflow Depth > 1.94" for 2-Year event
Inflow = 0.52 cfs @ 12.09 hrs, Volume= 0.195 af
Outflow = 0.15 cfs @ 15.12 hrs, Volume= 0.184 af, Atten= 70%, Lag= 182.3 min
Primary = 0.15 cfs @ 15.12 hrs, Volume= 0.184 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 54.80' @ 14.06 hrs Surf.Area= 0.045 ac Storage= 0.025 af

Plug-Flow detention time= 167.8 min calculated for 0.184 af (94% of inflow)
Center-of-Mass det. time= 97.0 min (1,309.6 - 1,212.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.026 af	**18.44'W x 107.22'L x 2.04'H Field A** 0.092 af Overall - 0.027 af Embedded = 0.066 af x 40.0% Voids
#2A	54.25'	0.026 af	**ACF R-Tank HD 0.5** x 484 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 11 Rows of 44 Chambers
		0.052 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round R2-OCS** L= 55.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.15 cfs @ 15.12 hrs HW=54.79' TW=54.73' (Dynamic Tailwater)
↑—**1=R2-OCS** (Outlet Controls 0.15 cfs @ 0.90 fps)

Summary for Pond R3: R TANK 3

Inflow Area = 0.377 ac, 98.08% Impervious, Inflow Depth > 2.54" for 2-Year event
Inflow = 0.68 cfs @ 12.10 hrs, Volume= 0.080 af
Outflow = 0.15 cfs @ 12.34 hrs, Volume= 0.065 af, Atten= 77%, Lag= 14.6 min
Primary = 0.15 cfs @ 12.34 hrs, Volume= 0.065 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 54.78' @ 12.58 hrs Surf.Area= 0.061 ac Storage= 0.034 af

Plug-Flow detention time= 382.8 min calculated for 0.065 af (81% of inflow)
Center-of-Mass det. time= 258.8 min (1,133.6 - 874.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.033 af	**36.81'W x 72.03'L x 2.04'H Field A** 0.124 af Overall - 0.040 af Embedded = 0.084 af x 40.0% Voids
#2A	54.25'	0.038 af	**ACF R-Tank HD 0.5** x 725 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 25 Rows of 29 Chambers
		0.072 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round R3-R1** L= 33.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.15 cfs @ 12.34 hrs HW=54.75' TW=54.70' (Dynamic Tailwater)
↑—**1=R3-R1** (Outlet Controls 0.15 cfs @ 0.94 fps)

Summary for Pond R4: R TANK 4

Inflow Area = 0.080 ac, 95.65% Impervious, Inflow Depth = 2.76" for 2-Year event
Inflow = 0.24 cfs @ 12.08 hrs, Volume= 0.018 af
Outflow = 0.01 cfs @ 14.11 hrs, Volume= 0.012 af, Atten= 94%, Lag= 121.3 min
Primary = 0.01 cfs @ 14.11 hrs, Volume= 0.012 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 54.75' @ 13.92 hrs Surf.Area= 0.028 ac Storage= 0.014 af

Plug-Flow detention time= 635.4 min calculated for 0.012 af (63% of inflow)
Center-of-Mass det. time= 534.3 min (1,301.1 - 766.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.016 af	**19.75'W x 62.65'L x 2.04'H Field A** 0.058 af Overall - 0.017 af Embedded = 0.041 af x 40.0% Voids
#2A	54.25'	0.016 af	**ACF R-Tank HD 0.5** x 300 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 12 Rows of 25 Chambers
		0.032 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.02 cfs @ 14.11 hrs HW=54.75' TW=54.74' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.02 cfs @ 0.10 fps)

Summary for Pond R5: R TANK 5

Inflow Area = 1.041 ac, 85.64% Impervious, Inflow Depth > 1.99" for 2-Year event
Inflow = 0.69 cfs @ 12.08 hrs, Volume= 0.173 af
Outflow = 0.13 cfs @ 15.40 hrs, Volume= 0.157 af, Atten= 81%, Lag= 199.1 min
Primary = 0.13 cfs @ 15.40 hrs, Volume= 0.157 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 54.83' @ 14.58 hrs Surf.Area= 0.065 ac Storage= 0.037 af

Plug-Flow detention time= 273.4 min calculated for 0.157 af (91% of inflow)
Center-of-Mass det. time= 168.4 min (1,319.0 - 1,150.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.037 af	**18.44'W x 154.13'L x 2.04'H Field A** 0.133 af Overall - 0.039 af Embedded = 0.094 af x 40.0% Voids
#2A	54.25'	0.037 af	**ACF R-Tank HD 0.5** x 704 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 11 Rows of 64 Chambers
		0.075 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round R7-R2** L= 9.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.13 cfs @ 15.40 hrs HW=54.82' TW=54.79' (Dynamic Tailwater)
↑—**1=R7-R2** (Inlet Controls 0.13 cfs @ 0.68 fps)

Summary for Pond R6: R TANK 6

Inflow Area = 0.369 ac, 96.54% Impervious, Inflow Depth > 2.51" for 2-Year event
Inflow = 0.78 cfs @ 12.08 hrs, Volume= 0.077 af
Outflow = 0.11 cfs @ 12.16 hrs, Volume= 0.061 af, Atten= 86%, Lag= 4.8 min
Primary = 0.11 cfs @ 12.16 hrs, Volume= 0.061 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 54.85' @ 14.76 hrs Surf.Area= 0.067 ac Storage= 0.041 af

Plug-Flow detention time= 554.5 min calculated for 0.061 af (79% of inflow)
Center-of-Mass det. time= 401.8 min (1,299.2 - 897.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.037 af	**25.00'W x 116.60'L x 2.04'H Field A** 0.136 af Overall - 0.043 af Embedded = 0.094 af x 40.0% Voids
#2A	54.25'	0.041 af	**ACF R-Tank HD 0.5** x 768 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 16 Rows of 48 Chambers
		0.078 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round R8-R10** L= 33.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.10 cfs @ 12.16 hrs HW=54.63' TW=54.59' (Dynamic Tailwater)
↑—**1=R8-R10** (Outlet Controls 0.10 cfs @ 0.85 fps)

Summary for Pond R7: R TANK 7

Inflow Area = 0.114 ac, 95.96% Impervious, Inflow Depth = 2.76" for 2-Year event
Inflow = 0.34 cfs @ 12.08 hrs, Volume= 0.026 af
Outflow = 0.03 cfs @ 12.12 hrs, Volume= 0.019 af, Atten= 90%, Lag= 2.0 min
Primary = 0.03 cfs @ 12.12 hrs, Volume= 0.019 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 54.85' @ 14.78 hrs Surf.Area= 0.031 ac Storage= 0.018 af

Plug-Flow detention time= 628.2 min calculated for 0.019 af (71% of inflow)
Center-of-Mass det. time= 538.0 min (1,304.9 - 766.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.017 af	**28.93'W x 46.22'L x 2.04'H Field A** 0.063 af Overall - 0.019 af Embedded = 0.044 af x 40.0% Voids
#2A	54.25'	0.018 af	**ACF R-Tank HD 0.5** x 342 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 19 Rows of 18 Chambers
		0.035 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round R9-R8** L= 35.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.00 cfs @ 12.12 hrs HW=54.60' TW=54.60' (Dynamic Tailwater)
↑—**1=R9-R8** (Controls 0.00 cfs)

Summary for Pond R8: R TANK 8

Inflow Area = 0.814 ac, 81.79% Impervious, Inflow Depth > 2.12" for 2-Year event
Inflow = 1.22 cfs @ 12.09 hrs, Volume= 0.143 af
Outflow = 0.10 cfs @ 15.51 hrs, Volume= 0.118 af, Atten= 92%, Lag= 205.3 min
Primary = 0.10 cfs @ 15.51 hrs, Volume= 0.118 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 54.84' @ 14.72 hrs Surf.Area= 0.104 ac Storage= 0.062 af

Plug-Flow detention time= 477.7 min calculated for 0.118 af (82% of inflow)
Center-of-Mass det. time= 322.8 min (1,331.9 - 1,009.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.059 af	**19.75'W x 229.20'L x 2.04'H Field A** 0.212 af Overall - 0.064 af Embedded = 0.148 af x 40.0% Voids
#2A	54.25'	0.061 af	**ACF R-Tank HD 0.5** x 1152 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 12 Rows of 96 Chambers
		0.120 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round R10-R7** L= 9.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.10 cfs @ 15.51 hrs HW=54.84' TW=54.82' (Dynamic Tailwater)
↑—**1=R10-R7** (Inlet Controls 0.10 cfs @ 0.52 fps)

Summary for Pond R9: R TANK 9

Inflow Area = 1.087 ac, 64.49% Impervious, Inflow Depth = 2.20" for 2-Year event
Inflow = 2.19 cfs @ 12.09 hrs, Volume= 0.199 af
Outflow = 0.35 cfs @ 12.67 hrs, Volume= 0.179 af, Atten= 84%, Lag= 34.9 min
Primary = 0.35 cfs @ 12.67 hrs, Volume= 0.179 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 54.85' @ 12.67 hrs Surf.Area= 6,095 sf Storage= 3,787 cf

Plug-Flow detention time= 242.5 min calculated for 0.179 af (90% of inflow)
Center-of-Mass det. time= 184.2 min (1,028.1 - 843.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	718 cf	**15.81'W x 76.72'L x 2.04'H Field A** 2,471 cf Overall - 676 cf Embedded = 1,795 cf x 40.0% Voids
#2A	54.25'	642 cf	**ACF R-Tank HD 0.5** x 279 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 9 Rows of 31 Chambers
#3B	54.00'	2,757 cf	**61.74'W x 79.07'L x 2.69'H Field B** 13,149 cf Overall - 6,257 cf Embedded = 6,892 cf x 40.0% Voids
#4B	54.25'	5,944 cf	**ACF R-Tank HD 1.0** x 1408 Inside #3 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 44 Rows of 32 Chambers
		10,062 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.00' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	54.30'	**10.0" W x 1.0" H Vert. Orifice/Grate** C= 0.600
#3	Device 1	54.70'	**10.0" W x 1.0" H Vert. Orifice/Grate** C= 0.600
#4	Device 1	54.85'	**10.0" W x 1.0" H Vert. Orifice/Grate** C= 0.600
#5	Secondary	55.60'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.35 cfs @ 12.67 hrs HW=54.85' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Passes 0.35 cfs of 0.44 cfs potential flow)
  ├─**2=Orifice/Grate** (Orifice Controls 0.24 cfs @ 3.43 fps)
  ├─**3=Orifice/Grate** (Orifice Controls 0.11 cfs @ 1.58 fps)
  └─**4=Orifice/Grate** (Orifice Controls 0.00 cfs @ 0.05 fps)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=54.00' TW=0.00' (Dynamic Tailwater)
└─**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 1: SUBCAT 1

Runoff = 0.75 cfs @ 12.31 hrs, Volume= 0.082 af, Depth= 2.63"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	13,344	77	Woods, Good, HSG D
*	2,917	98	ROAD
	16,261	81	Weighted Average
	13,344		82.06% Pervious Area
	2,917		17.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	15	0.0500	1.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
18.0	135	0.0593	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
4.0	60	0.0100	0.25		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
22.2	210	Total			

Summary for Subcatchment 2: SUBCAT 2

Runoff = 1.28 cfs @ 12.61 hrs, Volume= 0.190 af, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	38,835	77	Woods, Good, HSG D
*	2,917	98	ROAD
	41,752	78	Weighted Average
	38,835		93.01% Pervious Area
	2,917		6.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.8	150	0.0400	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.1	64	0.0400	0.50		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
41.9	214	Total			

Summary for Subcatchment 3: SUBCAT 3

Runoff = 2.15 cfs @ 12.88 hrs, Volume= 0.397 af, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	81,695	77	Woods, Good, HSG D
*	5,574	98	ROAD
	87,269	78	Weighted Average
	81,695		93.61% Pervious Area
	5,574		6.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	150	0.0530	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
41.6	540	0.0075	0.22		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
62.0	690	Total			

Summary for Subcatchment 4: SUBCAT 4

Runoff = 1.43 cfs @ 13.85 hrs, Volume= 0.448 af, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	6,629	98	road
	91,843	77	Woods, Good, HSG D
	98,472	78	Weighted Average
	91,843		93.27% Pervious Area
	6,629		6.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	15	0.0500	1.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
54.2	135	0.0150	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
81.1	544	0.0020	0.11		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
135.5	694	Total			

Summary for Subcatchment 5: SUBCAT 5

Runoff = 2.95 cfs @ 12.44 hrs, Volume= 0.382 af, Depth= 2.38"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	81,208	77	Woods, Good, HSG D
*	2,937	98	ROAD
	84,145	78	Weighted Average
	81,208		96.51% Pervious Area
	2,937		3.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	15	0.0500	1.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
20.2	135	0.0444	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
11.4	260	0.0230	0.38		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
31.8	410	Total			

Summary for Subcatchment 6: SUBCAT 6

Runoff = 0.58 cfs @ 12.14 hrs, Volume= 0.048 af, Depth= 2.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	5,928	77	Woods, Good, HSG D
*	2,733	98	ROAD
	8,661	84	Weighted Average
	5,928		68.44% Pervious Area
	2,733		31.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	95	0.1100	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"

Summary for Subcatchment 7: SUBCAT 7

Runoff = 0.19 cfs @ 12.42 hrs, Volume= 0.024 af, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
5,500	77	Woods, Good, HSG D
5,500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.5	129	0.0625	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"

Summary for Subcatchment 8: SUBCAT 8

Runoff = 0.17 cfs @ 12.29 hrs, Volume= 0.018 af, Depth= 2.29"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

Area (sf)	CN	Description
4,022	77	Woods, Good, HSG D
4,022		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	65	0.0400	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"

Summary for Subcatchment 9: SUBCAT 9

Runoff = 0.19 cfs @ 12.08 hrs, Volume= 0.015 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	1,707	98	northwest parking lot left
	151	80	>75% Grass cover, Good, HSG D
	1,858	97	Weighted Average
	151		8.13% Pervious Area
	1,707		91.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 10A: SUBCAT 10A

Runoff = 0.31 cfs @ 12.08 hrs, Volume= 0.025 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	2,901	98	northwest parking lot right
	82	80	>75% Grass cover, Good, HSG D
	2,983	98	Weighted Average
	82		2.75% Pervious Area
	2,901		97.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 10B: SUBCAT 10B

Runoff = 0.26 cfs @ 12.08 hrs, Volume= 0.021 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	2,473	98	northwest parking lot right
	71	80	>75% Grass cover, Good, HSG D
	2,544	97	Weighted Average
	71		2.79% Pervious Area
	2,473		97.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 11A: SUBCAT 11A

Runoff = 0.24 cfs @ 12.08 hrs, Volume= 0.019 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	2,226	98	northeast parking lot left
	82	80	>75% Grass cover, Good, HSG D
	2,308	97	Weighted Average
	82		3.55% Pervious Area
	2,226		96.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 11B: SUBCAT 11B

Runoff = 0.30 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	2,849	98	northeast parking lot left
	71	80	>75% Grass cover, Good, HSG D
	2,920	98	Weighted Average
	71		2.43% Pervious Area
	2,849		97.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 12: SUBCAT 12

Runoff = 0.36 cfs @ 12.08 hrs, Volume= 0.028 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	3,321	98	northeast parking lot right
	151	80	>75% Grass cover, Good, HSG D
	3,472	97	Weighted Average
	151		4.35% Pervious Area
	3,321		95.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 13A: SUBCAT 13A

Runoff = 0.54 cfs @ 12.08 hrs, Volume= 0.043 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	4,911	98	central parking lot
	340	80	>75% Grass cover, Good, HSG D
	5,251	97	Weighted Average
	340		6.47% Pervious Area
	4,911		93.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 13B: SUBCAT 13B

Runoff = 1.02 cfs @ 12.08 hrs, Volume= 0.083 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	9,865	98	central parking lot
	62	80	>75% Grass cover, Good, HSG D
	9,927	98	Weighted Average
	62		0.62% Pervious Area
	9,865		99.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 13C: SUBCAT 13C

Runoff = 0.38 cfs @ 12.08 hrs, Volume= 0.031 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	3,695	98	central parking lot
	34	80	>75% Grass cover, Good, HSG D
	3,729	98	Weighted Average
	34		0.91% Pervious Area
	3,695		99.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 14A: SUBCAT 14A

Runoff = 0.79 cfs @ 12.08 hrs, Volume= 0.064 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	7,641	98	roof
	7,641		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 14B: 14B

Runoff = 0.72 cfs @ 12.08 hrs, Volume= 0.058 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	6,943	98	roof
	6,943		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, roof**

Summary for Subcatchment 14C: 14C

Runoff = 0.80 cfs @ 12.08 hrs, Volume= 0.064 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	7,724	98	roof
	7,724		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, roof**

Summary for Subcatchment 14D: SUBCAT 14D

Runoff = 0.54 cfs @ 12.08 hrs, Volume= 0.043 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	5,204	98	roof
	5,204		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 15: SUBCAT 15

Runoff = 1.62 cfs @ 12.09 hrs, Volume= 0.118 af, Depth= 3.39"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	9,300	98	playground
	8,892	80	>75% Grass cover, Good, HSG D
	18,192	89	Weighted Average
	8,892		48.88% Pervious Area
	9,300		51.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 16: SUBCAT 16

Runoff = 1.14 cfs @ 12.08 hrs, Volume= 0.090 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	10,738	98	lower parking lot top
	355	80	>75% Grass cover, Good, HSG D
	11,093	97	Weighted Average
	355		3.20% Pervious Area
	10,738		96.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 17: SUBCAT 17

Runoff = 0.51 cfs @ 12.08 hrs, Volume= 0.040 af, Depth= 4.25"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	4,769	98	lower parking lot right
	201	80	>75% Grass cover, Good, HSG D
	4,970	97	Weighted Average
	201		4.04% Pervious Area
	4,769		95.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 18: SUBCAT 18

Runoff = 0.70 cfs @ 12.09 hrs, Volume= 0.050 af, Depth= 2.81"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	1,354	98	maintenance access east side of building
	7,919	80	>75% Grass cover, Good, HSG D
	9,273	83	Weighted Average
	7,919		85.40% Pervious Area
	1,354		14.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 19: SUBCAT 19

Runoff = 1.43 cfs @ 12.09 hrs, Volume= 0.105 af, Depth= 3.49"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	9,785	98	lower parking lot bottom
	5,675	77	Woods, Good, HSG D
	187	80	>75% Grass cover, Good, HSG D
	15,647	90	Weighted Average
	5,862		37.46% Pervious Area
	9,785		62.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 20: SUBCAT 20

Runoff = 0.32 cfs @ 12.72 hrs, Volume= 0.054 af, Depth= 3.10"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
	5,288	77	Woods, Good, HSG D
*	3,810	98	ROAD
	9,098	86	Weighted Average
	5,288		58.12% Pervious Area
	3,810		41.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
52.5	150	0.0200	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.5	32	0.0200	0.35		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
54.0	182	Total			

Summary for Subcatchment 21: SUBCAT 21

Runoff = 0.12 cfs @ 12.08 hrs, Volume= 0.010 af, Depth= 4.36"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 10-Year Rainfall=4.60"

	Area (sf)	CN	Description
*	1,190	98	road
	1,190		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Reach A: ANALYSIS POINTA

Inflow Area = 3.967 ac, 42.54% Impervious, Inflow Depth > 2.79" for 10-Year event
Inflow = 1.93 cfs @ 13.71 hrs, Volume= 0.922 af
Outflow = 1.93 cfs @ 13.71 hrs, Volume= 0.922 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach B: ANALYSIS PT B

Inflow Area = 0.958 ac, 6.99% Impervious, Inflow Depth = 2.38" for 10-Year event
Inflow = 1.28 cfs @ 12.61 hrs, Volume= 0.190 af
Outflow = 1.28 cfs @ 12.61 hrs, Volume= 0.190 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach C: ANALYSIS PT C

Inflow Area = 2.377 ac, 8.20% Impervious, Inflow Depth = 2.42" for 10-Year event
Inflow = 2.39 cfs @ 12.75 hrs, Volume= 0.479 af
Outflow = 2.39 cfs @ 12.75 hrs, Volume= 0.479 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach D: ANALYSIS PT D

Inflow Area = 1.932 ac, 3.49% Impervious, Inflow Depth = 2.38" for 10-Year event
Inflow = 2.95 cfs @ 12.44 hrs, Volume= 0.382 af
Outflow = 2.95 cfs @ 12.44 hrs, Volume= 0.382 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach E: ANALYSIS PT E

Inflow Area = 0.199 ac, 31.56% Impervious, Inflow Depth = 2.91" for 10-Year event
Inflow = 0.58 cfs @ 12.14 hrs, Volume= 0.048 af
Outflow = 0.58 cfs @ 12.14 hrs, Volume= 0.048 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach F: ANALYSIS POINT F

Inflow Area = 0.236 ac, 48.60% Impervious, Inflow Depth = 3.24" for 10-Year event
Inflow = 0.33 cfs @ 12.72 hrs, Volume= 0.064 af
Outflow = 0.33 cfs @ 12.72 hrs, Volume= 0.064 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach G: ANALYSIS POINT G

Inflow Area = 1.179 ac, 59.44% Impervious, Inflow Depth > 3.30" for 10-Year event
Inflow = 0.80 cfs @ 12.35 hrs, Volume= 0.325 af
Outflow = 0.80 cfs @ 12.35 hrs, Volume= 0.325 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach H: ANALYSIS POINT H

Inflow Area = 0.126 ac, 0.00% Impervious, Inflow Depth = 2.29" for 10-Year event
Inflow = 0.19 cfs @ 12.42 hrs, Volume= 0.024 af
Outflow = 0.19 cfs @ 12.42 hrs, Volume= 0.024 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Pond FP1: FocalPoint 1

Inflow Area = 0.750 ac, 48.54% Impervious, Inflow Depth = 3.38" for 10-Year event
Inflow = 2.86 cfs @ 12.09 hrs, Volume= 0.211 af
Outflow = 2.08 cfs @ 12.04 hrs, Volume= 0.211 af, Atten= 27%, Lag= 0.0 min
Primary = 2.08 cfs @ 12.04 hrs, Volume= 0.211 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 57.38' @ 12.16 hrs Surf.Area= 900 sf Storage= 257 cf

Plug-Flow detention time= 0.4 min calculated for 0.211 af (100% of inflow)
Center-of-Mass det. time= 0.4 min (792.5 - 792.1)

Volume	Invert	Avail.Storage	Storage Description
#1	55.95'	405 cf	**12.00'W x 75.00'L x 2.25'H FocalPoint** 2,025 cf Overall x 20.0% Voids
#2	58.20'	900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		1,305 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.20	900	0	0
59.20	900	900	900

Device	Routing	Invert	Outlet Devices
#1	Primary	55.95'	**100.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	58.95'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=2.08 cfs @ 12.04 hrs HW=56.12' TW=54.80' (Dynamic Tailwater)
↑—**1=Exfiltration** (Exfiltration Controls 2.08 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=55.95' TW=54.00' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond FP2: FocalPoint 2

Inflow Area = 0.175 ac,100.00% Impervious, Inflow Depth = 4.36" for 10-Year event
Inflow = 0.79 cfs @ 12.08 hrs, Volume= 0.064 af
Outflow = 0.42 cfs @ 12.00 hrs, Volume= 0.064 af, Atten= 46%, Lag= 0.0 min
Primary = 0.42 cfs @ 12.00 hrs, Volume= 0.064 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 59.36' @ 12.21 hrs Surf.Area= 183 sf Storage= 167 cf

Plug-Flow detention time= 1.2 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 1.2 min (750.7 - 749.4)

Volume	Invert	Avail.Storage	Storage Description
#1	56.75'	82 cf	**10.00'W x 18.30'L x 2.25'H FocalPoint** 412 cf Overall x 20.0% Voids
#2	59.00'	213 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		296 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
59.00	183	0	0
59.75	386	213	213

Device	Routing	Invert	Outlet Devices
#1	Primary	56.75'	**100.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	59.60'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.42 cfs @ 12.00 hrs HW=56.92' TW=54.84' (Dynamic Tailwater)
↑—**1=Exfiltration** (Exfiltration Controls 0.42 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=56.75' TW=54.00' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond FP3: FocalPoint 3

Inflow Area = 0.159 ac,100.00% Impervious, Inflow Depth = 4.36" for 10-Year event
Inflow = 0.72 cfs @ 12.08 hrs, Volume= 0.058 af
Outflow = 0.61 cfs @ 12.13 hrs, Volume= 0.058 af, Atten= 14%, Lag= 2.9 min
Primary = 0.23 cfs @ 11.84 hrs, Volume= 0.053 af
Secondary = 0.39 cfs @ 12.13 hrs, Volume= 0.005 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 59.67' @ 12.13 hrs Surf.Area= 98 sf Storage= 178 cf

Plug-Flow detention time= 2.1 min calculated for 0.058 af (100% of inflow)
Center-of-Mass det. time= 2.1 min (751.5 - 749.4)

Volume	Invert	Avail.Storage	Storage Description
#1	56.75'	44 cf	**4.00'W x 24.50'L x 2.25'H FocalPoint** 221 cf Overall x 20.0% Voids
#2	59.00'	159 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		203 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
59.00	98	0	0
59.75	325	159	159

Device	Routing	Invert	Outlet Devices
#1	Primary	56.75'	**100.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	59.40'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.23 cfs @ 11.84 hrs HW=56.90' TW=54.62' (Dynamic Tailwater)
↑—**1=Exfiltration** (Exfiltration Controls 0.23 cfs)

Secondary OutFlow Max=0.39 cfs @ 12.13 hrs HW=59.67' TW=54.96' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Orifice Controls 0.39 cfs @ 1.77 fps)

Summary for Pond FP4: FocalPoint 4

Inflow Area = 0.177 ac,100.00% Impervious, Inflow Depth = 4.36" for 10-Year event
Inflow = 0.80 cfs @ 12.08 hrs, Volume= 0.064 af
Outflow = 0.79 cfs @ 12.09 hrs, Volume= 0.064 af, Atten= 1%, Lag= 0.7 min
Primary = 0.07 cfs @ 11.34 hrs, Volume= 0.044 af
Secondary = 0.72 cfs @ 12.09 hrs, Volume= 0.020 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 59.67' @ 12.09 hrs Surf.Area= 32 sf Storage= 98 cf

Plug-Flow detention time= 2.5 min calculated for 0.064 af (100% of inflow)
Center-of-Mass det. time= 2.5 min (752.0 - 749.4)

Volume	Invert	Avail.Storage	Storage Description
#1	56.50'	14 cf	**4.00'W x 8.00'L x 2.25'H FocalPoint** 72 cf Overall x 20.0% Voids
#2	58.75'	95 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		109 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.75	32	0	0
59.75	158	95	95

Device	Routing	Invert	Outlet Devices
#1	Primary	56.50'	**100.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	59.30'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.07 cfs @ 11.34 hrs HW=56.63' TW=54.50' (Dynamic Tailwater)
↑—**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Secondary OutFlow Max=0.71 cfs @ 12.09 hrs HW=59.67' TW=54.89' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Orifice Controls 0.71 cfs @ 2.08 fps)

Summary for Pond R1: R TANK 1

Inflow Area = 1.707 ac, 89.96% Impervious, Inflow Depth > 3.41" for 10-Year event
Inflow = 0.85 cfs @ 12.09 hrs, Volume= 0.485 af
Outflow = 0.53 cfs @ 12.83 hrs, Volume= 0.474 af, Atten= 38%, Lag= 44.3 min
Primary = 0.53 cfs @ 12.83 hrs, Volume= 0.474 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.00' @ 12.83 hrs Surf.Area= 1,977 sf Storage= 1,398 cf

Plug-Flow detention time= 76.4 min calculated for 0.474 af (98% of inflow)
Center-of-Mass det. time= 44.2 min (1,225.2 - 1,181.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	1,142 cf	**18.44'W x 107.22'L x 2.04'H Field A** 4,027 cf Overall - 1,173 cf Embedded = 2,854 cf x 40.0% Voids
#2A	54.25'	1,115 cf	**ACF R-Tank HD 0.5** x 484 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 11 Rows of 44 Chambers
		2,256 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round Culvert**
			L= 15.0' CMP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 54.25' / 53.50' S= 0.0500 '/' Cc= 0.900
			n= 0.013, Flow Area= 0.20 sf
#2	Device 1	54.40'	**12.0" W x 1.0" H Vert. Orifice/Grate** C= 0.600
#3	Device 1	54.70'	**12.0" W x 1.0" H Vert. Orifice/Grate** C= 0.600
#4	Device 1	54.80'	**12.0" W x 1.0" H Vert. Orifice/Grate** C= 0.600
#5	Secondary	55.60'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.53 cfs @ 12.83 hrs HW=55.00' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 0.53 cfs @ 2.68 fps)
  ├─**2=Orifice/Grate** (Passes < 0.30 cfs potential flow)
  ├─**3=Orifice/Grate** (Passes < 0.20 cfs potential flow)
  └─**4=Orifice/Grate** (Passes < 0.16 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=54.00' TW=0.00' (Dynamic Tailwater)
└─**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond R10: R TANK 10

Inflow Area = 0.175 ac,100.00% Impervious, Inflow Depth = 4.36" for 10-Year event
Inflow = 0.42 cfs @ 12.00 hrs, Volume= 0.064 af
Outflow = 0.37 cfs @ 12.47 hrs, Volume= 0.061 af, Atten= 13%, Lag= 28.0 min
Primary = 0.37 cfs @ 12.47 hrs, Volume= 0.061 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.30' @ 12.50 hrs Surf.Area= 470 sf Storage= 422 cf

Plug-Flow detention time= 96.0 min calculated for 0.061 af (96% of inflow)
Center-of-Mass det. time= 72.3 min (823.0 - 750.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	329 cf	**17.12'W x 27.46'L x 2.69'H Field A**
			1,266 cf Overall - 444 cf Embedded = 822 cf x 40.0% Voids
#2A	54.25'	422 cf	**ACF R-Tank HD 1.0** x 100 Inside #1
			Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf
			Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf
			10 Rows of 10 Chambers
		751 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round Culvert**
			L= 10.0' CMP, projecting, no headwall, Ke= 0.900
			Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900
			n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.36 cfs @ 12.47 hrs HW=55.28' TW=55.05' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.36 cfs @ 1.84 fps)

Summary for Pond R11: R TANK 10

Inflow Area = 0.159 ac,100.00% Impervious, Inflow Depth = 3.96" for 10-Year event
Inflow = 0.23 cfs @ 11.84 hrs, Volume= 0.053 af
Outflow = 0.15 cfs @ 12.73 hrs, Volume= 0.049 af, Atten= 34%, Lag= 53.5 min
Primary = 0.15 cfs @ 12.73 hrs, Volume= 0.049 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.30' @ 12.73 hrs Surf.Area= 1,185 sf Storage= 1,147 cf

Plug-Flow detention time= 244.1 min calculated for 0.049 af (93% of inflow)
Center-of-Mass det. time= 203.0 min (956.6 - 753.6)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	744 cf	**30.25'W x 39.19'L x 2.69'H Field A** 3,193 cf Overall - 1,333 cf Embedded = 1,859 cf x 40.0% Voids
#2A	54.25'	1,267 cf	**ACF R-Tank HD 1.0** x 300 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 20 Rows of 15 Chambers
		2,010 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.15 cfs @ 12.73 hrs HW=55.30' TW=55.26' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.15 cfs @ 0.77 fps)

Summary for Pond R12: R TANK 10

Inflow Area = 0.177 ac,100.00% Impervious, Inflow Depth = 2.98" for 10-Year event
Inflow = 0.07 cfs @ 11.34 hrs, Volume= 0.044 af
Outflow = 0.10 cfs @ 13.74 hrs, Volume= 0.042 af, Atten= 0%, Lag= 144.0 min
Primary = 0.10 cfs @ 13.74 hrs, Volume= 0.042 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.18' @ 13.22 hrs Surf.Area= 760 sf Storage= 644 cf

Plug-Flow detention time= 184.4 min calculated for 0.042 af (94% of inflow)
Center-of-Mass det. time= 150.6 min (913.4 - 762.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	498 cf	**30.25'W x 25.11'L x 2.69'H Field A** 2,046 cf Overall - 800 cf Embedded = 1,246 cf x 40.0% Voids
#2A	54.25'	760 cf	**ACF R-Tank HD 1.0** x 180 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 20 Rows of 9 Chambers
		1,258 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.10 cfs @ 13.74 hrs HW=55.11' TW=55.09' (Dynamic Tailwater)
↑**1=Culvert** (Inlet Controls 0.10 cfs @ 0.53 fps)

Summary for Pond R2: R TANK 2

Inflow Area = 1.205 ac, 86.65% Impervious, Inflow Depth > 3.39" for 10-Year event
Inflow = 0.83 cfs @ 12.09 hrs, Volume= 0.340 af
Outflow = 0.31 cfs @ 14.46 hrs, Volume= 0.329 af, Atten= 63%, Lag= 142.2 min
Primary = 0.31 cfs @ 14.46 hrs, Volume= 0.329 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.19' @ 13.37 hrs Surf.Area= 0.045 ac Storage= 0.036 af

Plug-Flow detention time= 124.5 min calculated for 0.329 af (97% of inflow)
Center-of-Mass det. time= 79.5 min (1,265.6 - 1,186.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.026 af	**18.44'W x 107.22'L x 2.04'H Field A** 0.092 af Overall - 0.027 af Embedded = 0.066 af x 40.0% Voids
#2A	54.25'	0.026 af	**ACF R-Tank HD 0.5** x 484 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 11 Rows of 44 Chambers
		0.052 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round R2-OCS** L= 55.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.31 cfs @ 14.46 hrs HW=55.16' TW=54.93' (Dynamic Tailwater)
↑—**1=R2-OCS** (Outlet Controls 0.31 cfs @ 1.56 fps)

Summary for Pond R3: R TANK 3

Inflow Area = 0.377 ac, 98.08% Impervious, Inflow Depth > 4.03" for 10-Year event
Inflow = 0.85 cfs @ 12.08 hrs, Volume= 0.126 af
Outflow = 0.27 cfs @ 12.56 hrs, Volume= 0.111 af, Atten= 68%, Lag= 28.5 min
Primary = 0.27 cfs @ 12.56 hrs, Volume= 0.111 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.11' @ 12.60 hrs Surf.Area= 0.061 ac Storage= 0.049 af

Plug-Flow detention time= 331.9 min calculated for 0.111 af (88% of inflow)
Center-of-Mass det. time= 235.5 min (1,104.0 - 868.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.033 af	**36.81'W x 72.03'L x 2.04'H Field A** 0.124 af Overall - 0.040 af Embedded = 0.084 af x 40.0% Voids
#2A	54.25'	0.038 af	**ACF R-Tank HD 0.5** x 725 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 25 Rows of 29 Chambers
		0.072 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round R3-R1** L= 33.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.27 cfs @ 12.56 hrs HW=55.10' TW=54.97' (Dynamic Tailwater)
↑—**1=R3-R1** (Outlet Controls 0.27 cfs @ 1.37 fps)

Summary for Pond R4: R TANK 4

Inflow Area = 0.080 ac, 95.65% Impervious, Inflow Depth = 4.25" for 10-Year event
Inflow = 0.36 cfs @ 12.08 hrs, Volume= 0.028 af
Outflow = 0.04 cfs @ 13.38 hrs, Volume= 0.021 af, Atten= 90%, Lag= 77.9 min
Primary = 0.04 cfs @ 13.38 hrs, Volume= 0.021 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.03' @ 13.17 hrs Surf.Area= 0.028 ac Storage= 0.021 af

Plug-Flow detention time= 561.0 min calculated for 0.021 af (76% of inflow)
Center-of-Mass det. time= 477.1 min (1,234.7 - 757.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.016 af	**19.75'W x 62.65'L x 2.04'H Field A** 0.058 af Overall - 0.017 af Embedded = 0.041 af x 40.0% Voids
#2A	54.25'	0.016 af	**ACF R-Tank HD 0.5** x 300 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 12 Rows of 25 Chambers
		0.032 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.04 cfs @ 13.38 hrs HW=55.02' TW=55.02' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.04 cfs @ 0.20 fps)

Summary for Pond R5: R TANK 5

Inflow Area = 1.041 ac, 85.64% Impervious, Inflow Depth > 3.44" for 10-Year event
Inflow = 1.12 cfs @ 12.09 hrs, Volume= 0.298 af
Outflow = 0.26 cfs @ 14.72 hrs, Volume= 0.282 af, Atten= 77%, Lag= 158.1 min
Primary = 0.26 cfs @ 14.72 hrs, Volume= 0.282 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.31' @ 13.74 hrs Surf.Area= 0.065 ac Storage= 0.056 af

Plug-Flow detention time= 210.3 min calculated for 0.282 af (95% of inflow)
Center-of-Mass det. time= 141.6 min (1,273.8 - 1,132.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.037 af	**18.44'W x 154.13'L x 2.04'H Field A** 0.133 af Overall - 0.039 af Embedded = 0.094 af x 40.0% Voids
#2A	54.25'	0.037 af	**ACF R-Tank HD 0.5** x 704 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 11 Rows of 64 Chambers
		0.075 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round R7-R2** L= 9.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.26 cfs @ 14.72 hrs HW=55.28' TW=55.15' (Dynamic Tailwater)
↑—**1=R7-R2** (Inlet Controls 0.26 cfs @ 1.34 fps)

Summary for Pond R6: R TANK 6

Inflow Area = 0.369 ac, 96.54% Impervious, Inflow Depth > 4.00" for 10-Year event
Inflow = 1.17 cfs @ 12.08 hrs, Volume= 0.123 af
Outflow = 0.09 cfs @ 15.07 hrs, Volume= 0.106 af, Atten= 92%, Lag= 179.4 min
Primary = 0.09 cfs @ 15.07 hrs, Volume= 0.106 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.39' @ 13.91 hrs Surf.Area= 0.067 ac Storage= 0.061 af

Plug-Flow detention time= 492.1 min calculated for 0.106 af (86% of inflow)
Center-of-Mass det. time= 375.1 min (1,270.4 - 895.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.037 af	**25.00'W x 116.60'L x 2.04'H Field A** 0.136 af Overall - 0.043 af Embedded = 0.094 af x 40.0% Voids
#2A	54.25'	0.041 af	**ACF R-Tank HD 0.5** x 768 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 16 Rows of 48 Chambers
		0.078 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round R8-R10** L= 33.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.10 cfs @ 15.07 hrs HW=55.35' TW=55.33' (Dynamic Tailwater)
↑—**1=R8-R10** (Outlet Controls 0.10 cfs @ 0.49 fps)

Summary for Pond R7: R TANK 7

Inflow Area = 0.114 ac, 95.96% Impervious, Inflow Depth = 4.25" for 10-Year event
Inflow = 0.51 cfs @ 12.08 hrs, Volume= 0.040 af
Outflow = 0.04 cfs @ 12.06 hrs, Volume= 0.033 af, Atten= 93%, Lag= 0.0 min
Primary = 0.04 cfs @ 12.06 hrs, Volume= 0.033 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.39' @ 13.92 hrs Surf.Area= 0.031 ac Storage= 0.028 af

Plug-Flow detention time= 592.1 min calculated for 0.033 af (81% of inflow)
Center-of-Mass det. time= 517.8 min (1,275.4 - 757.5)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.017 af	**28.93'W x 46.22'L x 2.04'H Field A** 0.063 af Overall - 0.019 af Embedded = 0.044 af x 40.0% Voids
#2A	54.25'	0.018 af	**ACF R-Tank HD 0.5** x 342 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 19 Rows of 18 Chambers
		0.035 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round R9-R8** L= 35.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.00 cfs @ 12.06 hrs HW=54.75' TW=54.76' (Dynamic Tailwater)
↑—**1=R9-R8** (Controls 0.00 cfs)

Summary for Pond R8: R TANK 8

Inflow Area = 0.814 ac, 81.79% Impervious, Inflow Depth > 3.56" for 10-Year event
Inflow = 1.87 cfs @ 12.08 hrs, Volume= 0.242 af
Outflow = 0.20 cfs @ 14.82 hrs, Volume= 0.216 af, Atten= 89%, Lag= 164.4 min
Primary = 0.20 cfs @ 14.82 hrs, Volume= 0.216 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.37' @ 13.87 hrs Surf.Area= 0.104 ac Storage= 0.092 af

Plug-Flow detention time= 392.4 min calculated for 0.216 af (89% of inflow)
Center-of-Mass det. time= 282.3 min (1,279.3 - 997.0)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.059 af	**19.75'W x 229.20'L x 2.04'H Field A** 0.212 af Overall - 0.064 af Embedded = 0.148 af x 40.0% Voids
#2A	54.25'	0.061 af	**ACF R-Tank HD 0.5** x 1152 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 12 Rows of 96 Chambers
		0.120 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round R10-R7** L= 9.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.20 cfs @ 14.82 hrs HW=55.34' TW=55.27' (Dynamic Tailwater)
↑—**1=R10-R7** (Inlet Controls 0.20 cfs @ 1.04 fps)

Summary for Pond R9: R TANK 9

Inflow Area = 1.087 ac, 64.49% Impervious, Inflow Depth = 3.62" for 10-Year event
Inflow = 3.14 cfs @ 12.12 hrs, Volume= 0.327 af
Outflow = 0.66 cfs @ 12.52 hrs, Volume= 0.307 af, Atten= 79%, Lag= 24.4 min
Primary = 0.66 cfs @ 12.52 hrs, Volume= 0.307 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.28' @ 12.52 hrs Surf.Area= 6,095 sf Storage= 5,959 cf

Plug-Flow detention time= 201.0 min calculated for 0.307 af (94% of inflow)
Center-of-Mass det. time= 161.6 min (988.9 - 827.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	718 cf	**15.81'W x 76.72'L x 2.04'H Field A** 2,471 cf Overall - 676 cf Embedded = 1,795 cf x 40.0% Voids
#2A	54.25'	642 cf	**ACF R-Tank HD 0.5** x 279 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 9 Rows of 31 Chambers
#3B	54.00'	2,757 cf	**61.74'W x 79.07'L x 2.69'H Field B** 13,149 cf Overall - 6,257 cf Embedded = 6,892 cf x 40.0% Voids
#4B	54.25'	5,944 cf	**ACF R-Tank HD 1.0** x 1408 Inside #3 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 44 Rows of 32 Chambers
		10,062 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.00' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	54.30'	**10.0" W x 1.0" H Vert. Orifice/Grate** C= 0.600
#3	Device 1	54.70'	**10.0" W x 1.0" H Vert. Orifice/Grate** C= 0.600
#4	Device 1	54.85'	**10.0" W x 1.0" H Vert. Orifice/Grate** C= 0.600
#5	Secondary	55.60'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.66 cfs @ 12.52 hrs HW=55.28' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 0.66 cfs @ 3.36 fps)
  ├─**2=Orifice/Grate** (Passes < 0.32 cfs potential flow)
  ├─**3=Orifice/Grate** (Passes < 0.25 cfs potential flow)
  └─**4=Orifice/Grate** (Passes < 0.21 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=54.00' TW=0.00' (Dynamic Tailwater)
└─**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Subcatchment 1: SUBCAT 1

Runoff = 1.04 cfs @ 12.31 hrs, Volume= 0.115 af, Depth= 3.70"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	13,344	77	Woods, Good, HSG D
*	2,917	98	ROAD
	16,261	81	Weighted Average
	13,344		82.06% Pervious Area
	2,917		17.94% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	15	0.0500	1.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
18.0	135	0.0593	0.13		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
4.0	60	0.0100	0.25		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
22.2	210	Total			

Summary for Subcatchment 2: SUBCAT 2

Runoff = 1.84 cfs @ 12.57 hrs, Volume= 0.272 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	38,835	77	Woods, Good, HSG D
*	2,917	98	ROAD
	41,752	78	Weighted Average
	38,835		93.01% Pervious Area
	2,917		6.99% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
39.8	150	0.0400	0.06		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
2.1	64	0.0400	0.50		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
41.9	214	Total			

Summary for Subcatchment 3: SUBCAT 3

Runoff = 3.08 cfs @ 12.87 hrs, Volume= 0.568 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	81,695	77	Woods, Good, HSG D
*	5,574	98	ROAD
	87,269	78	Weighted Average
	81,695		93.61% Pervious Area
	5,574		6.39% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	150	0.0530	0.12		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
41.6	540	0.0075	0.22		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
62.0	690	Total			

Summary for Subcatchment 4: SUBCAT 4

Runoff = 2.06 cfs @ 13.71 hrs, Volume= 0.641 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	6,629	98	road
	91,843	77	Woods, Good, HSG D
	98,472	78	Weighted Average
	91,843		93.27% Pervious Area
	6,629		6.73% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	15	0.0500	1.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
54.2	135	0.0150	0.04		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
81.1	544	0.0020	0.11		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
135.5	694	Total			

Summary for Subcatchment 5: SUBCAT 5

Runoff = 4.24 cfs @ 12.44 hrs, Volume= 0.548 af, Depth= 3.40"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	81,208	77	Woods, Good, HSG D
*	2,937	98	ROAD
	84,145	78	Weighted Average
	81,208		96.51% Pervious Area
	2,937		3.49% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.2	15	0.0500	1.34		**Sheet Flow,** Smooth surfaces n= 0.011 P2= 3.10"
20.2	135	0.0444	0.11		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"
11.4	260	0.0230	0.38		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
31.8	410	Total			

Summary for Subcatchment 6: SUBCAT 6

Runoff = 0.79 cfs @ 12.14 hrs, Volume= 0.066 af, Depth= 4.01"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	5,928	77	Woods, Good, HSG D
*	2,733	98	ROAD
	8,661	84	Weighted Average
	5,928		68.44% Pervious Area
	2,733		31.56% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
10.6	95	0.1100	0.15		**Sheet Flow,** Woods: Light underbrush n= 0.400 P2= 3.10"

Summary for Subcatchment 7: SUBCAT 7

Runoff = 0.28 cfs @ 12.42 hrs, Volume= 0.035 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (sf)	CN	Description
5,500	77	Woods, Good, HSG D
5,500		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
29.5	129	0.0625	0.07		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"

Summary for Subcatchment 8: SUBCAT 8

Runoff = 0.24 cfs @ 12.28 hrs, Volume= 0.025 af, Depth= 3.31"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

Area (sf)	CN	Description
4,022	77	Woods, Good, HSG D
4,022		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
20.4	65	0.0400	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"

Summary for Subcatchment 9: SUBCAT 9

Runoff = 0.24 cfs @ 12.08 hrs, Volume= 0.019 af, Depth= 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	1,707	98	northwest parking lot left
	151	80	>75% Grass cover, Good, HSG D
	1,858	97	Weighted Average
	151		8.13% Pervious Area
	1,707		91.87% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 10A: SUBCAT 10A

Runoff = 0.39 cfs @ 12.08 hrs, Volume= 0.032 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	2,901	98	northwest parking lot right
	82	80	>75% Grass cover, Good, HSG D
	2,983	98	Weighted Average
	82		2.75% Pervious Area
	2,901		97.25% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 10B: SUBCAT 10B

Runoff = 0.33 cfs @ 12.08 hrs, Volume= 0.026 af, Depth= 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	2,473	98	northwest parking lot right
	71	80	>75% Grass cover, Good, HSG D
	2,544	97	Weighted Average
	71		2.79% Pervious Area
	2,473		97.21% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 11A: SUBCAT 11A

Runoff = 0.30 cfs @ 12.08 hrs, Volume= 0.024 af, Depth= 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	2,226	98	northeast parking lot left
	82	80	>75% Grass cover, Good, HSG D
	2,308	97	Weighted Average
	82		3.55% Pervious Area
	2,226		96.45% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 11B: SUBCAT 11B

Runoff = 0.38 cfs @ 12.08 hrs, Volume= 0.031 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	2,849	98	northeast parking lot left
	71	80	>75% Grass cover, Good, HSG D
	2,920	98	Weighted Average
	71		2.43% Pervious Area
	2,849		97.57% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 12: SUBCAT 12

Runoff = 0.45 cfs @ 12.08 hrs, Volume= 0.036 af, Depth= 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	3,321	98	northeast parking lot right
	151	80	>75% Grass cover, Good, HSG D
	3,472	97	Weighted Average
	151		4.35% Pervious Area
	3,321		95.65% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 13A: SUBCAT 13A

Runoff = 0.68 cfs @ 12.08 hrs, Volume= 0.055 af, Depth= 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	4,911	98	central parking lot
	340	80	>75% Grass cover, Good, HSG D
	5,251	97	Weighted Average
	340		6.47% Pervious Area
	4,911		93.53% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 13B: SUBCAT 13B

Runoff = 1.30 cfs @ 12.08 hrs, Volume= 0.106 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	9,865	98	central parking lot
	62	80	>75% Grass cover, Good, HSG D
	9,927	98	Weighted Average
	62		0.62% Pervious Area
	9,865		99.38% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 13C: SUBCAT 13C

Runoff = 0.49 cfs @ 12.08 hrs, Volume= 0.040 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	3,695	98	central parking lot
	34	80	>75% Grass cover, Good, HSG D
	3,729	98	Weighted Average
	34		0.91% Pervious Area
	3,695		99.09% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 14A: SUBCAT 14A

Runoff = 1.00 cfs @ 12.08 hrs, Volume= 0.081 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	7,641	98	roof
	7,641		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 14B: 14B

Runoff = 0.91 cfs @ 12.08 hrs, Volume= 0.074 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	6,943	98	roof
	6,943		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, roof**

Summary for Subcatchment 14C: 14C

Runoff = 1.01 cfs @ 12.08 hrs, Volume= 0.082 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	7,724	98	roof
	7,724		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry, roof**

Summary for Subcatchment 14D: SUBCAT 14D

Runoff = 0.68 cfs @ 12.08 hrs, Volume= 0.055 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	5,204	98	roof
	5,204		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 15: SUBCAT 15

Runoff = 2.14 cfs @ 12.08 hrs, Volume= 0.158 af, Depth= 4.54"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	9,300	98	playground
	8,892	80	>75% Grass cover, Good, HSG D
	18,192	89	Weighted Average
	8,892		48.88% Pervious Area
	9,300		51.12% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 16: SUBCAT 16

Runoff = 1.44 cfs @ 12.08 hrs, Volume= 0.116 af, Depth= 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	10,738	98	lower parking lot top
	355	80	>75% Grass cover, Good, HSG D
	11,093	97	Weighted Average
	355		3.20% Pervious Area
	10,738		96.80% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 17: SUBCAT 17

Runoff = 0.64 cfs @ 12.08 hrs, Volume= 0.052 af, Depth= 5.44"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	4,769	98	lower parking lot right
	201	80	>75% Grass cover, Good, HSG D
	4,970	97	Weighted Average
	201		4.04% Pervious Area
	4,769		95.96% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 18: SUBCAT 18

Runoff = 0.97 cfs @ 12.09 hrs, Volume= 0.069 af, Depth= 3.91"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	1,354	98	maintenance access east side of building
	7,919	80	>75% Grass cover, Good, HSG D
	9,273	83	Weighted Average
	7,919		85.40% Pervious Area
	1,354		14.60% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 19: SUBCAT 19

Runoff = 1.87 cfs @ 12.08 hrs, Volume= 0.139 af, Depth= 4.65"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	9,785	98	lower parking lot bottom
	5,675	77	Woods, Good, HSG D
	187	80	>75% Grass cover, Good, HSG D
	15,647	90	Weighted Average
	5,862		37.46% Pervious Area
	9,785		62.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Subcatchment 20: SUBCAT 20

Runoff = 0.43 cfs @ 12.72 hrs, Volume= 0.073 af, Depth= 4.22"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
	5,288	77	Woods, Good, HSG D
*	3,810	98	ROAD
	9,098	86	Weighted Average
	5,288		58.12% Pervious Area
	3,810		41.88% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
52.5	150	0.0200	0.05		**Sheet Flow,** Woods: Dense underbrush n= 0.800 P2= 3.10"
1.5	32	0.0200	0.35		**Shallow Concentrated Flow,** Forest w/Heavy Litter Kv= 2.5 fps
54.0	182	Total			

Summary for Subcatchment 21: SUBCAT 21

Runoff = 0.16 cfs @ 12.08 hrs, Volume= 0.013 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-Year Rainfall=5.80"

	Area (sf)	CN	Description
*	1,190	98	road
	1,190		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Summary for Reach A: ANALYSIS POINTA

Inflow Area = 3.967 ac, 42.54% Impervious, Inflow Depth > 3.88" for 25-Year event
Inflow = 2.73 cfs @ 13.70 hrs, Volume= 1.283 af
Outflow = 2.73 cfs @ 13.70 hrs, Volume= 1.283 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach B: ANALYSIS PT B

Inflow Area = 0.958 ac, 6.99% Impervious, Inflow Depth = 3.40" for 25-Year event
Inflow = 1.84 cfs @ 12.57 hrs, Volume= 0.272 af
Outflow = 1.84 cfs @ 12.57 hrs, Volume= 0.272 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach C: ANALYSIS PT C

Inflow Area = 2.377 ac, 8.20% Impervious, Inflow Depth = 3.45" for 25-Year event
Inflow = 3.43 cfs @ 12.75 hrs, Volume= 0.683 af
Outflow = 3.43 cfs @ 12.75 hrs, Volume= 0.683 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach D: ANALYSIS PT D

Inflow Area = 1.932 ac, 3.49% Impervious, Inflow Depth = 3.40" for 25-Year event
Inflow = 4.24 cfs @ 12.44 hrs, Volume= 0.548 af
Outflow = 4.24 cfs @ 12.44 hrs, Volume= 0.548 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach E: ANALYSIS PT E

Inflow Area = 0.199 ac, 31.56% Impervious, Inflow Depth = 4.01" for 25-Year event
Inflow = 0.79 cfs @ 12.14 hrs, Volume= 0.066 af
Outflow = 0.79 cfs @ 12.14 hrs, Volume= 0.066 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach F: ANALYSIS POINT F

Inflow Area = 0.236 ac, 48.60% Impervious, Inflow Depth = 4.37" for 25-Year event
Inflow = 0.44 cfs @ 12.72 hrs, Volume= 0.086 af
Outflow = 0.44 cfs @ 12.72 hrs, Volume= 0.086 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach G: ANALYSIS POINT G

Inflow Area = 1.179 ac, 59.44% Impervious, Inflow Depth > 4.45" for 25-Year event
Inflow = 1.33 cfs @ 12.50 hrs, Volume= 0.437 af
Outflow = 1.33 cfs @ 12.50 hrs, Volume= 0.437 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Reach H: ANALYSIS POINT H

Inflow Area = 0.126 ac, 0.00% Impervious, Inflow Depth = 3.31" for 25-Year event
Inflow = 0.28 cfs @ 12.42 hrs, Volume= 0.035 af
Outflow = 0.28 cfs @ 12.42 hrs, Volume= 0.035 af, Atten= 0%, Lag= 0.0 min

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs

Summary for Pond FP1: FocalPoint 1

Inflow Area = 0.750 ac, 48.54% Impervious, Inflow Depth = 4.52" for 25-Year event
Inflow = 3.78 cfs @ 12.09 hrs, Volume= 0.283 af
Outflow = 2.08 cfs @ 12.01 hrs, Volume= 0.283 af, Atten= 45%, Lag= 0.0 min
Primary = 2.08 cfs @ 12.01 hrs, Volume= 0.283 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 58.59' @ 12.21 hrs Surf.Area= 900 sf Storage= 759 cf

Plug-Flow detention time= 1.2 min calculated for 0.283 af (100% of inflow)
Center-of-Mass det. time= 1.2 min (786.5 - 785.2)

Volume	Invert	Avail.Storage	Storage Description
#1	55.95'	405 cf	**12.00'W x 75.00'L x 2.25'H FocalPoint** 2,025 cf Overall x 20.0% Voids
#2	58.20'	900 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		1,305 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.20	900	0	0
59.20	900	900	900

Device	Routing	Invert	Outlet Devices
#1	Primary	55.95'	**100.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	58.95'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=2.08 cfs @ 12.01 hrs HW=56.15' TW=54.93' (Dynamic Tailwater)
↑—**1=Exfiltration** (Exfiltration Controls 2.08 cfs)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=55.95' TW=54.00' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Controls 0.00 cfs)

Summary for Pond FP2: FocalPoint 2

Inflow Area = 0.175 ac,100.00% Impervious, Inflow Depth = 5.56" for 25-Year event
Inflow = 1.00 cfs @ 12.08 hrs, Volume= 0.081 af
Outflow = 0.53 cfs @ 12.21 hrs, Volume= 0.081 af, Atten= 47%, Lag= 7.5 min
Primary = 0.42 cfs @ 11.96 hrs, Volume= 0.080 af
Secondary = 0.11 cfs @ 12.21 hrs, Volume= 0.001 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 59.74' @ 12.21 hrs Surf.Area= 183 sf Storage= 292 cf

Plug-Flow detention time= 2.3 min calculated for 0.081 af (100% of inflow)
Center-of-Mass det. time= 2.3 min (747.9 - 745.7)

Volume	Invert	Avail.Storage	Storage Description
#1	56.75'	82 cf	**10.00'W x 18.30'L x 2.25'H FocalPoint** 412 cf Overall x 20.0% Voids
#2	59.00'	213 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		296 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
59.00	183	0	0
59.75	386	213	213

Device	Routing	Invert	Outlet Devices
#1	Primary	56.75'	**100.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	59.60'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.42 cfs @ 11.96 hrs HW=56.92' TW=54.94' (Dynamic Tailwater)
↑—**1=Exfiltration** (Exfiltration Controls 0.42 cfs)

Secondary OutFlow Max=0.11 cfs @ 12.21 hrs HW=59.74' TW=55.09' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Orifice Controls 0.11 cfs @ 1.28 fps)

Summary for Pond FP3: FocalPoint 3

Inflow Area = 0.159 ac,100.00% Impervious, Inflow Depth = 5.56" for 25-Year event
Inflow = 0.91 cfs @ 12.08 hrs, Volume= 0.074 af
Outflow = 0.85 cfs @ 12.11 hrs, Volume= 0.074 af, Atten= 6%, Lag= 1.8 min
Primary = 0.23 cfs @ 11.76 hrs, Volume= 0.063 af
Secondary = 0.62 cfs @ 12.11 hrs, Volume= 0.011 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 59.75' @ 12.11 hrs Surf.Area= 98 sf Storage= 202 cf

Plug-Flow detention time= (not calculated: outflow precedes inflow)
Center-of-Mass det. time= 2.1 min (747.8 - 745.7)

Volume	Invert	Avail.Storage	Storage Description
#1	56.75'	44 cf	**4.00'W x 24.50'L x 2.25'H FocalPoint** 221 cf Overall x 20.0% Voids
#2	59.00'	159 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		203 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
59.00	98	0	0
59.75	325	159	159

Device	Routing	Invert	Outlet Devices
#1	Primary	56.75'	**100.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	59.40'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.23 cfs @ 11.76 hrs HW=56.89' TW=54.69' (Dynamic Tailwater)
↑—**1=Exfiltration** (Exfiltration Controls 0.23 cfs)

Secondary OutFlow Max=0.62 cfs @ 12.11 hrs HW=59.75' TW=55.13' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Orifice Controls 0.62 cfs @ 2.01 fps)

Summary for Pond FP4: FocalPoint 4

Inflow Area = 0.177 ac,100.00% Impervious, Inflow Depth = 5.56" for 25-Year event
Inflow = 1.01 cfs @ 12.08 hrs, Volume= 0.082 af
Outflow = 1.00 cfs @ 12.09 hrs, Volume= 0.082 af, Atten= 1%, Lag= 0.6 min
Primary = 0.07 cfs @ 11.11 hrs, Volume= 0.053 af
Secondary = 0.93 cfs @ 12.09 hrs, Volume= 0.029 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 59.73' @ 12.09 hrs Surf.Area= 32 sf Storage= 106 cf

Plug-Flow detention time= 2.7 min calculated for 0.082 af (100% of inflow)
Center-of-Mass det. time= 2.7 min (748.4 - 745.7)

Volume	Invert	Avail.Storage	Storage Description
#1	56.50'	14 cf	**4.00'W x 8.00'L x 2.25'H FocalPoint** 72 cf Overall x 20.0% Voids
#2	58.75'	95 cf	**Custom Stage Data (Prismatic)** Listed below (Recalc) -Impervious
		109 cf	Total Available Storage

Elevation (feet)	Surf.Area (sq-ft)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)
58.75	32	0	0
59.75	158	95	95

Device	Routing	Invert	Outlet Devices
#1	Primary	56.50'	**100.000 in/hr Exfiltration over Surface area** Phase-In= 0.10'
#2	Secondary	59.30'	**18.0" Vert. Orifice/Grate** C= 0.600

Primary OutFlow Max=0.07 cfs @ 11.11 hrs HW=56.63' TW=54.54' (Dynamic Tailwater)
↑—**1=Exfiltration** (Exfiltration Controls 0.07 cfs)

Secondary OutFlow Max=0.92 cfs @ 12.09 hrs HW=59.73' TW=55.09' (Dynamic Tailwater)
↑—**2=Orifice/Grate** (Orifice Controls 0.92 cfs @ 2.23 fps)

Summary for Pond R1: R TANK 1

Inflow Area = 1.707 ac, 89.96% Impervious, Inflow Depth > 4.59" for 25-Year event
Inflow = 1.07 cfs @ 12.09 hrs, Volume= 0.653 af
Outflow = 0.70 cfs @ 12.86 hrs, Volume= 0.642 af, Atten= 35%, Lag= 46.4 min
Primary = 0.70 cfs @ 12.86 hrs, Volume= 0.642 af
Secondary = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.37' @ 12.86 hrs Surf.Area= 1,977 sf Storage= 1,728 cf

Plug-Flow detention time= 65.8 min calculated for 0.641 af (98% of inflow)
Center-of-Mass det. time= 40.9 min (1,212.1 - 1,171.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	1,142 cf	**18.44'W x 107.22'L x 2.04'H Field A** 4,027 cf Overall - 1,173 cf Embedded = 2,854 cf x 40.0% Voids
#2A	54.25'	1,115 cf	**ACF R-Tank HD 0.5** x 484 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 11 Rows of 44 Chambers
		2,256 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round Culvert** L= 15.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 53.50' S= 0.0500 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf
#2	Device 1	54.40'	**12.0" W x 1.0" H Vert. Orifice/Grate** C= 0.600
#3	Device 1	54.70'	**12.0" W x 1.0" H Vert. Orifice/Grate** C= 0.600
#4	Device 1	54.80'	**12.0" W x 1.0" H Vert. Orifice/Grate** C= 0.600
#5	Secondary	55.60'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.70 cfs @ 12.86 hrs HW=55.37' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 0.70 cfs @ 3.55 fps)
  ├─**2=Orifice/Grate** (Passes < 0.39 cfs potential flow)
  ├─**3=Orifice/Grate** (Passes < 0.32 cfs potential flow)
  └─**4=Orifice/Grate** (Passes < 0.29 cfs potential flow)

Secondary OutFlow Max=0.00 cfs @ 0.00 hrs HW=54.00' TW=0.00' (Dynamic Tailwater)
└─**5=Sharp-Crested Rectangular Weir** (Controls 0.00 cfs)

Summary for Pond R10: R TANK 10

Inflow Area = 0.175 ac,100.00% Impervious, Inflow Depth = 5.48" for 25-Year event
Inflow = 0.42 cfs @ 11.96 hrs, Volume= 0.080 af
Outflow = 0.38 cfs @ 12.67 hrs, Volume= 0.078 af, Atten= 11%, Lag= 42.4 min
Primary = 0.38 cfs @ 12.67 hrs, Volume= 0.078 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.76' @ 12.67 hrs Surf.Area= 470 sf Storage= 575 cf

Plug-Flow detention time= 95.1 min calculated for 0.078 af (97% of inflow)
Center-of-Mass det. time= 75.9 min (824.0 - 748.1)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	329 cf	**17.12'W x 27.46'L x 2.69'H Field A** 1,266 cf Overall - 444 cf Embedded = 822 cf x 40.0% Voids
#2A	54.25'	422 cf	**ACF R-Tank HD 1.0** x 100 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 10 Rows of 10 Chambers
		751 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.37 cfs @ 12.67 hrs HW=55.76' TW=55.51' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.37 cfs @ 1.89 fps)

Summary for Pond R11: R TANK 10

Inflow Area = 0.159 ac,100.00% Impervious, Inflow Depth = 4.76" for 25-Year event
Inflow = 0.23 cfs @ 11.76 hrs, Volume= 0.063 af
Outflow = 0.13 cfs @ 13.31 hrs, Volume= 0.059 af, Atten= 43%, Lag= 93.3 min
Primary = 0.13 cfs @ 13.31 hrs, Volume= 0.059 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.58' @ 12.96 hrs Surf.Area= 1,185 sf Storage= 1,424 cf

Plug-Flow detention time= 249.3 min calculated for 0.059 af (94% of inflow)
Center-of-Mass det. time= 213.2 min (963.9 - 750.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	744 cf	**30.25'W x 39.19'L x 2.69'H Field A** 3,193 cf Overall - 1,333 cf Embedded = 1,859 cf x 40.0% Voids
#2A	54.25'	1,267 cf	**ACF R-Tank HD 1.0** x 300 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 20 Rows of 15 Chambers
		2,010 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.14 cfs @ 13.31 hrs HW=55.51' TW=55.48' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.14 cfs @ 0.69 fps)

Summary for Pond R12: R TANK 10

Inflow Area = 0.177 ac,100.00% Impervious, Inflow Depth = 3.59" for 25-Year event
Inflow = 0.07 cfs @ 11.11 hrs, Volume= 0.053 af
Outflow = 0.11 cfs @ 14.17 hrs, Volume= 0.051 af, Atten= 0%, Lag= 183.9 min
Primary = 0.11 cfs @ 14.17 hrs, Volume= 0.051 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.44' @ 13.53 hrs Surf.Area= 760 sf Storage= 799 cf

Plug-Flow detention time= 183.5 min calculated for 0.051 af (95% of inflow)
Center-of-Mass det. time= 154.5 min (913.7 - 759.2)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	498 cf	**30.25'W x 25.11'L x 2.69'H Field A** 2,046 cf Overall - 800 cf Embedded = 1,246 cf x 40.0% Voids
#2A	54.25'	760 cf	**ACF R-Tank HD 1.0** x 180 Inside #1 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 20 Rows of 9 Chambers
		1,258 cf	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.11 cfs @ 14.17 hrs HW=55.33' TW=55.30' (Dynamic Tailwater)
↑—**1=Culvert** (Inlet Controls 0.11 cfs @ 0.57 fps)

Summary for Pond R2: R TANK 2

Inflow Area = 1.205 ac, 86.65% Impervious, Inflow Depth > 4.56" for 25-Year event
Inflow = 1.07 cfs @ 12.08 hrs, Volume= 0.458 af
Outflow = 0.41 cfs @ 14.89 hrs, Volume= 0.446 af, Atten= 62%, Lag= 168.5 min
Primary = 0.41 cfs @ 14.89 hrs, Volume= 0.446 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.70' @ 13.23 hrs Surf.Area= 0.045 ac Storage= 0.046 af

Plug-Flow detention time= 108.9 min calculated for 0.446 af (98% of inflow)
Center-of-Mass det. time= 73.8 min (1,250.7 - 1,176.9)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.026 af	**18.44'W x 107.22'L x 2.04'H Field A** 0.092 af Overall - 0.027 af Embedded = 0.066 af x 40.0% Voids
#2A	54.25'	0.026 af	**ACF R-Tank HD 0.5** x 484 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 11 Rows of 44 Chambers
		0.052 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round R2-OCS** L= 55.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.41 cfs @ 14.89 hrs HW=55.60' TW=55.17' (Dynamic Tailwater)
↑—**1=R2-OCS** (Outlet Controls 0.41 cfs @ 2.09 fps)

Summary for Pond R3: R TANK 3

Inflow Area = 0.377 ac, 98.08% Impervious, Inflow Depth > 5.22" for 25-Year event
Inflow = 1.00 cfs @ 12.08 hrs, Volume= 0.164 af
Outflow = 0.31 cfs @ 12.70 hrs, Volume= 0.149 af, Atten= 69%, Lag= 37.1 min
Primary = 0.31 cfs @ 12.70 hrs, Volume= 0.149 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.52' @ 12.74 hrs Surf.Area= 0.061 ac Storage= 0.059 af

Plug-Flow detention time= 309.1 min calculated for 0.149 af (91% of inflow)
Center-of-Mass det. time= 227.8 min (1,095.5 - 867.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.033 af	**36.81'W x 72.03'L x 2.04'H Field A** 0.124 af Overall - 0.040 af Embedded = 0.084 af x 40.0% Voids
#2A	54.25'	0.038 af	**ACF R-Tank HD 0.5** x 725 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 25 Rows of 29 Chambers
		0.072 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round R3-R1** L= 33.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.31 cfs @ 12.70 hrs HW=55.52' TW=55.35' (Dynamic Tailwater)
↑—**1=R3-R1** (Outlet Controls 0.31 cfs @ 1.56 fps)

Summary for Pond R4: R TANK 4

Inflow Area = 0.080 ac, 95.65% Impervious, Inflow Depth = 5.44" for 25-Year event
Inflow = 0.45 cfs @ 12.08 hrs, Volume= 0.036 af
Outflow = 0.05 cfs @ 13.09 hrs, Volume= 0.029 af, Atten= 88%, Lag= 60.4 min
Primary = 0.05 cfs @ 13.09 hrs, Volume= 0.029 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.49' @ 12.95 hrs Surf.Area= 0.028 ac Storage= 0.026 af

Plug-Flow detention time= 537.3 min calculated for 0.029 af (81% of inflow)
Center-of-Mass det. time= 462.8 min (1,215.6 - 752.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.016 af	**19.75'W x 62.65'L x 2.04'H Field A** 0.058 af Overall - 0.017 af Embedded = 0.041 af x 40.0% Voids
#2A	54.25'	0.016 af	**ACF R-Tank HD 0.5** x 300 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 12 Rows of 25 Chambers
		0.032 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round Culvert** L= 40.0' CPP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf

Primary OutFlow Max=0.06 cfs @ 13.09 hrs HW=55.47' TW=55.46' (Dynamic Tailwater)
↑—**1=Culvert** (Outlet Controls 0.06 cfs @ 0.31 fps)

Summary for Pond R5: R TANK 5

Inflow Area = 1.041 ac, 85.64% Impervious, Inflow Depth > 4.61" for 25-Year event
Inflow = 1.46 cfs @ 12.10 hrs, Volume= 0.400 af
Outflow = 0.35 cfs @ 15.23 hrs, Volume= 0.384 af, Atten= 76%, Lag= 188.0 min
Primary = 0.35 cfs @ 15.23 hrs, Volume= 0.384 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.89' @ 13.65 hrs Surf.Area= 0.065 ac Storage= 0.071 af

Plug-Flow detention time= 187.6 min calculated for 0.384 af (96% of inflow)
Center-of-Mass det. time= 133.0 min (1,258.8 - 1,125.7)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.037 af	**18.44'W x 154.13'L x 2.04'H Field A** 0.133 af Overall - 0.039 af Embedded = 0.094 af x 40.0% Voids
#2A	54.25'	0.037 af	**ACF R-Tank HD 0.5** x 704 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 11 Rows of 64 Chambers
		0.075 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round R7-R2** L= 9.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.35 cfs @ 15.23 hrs HW=55.79' TW=55.56' (Dynamic Tailwater)
↑—**1=R7-R2** (Inlet Controls 0.35 cfs @ 1.80 fps)

Summary for Pond R6: R TANK 6

Inflow Area = 0.369 ac, 96.54% Impervious, Inflow Depth > 5.19" for 25-Year event
Inflow = 1.47 cfs @ 12.08 hrs, Volume= 0.159 af
Outflow = 0.13 cfs @ 15.70 hrs, Volume= 0.142 af, Atten= 91%, Lag= 217.0 min
Primary = 0.13 cfs @ 15.70 hrs, Volume= 0.142 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 56.03' @ 13.88 hrs Surf.Area= 0.067 ac Storage= 0.078 af

Plug-Flow detention time= 466.9 min calculated for 0.142 af (89% of inflow)
Center-of-Mass det. time= 367.0 min (1,261.3 - 894.3)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.037 af	**25.00'W x 116.60'L x 2.04'H Field A** 0.136 af Overall - 0.043 af Embedded = 0.094 af x 40.0% Voids
#2A	54.25'	0.041 af	**ACF R-Tank HD 0.5** x 768 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 16 Rows of 48 Chambers
		0.078 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round R8-R10** L= 33.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.13 cfs @ 15.70 hrs HW=55.89' TW=55.86' (Dynamic Tailwater)
↑—**1=R8-R10** (Outlet Controls 0.13 cfs @ 0.66 fps)

Summary for Pond R7: R TANK 7

Inflow Area = 0.114 ac, 95.96% Impervious, Inflow Depth = 5.44" for 25-Year event
Inflow = 0.64 cfs @ 12.08 hrs, Volume= 0.052 af
Outflow = 0.04 cfs @ 15.88 hrs, Volume= 0.044 af, Atten= 94%, Lag= 228.0 min
Primary = 0.04 cfs @ 15.88 hrs, Volume= 0.044 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 56.03' @ 13.90 hrs Surf.Area= 0.031 ac Storage= 0.035 af

Plug-Flow detention time= 579.1 min calculated for 0.044 af (85% of inflow)
Center-of-Mass det. time= 513.8 min (1,266.6 - 752.8)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.017 af	**28.93'W x 46.22'L x 2.04'H Field A** 0.063 af Overall - 0.019 af Embedded = 0.044 af x 40.0% Voids
#2A	54.25'	0.018 af	**ACF R-Tank HD 0.5** x 342 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 19 Rows of 18 Chambers
		0.035 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round R9-R8** L= 35.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.05 cfs @ 15.88 hrs HW=55.87' TW=55.87' (Dynamic Tailwater)
↑—**1=R9-R8** (Outlet Controls 0.05 cfs @ 0.24 fps)

Summary for Pond R8: R TANK 8

Inflow Area = 0.814 ac, 81.79% Impervious, Inflow Depth > 4.74" for 25-Year event
Inflow = 2.42 cfs @ 12.08 hrs, Volume= 0.321 af
Outflow = 0.27 cfs @ 15.36 hrs, Volume= 0.295 af, Atten= 89%, Lag= 196.7 min
Primary = 0.27 cfs @ 15.36 hrs, Volume= 0.295 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 56.01' @ 13.83 hrs Surf.Area= 0.104 ac Storage= 0.119 af

Plug-Flow detention time= 361.3 min calculated for 0.295 af (92% of inflow)
Center-of-Mass det. time= 270.6 min (1,262.0 - 991.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	0.059 af	**19.75'W x 229.20'L x 2.04'H Field A** 0.212 af Overall - 0.064 af Embedded = 0.148 af x 40.0% Voids
#2A	54.25'	0.061 af	**ACF R-Tank HD 0.5** x 1152 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 12 Rows of 96 Chambers
		0.120 af	Total Available Storage

Storage Group A created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round R10-R7** L= 9.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.25' S= 0.0000 '/' Cc= 0.900 n= 0.013, Flow Area= 0.20 sf

Primary OutFlow Max=0.27 cfs @ 15.36 hrs HW=55.91' TW=55.77' (Dynamic Tailwater)
↑—**1=R10-R7** (Inlet Controls 0.27 cfs @ 1.38 fps)

Summary for Pond R9: R TANK 9

Inflow Area = 1.087 ac, 64.49% Impervious, Inflow Depth = 4.77" for 25-Year event
Inflow = 3.62 cfs @ 12.10 hrs, Volume= 0.432 af
Outflow = 1.17 cfs @ 12.50 hrs, Volume= 0.412 af, Atten= 68%, Lag= 24.1 min
Primary = 0.81 cfs @ 12.50 hrs, Volume= 0.407 af
Secondary = 0.35 cfs @ 12.50 hrs, Volume= 0.005 af

Routing by Dyn-Stor-Ind method, Time Span= 0.00-48.00 hrs, dt= 0.01 hrs
Peak Elev= 55.69' @ 12.50 hrs Surf.Area= 6,095 sf Storage= 7,927 cf

Plug-Flow detention time= 188.5 min calculated for 0.412 af (95% of inflow)
Center-of-Mass det. time= 156.9 min (977.3 - 820.4)

Volume	Invert	Avail.Storage	Storage Description
#1A	54.00'	718 cf	**15.81'W x 76.72'L x 2.04'H Field A** 2,471 cf Overall - 676 cf Embedded = 1,795 cf x 40.0% Voids
#2A	54.25'	642 cf	**ACF R-Tank HD 0.5** x 279 Inside #1 Inside= 15.7"W x 9.4"H => 0.98 sf x 2.35'L = 2.3 cf Outside= 15.7"W x 9.4"H => 1.03 sf x 2.35'L = 2.4 cf 9 Rows of 31 Chambers
#3B	54.00'	2,757 cf	**61.74'W x 79.07'L x 2.69'H Field B** 13,149 cf Overall - 6,257 cf Embedded = 6,892 cf x 40.0% Voids
#4B	54.25'	5,944 cf	**ACF R-Tank HD 1.0** x 1408 Inside #3 Inside= 15.7"W x 17.3"H => 1.80 sf x 2.35'L = 4.2 cf Outside= 15.7"W x 17.3"H => 1.89 sf x 2.35'L = 4.4 cf 44 Rows of 32 Chambers
		10,062 cf	Total Available Storage

Storage Group A created with Chamber Wizard
Storage Group B created with Chamber Wizard

Device	Routing	Invert	Outlet Devices
#1	Primary	54.25'	**6.0" Round Culvert** L= 10.0' CMP, projecting, no headwall, Ke= 0.900 Inlet / Outlet Invert= 54.25' / 54.00' S= 0.0250 '/' Cc= 0.900 n= 0.013 Corrugated PE, smooth interior, Flow Area= 0.20 sf
#2	Device 1	54.30'	**10.0" W x 1.0" H Vert. Orifice/Grate** C= 0.600
#3	Device 1	54.70'	**10.0" W x 1.0" H Vert. Orifice/Grate** C= 0.600
#4	Device 1	54.85'	**10.0" W x 1.0" H Vert. Orifice/Grate** C= 0.600
#5	Secondary	55.60'	**4.0' long Sharp-Crested Rectangular Weir** 2 End Contraction(s)

Primary OutFlow Max=0.81 cfs @ 12.50 hrs HW=55.69' TW=0.00' (Dynamic Tailwater)
└─**1=Culvert** (Inlet Controls 0.81 cfs @ 4.15 fps)
  ├─**2=Orifice/Grate** (Passes < 0.39 cfs potential flow)
  ├─**3=Orifice/Grate** (Passes < 0.33 cfs potential flow)
  └─**4=Orifice/Grate** (Passes < 0.30 cfs potential flow)

Secondary OutFlow Max=0.35 cfs @ 12.50 hrs HW=55.69' TW=0.00' (Dynamic Tailwater)
└─**5=Sharp-Crested Rectangular Weir** (Weir Controls 0.35 cfs @ 0.98 fps)

MaineHealth – Center of Excellence
City of Portland Construction Management Plan
Amended February 11, 2020

A. Construction Management Principles

Langford and Low understands the requirements of this section and plans to incorporate them into the project.

B. Development Review of Construction Management Plan

Langford and Low understands the requirements of this section and plans to incorporate them into the project

C. Performance Guarantees, Inspection Fees, Construction Management Plan

Langford and Low and its subcontractors will apply for and obtain all required permits including but not limited to:

- Building permit and MEP trade permits
- Utility connection (chapter 24 and 32)
- Street openings and or closing permits (Chapter 25).
- Blasting - Is not anticipated on this project
- Building Code – Best practices will be employed in accordance with chapter 33.

Langford and Low will facilitate a preconstruction meeting following the issuance of the building permit.

D. Construction Administration and Communication

Applicant Contact
Dennis Morelli 207-662-6149

Construction Manager Contact

Project Manager	Jared Ballard 207-317-3187
Site Superintendent	Darren Crawford 207-318-0074

The construction manager will establish a site sign that will include the CM and applicant contact information. These will be removed at the end of the project.

E. Construction Schedule

1. A construction Schedule has been attached to this CM plan.
2. All hours of construction will be in accordance with attachment 1 and 2 in section 25-129 of the permit application.
3. N/A
4. Material delivery areas are defined in the attached CM site plan.

F. Security and Public Safety

1. Fencing, Barriers and Gates have been identified on the CM site management plan.
2. N/A – All construction related to this project is new.
3. Fire Safety –
4. Blasting – Not anticipated on this project.
5. Temp Security Lighting - Not anticipated on this project.

G. Construction Permitting and Traffic Control Plans

1. All construction activity will be licensed and permitted and executed in accordance with Chapter 25 article VII of the City Code of Ordinances.
2. All sewer and stormwater connections will be licensed and permitted and executed in accordance with Chapter 24 and 32 of the City Code of Ordinances.
3. Traffic Control – The site contractor will submit MOT plans prior to undertaking any work in the public street system.

H. Site Management and Controls

1. Trash and debris removal – Will be handled by a wastemen management company specializing in this work. Dumpsters will be located onsite at various locations depending on the state of completion of the project.
2. Street cleaning and damage control – A construction entrance to the site will be constructed in accordance with the city standards. The site contractor will be responsible to maintain the entrance and removal any debris from vehicle tired exiting the site. A street sweeping machine will be located onsite to clean the public street periodically as needed.
3. Dust – Will be managed in accordance with Section 25-129 of the city standards.
4. Noise – Will be managed in accordance with Section 17-18 of the city standards.
5. N/A
6. Snow removal – We do not anticipate any snow removal in the public street to be associated with this project.

I Erosion Control

1. Erosion control measures will be established around the perimeter of the site as shown in the CM plan and in accordance with the drawing C100 attached to the CM plan.
2. It is not anticipated that any existing trees will remain within the work area. All trees will be installed as new near the completion of the project.
3. N/A

J. Construction Staging Area

1. See attached CM plan for location of material staging areas.
2. See attached CM plan for location of delivery truck holding areas.
3. None anticipated.

K. Parking During Construction

1. There is adequate space within the construction site for construction parking.

L. Dewatering

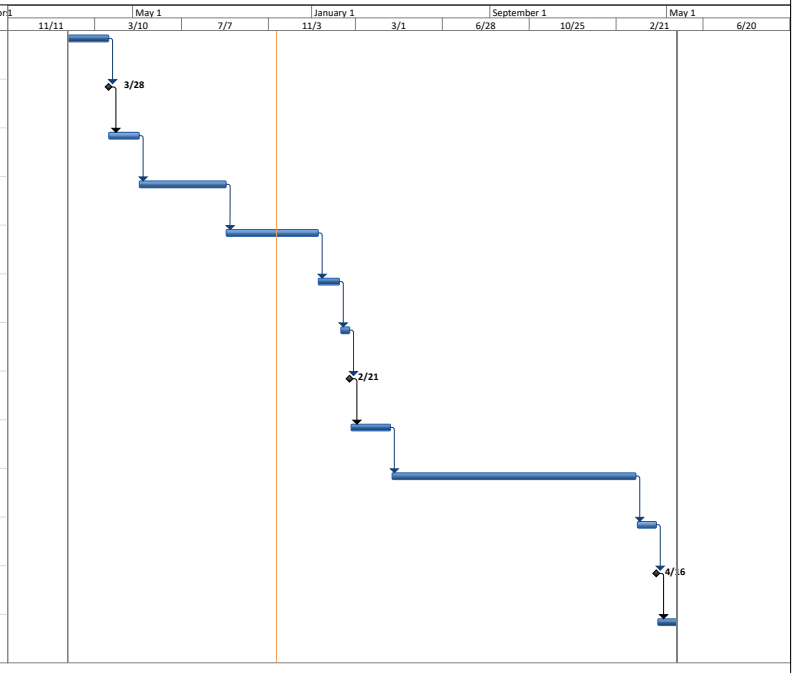
1. It is not anticipated that significant groundwater will be encountered however, if it is, the goal of the team is to protect adjacent water resources. Should groundwater be encountered during excavation activities the site contractor will employ the following dewatering measures.

    a. Excavate a sump adjacent to the work area deeper than the elevation of the work area.
    b. Place a perforated pipe system encased in crushed stone and lined with filter fabric into the sump.
    c. Pump water from the sump into a silt separation bag sized in accordance with applicable standards. The bag will be located in an approved location and surrounded with appropriate watershed protection measures.

    Should a dewatering condition arise that requires special consideration, the CM will mobilize a storage tank (frac tank) to the site to handle the groundwater while additional dewatering measures are being developed by the engineering and water resource teams.

MaineHealth
Center of Excellence for Developmental Disorders

ID	Task Mode	Task Name	Duration	Start	Finish	Predecessors
1		Conceptual Design	40 days	Fri 2/1/19	Thu 3/28/19	
2		Issue Owner RFP	0 days	Thu 3/28/19	Thu 3/28/19	1
3		Schematic Design	30 days	Fri 3/29/19	Thu 5/9/19	2
4		Design Development	85 days	Fri 5/10/19	Thu 9/5/19	3
5		IFC Documents	90 days	Fri 9/6/19	Thu 1/9/20	4
6		GMP Development	21 days	Fri 1/10/20	Fri 2/7/20	5
7		GMP Review	10 days	Mon 2/10/20	Fri 2/21/20	6
8		Notice to Proceed	0 days	Fri 2/21/20	Fri 2/21/20	7
9		Site Clearing & Preliminary Sitework	40 days	Mon 2/24/20	Fri 4/17/20	8
10		Building Construction	240 days	Mon 4/20/20	Fri 3/19/21	9
11		Landscaping & Plantings	20 days	Mon 3/22/21	Fri 4/16/21	10
12		Occupancy	0 days	Fri 4/16/21	Fri 4/16/21	11
13		Closeout	20 days	Mon 4/19/21	Fri 5/14/21	12



Project: MaineHealth - COE
Date: Thu 11/14/19

Task | Summary | External Milestone | Inactive Summary | Manual Summary Rollup | Finish-only
Split | Project Summary | Inactive Task | Manual Task | Manual Summary | Deadline
Milestone | External Tasks | Inactive Milestone | Duration-only | Start-only | Progress

LANGFORD & LOW CONSTRUCTION

Proposal Schedule

MaineHealth

CENTER OF EXCELLENCE IN AUTISM AND DEVELOPMENTAL DISORDERS

100 ANDOVER ROAD, PORTLAND, ME 04101

PROJECT PHASE: DESIGN DEVELOPMENT PRICING AND OWNER REVIEW

PORTLAND CITY APPROVAL

OWNER
MAINEHEALTH dba MAINE BEHAVIORAL HEALTHCARE
78 ATLANTIC PLACE
SOUTH PORTLAND, ME 04106
207.842.7700

CONTACT: RICHARD GAVIN

ARCHITECT
E4H - ENVIRONMENTS FOR HEALTH LLC.
163 FORE STREET, 4TH FLOOR
PORTLAND, ME, 04101
207.773.8841

CONTACT: JON BOYD

LANDSCAPE ARCHITECT
BARRY J. HOSMER - LANDSCAPE ARCHITECT
196 WHITNEY AVENUE
PORTLAND, MAINE 04102
207.874.0248

CONTACT: BARRY HOSMER

CIVIL
RANSOM
400 COMMERCIAL STREET SUITE 404
PORTLAND, ME 04101
207.772.2891

CONTACT: MAUREEN MCGLONE

STRUCTURAL
FOLEY BUHL ROBERTS & ASSOCIATES, INC.
254 COMMERCIAL STREET
PORTLAND, ME 04101
207.200.2500

CONTACT: DAVID MARTIN

MEP
STANTEC
482 PAYNE ROAD SCARBOROUGH COURT
SCARBOROUGH, ME 04074-8929
207.883.3355

CONTACT: CHRIS PIIK

CONSTRUCTION MANAGER
LANGFORD & LOW
248 WARREN AVE
PORTLAND, ME 04103
207.797.5141

CONTACT: GUS DOUGHTY



RENDERING IS FOR VISUALIZATION ONLY. NOT A CONTRACT DOCUMENT

ENVIRONMENTS FOR HEALTH ARCHITECTURE
163 Fore Street, Portland, ME 04101
207.773.8841
e4harchitecture.com

888.787.8441
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Maine Behavioral Healthcare
MaineHealth



KEY PLAN

MAINE BEHAVIORAL HEALTHCARE
CENTER OF EXCELLENCE IN AUTISM AND DEVELOPMENTAL DISORDERS
100 ANDOVER ROAD
PORTLAND, ME

REV	DESCRIPTION	DATE
	DD PRICING	08/16/19

NOT FOR CONSTRUCTION

SEAL:

PROJECT NUMBER: 2018005

DATE: August 16, 2019

SHEET TITLE AND NUMBER:

COVER

COVER SHEET

NORTH

WETLAND
IMPACT #
3146 SF

SNOW STORAGE AREA
75' NRPA SETBACK
100' MHW SETBACK
8' WIDE DOUBLE LEAF GATE (SEE DETAIL)
6"x48" CONCRETE BOLLARDS
12'x12' CONCRETE DUMPSTER PAD WITH CHAIN LINK FENCE ENCLOSURE (SEE DETAIL)
STAFF PATIO
FUTURE ADDITION
BIKE RACK
CONC. SIDEWALK
BITUMINOUS SIDEWALK
CADD BUILDING FFE= 60.00
SIDEWALKS & PLAYGROUND (SEE L-100)
FUTURE ADDITION
MOUNTABLE CURB FOR MAINTENANCE VEHICLES (SEE DETAIL)
STA 5+38.73 = STA 10+31.46
SLIPFORM CONCRETE CURB 6" REVEAL AROUND PARKING LOT
DOUBLE UNIT ELECTIC VEHICLE CHARGER
SIDEWALK RAMPS (TYP.) SEE DETAIL
HANDICAP SIGN (TYP.) (SEE DETAIL)
BITUMINOUS PAVEMENT
PLANTERS (SEE L-100)
GRAVEL MAINTENANCE PATH
EXISTING SPRING HARBOR HOSPITAL SITE IDENTIFICATION SIGN
DOUBLE UNIT ELECTIC VEHICLE CHARGER. REFER TO ARCHITECT PLANS FOR DETAILS
CONCRETE SIDEWALK WITH INTEGRAL CURB 6" REVEAL AROUND SIDEWALK.
EXISTING SIDEWALK
SNOW STORAGE AREA
SIDEWALK RAMPS (TYP.) (SEE DETAIL)
SIGN INDICATING BUS DROP OFF VISITORS (OFOI)
NEW CADD BUILDING IDENTIFICATION SIGN (OFOI)
WESTBROOK
PORTLAND
Harry Harmon Drive
(bituminous)
Outer Congress St.
(bituminous)
Hutchins Drive
N 5084.0068
E 5350.7025
CIR1118
up 1.4'
CMP3
18"CMP
inv=51.8'
inv=52.6'
sign
"Woodard & Curran"
CMP2
18"RCP
inv=61.1'
inv=63.8'
TBM Nail in CMP3
elevation = 52.45'
12" culvert
6" culvert
SCALE in FEET
1"=40'
0 20 40 80

PORTLAND CITY APPROVAL

ENVIRONMENTS FOR HEALTH ARCHITECTURE
e4h
888.781.8441 207.773.8841 163 Free Street, Portland, ME 04101 e4harchitecture.com

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Maine Behavioral Healthcare
MaineHealth

RANSOM Consulting, Inc.
400 Commercial Street, Suite 404
Portland, ME 04101
Tel. (207) 772-2891
Fax (207) 772-3248
www.ransomenv.com

KEY PLAN

MAINE BEHAVIORAL HEALTHCARE CENTER OF EXCELLENCE IN AUTISM AND DEVELOPMENTAL DISORDERS
100 ANDOVER ROAD
PORTLAND, ME

REV	DESCRIPTION	DATE
A	DEP PERMITTING	09/23/19
B	DEP REVICITY PRELIM.	10/22/19
C	90% CD OWNER REVIEW	11/20/19
D	CITY SUBMISSION	11/21/19
E	ISSUED FOR CONSTRUCTION	01/09/20

STATE OF MAINE
MAUREEN P. McGLONE
#7705
LICENSED PROFESSIONAL ENGINEER

SEAL:

PROJECT NUMBER: 181.06068
DATE: 08/22/2019

SHEET TITLE AND NUMBER:

SITE PLAN

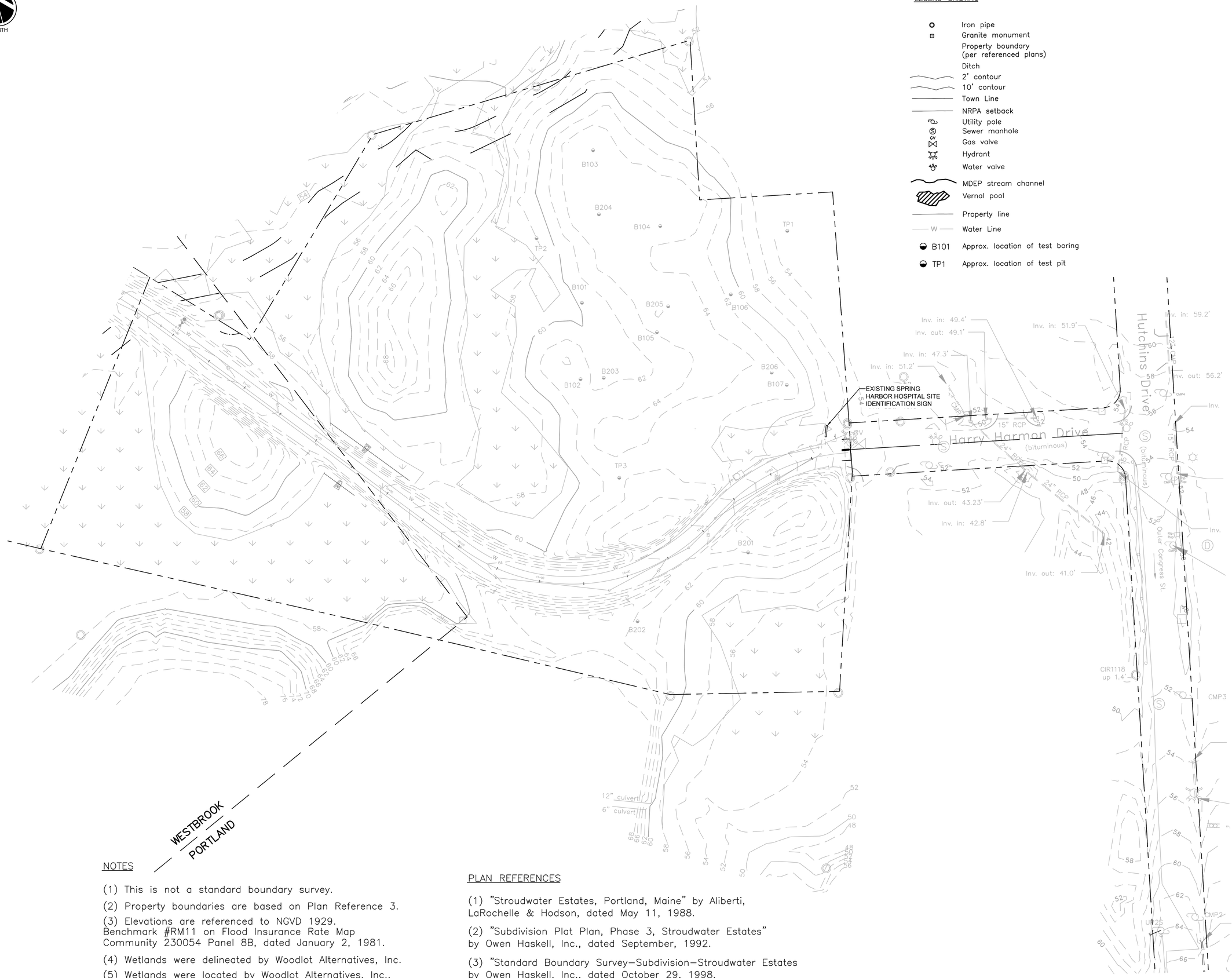
C-101

NORTH

LEGEND—EXISTING

- Iron pipe
- Granite monument
- Property boundary (per referenced plans)
- Ditch
- 2' contour
- 10' contour
- Town Line
- NRPA setback
- Utility pole
- Sewer manhole
- Gas valve
- Hydrant
- Water valve
- MDEP stream channel
- Vernal pool
- Property line
- W — Water Line
- B101 Approx. location of test boring
- TP1 Approx. location of test pit

PORTLAND CITY APPROVAL



NOTES

(1) This is not a standard boundary survey.

(2) Property boundaries are based on Plan Reference 3.

(3) Elevations are referenced to NGVD 1929.
Benchmark #RM11 on Flood Insurance Rate Map
Community 230054 Panel 8B, dated January 2, 1981.

(4) Wetlands were delineated by Woodlot Alternatives, Inc.

(5) Wetlands were located by Woodlot Alternatives, Inc.,
using a Trimble Pathfinder ProXR GPS unit (+/− one meter).

PLAN REFERENCES

(1) "Stroudwater Estates, Portland, Maine" by Aliberti,
LaRochelle & Hodson, dated May 11, 1988.

(2) "Subdivision Plat Plan, Phase 3, Stroudwater Estates"
by Owen Haskell, Inc., dated September, 1992.

(3) "Standard Boundary Survey—Subdivision—Stroudwater Estates
by Owen Haskell, Inc., dated October 29, 1998.

0 20 40 80
SCALE in FEET
1"=40'

ENVIRONMENTS FOR HEALTH ARCHITECTURE
e4h
888.781.8441 207.773.8641 163 Fore Street, Portland, ME 04101 e4harchitecture.com

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Maine Behavioral Healthcare
MaineHealth

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Consulting, Inc.
400 Commercial Street, Suite 404
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Fax (207) 772-3248
www.ransomenv.com

KEY PLAN

C
B
A

MAINE BEHAVIORAL HEALTHCARE
CENTER OF EXCELLENCE IN AUTISM
AND DEVELOPMENTAL DISORDERS
100 ANDOVER ROAD
PORTLAND, ME

REV	DESCRIPTION	DATE
A	DEP PERMITTING	8/23/19
B	DEP REV/CITY PRELIM.	10/22/19
C	90% CD OWNER REVIEW	11/20/19
D	CITY SUBMISSION	11/21/19

SEAL:

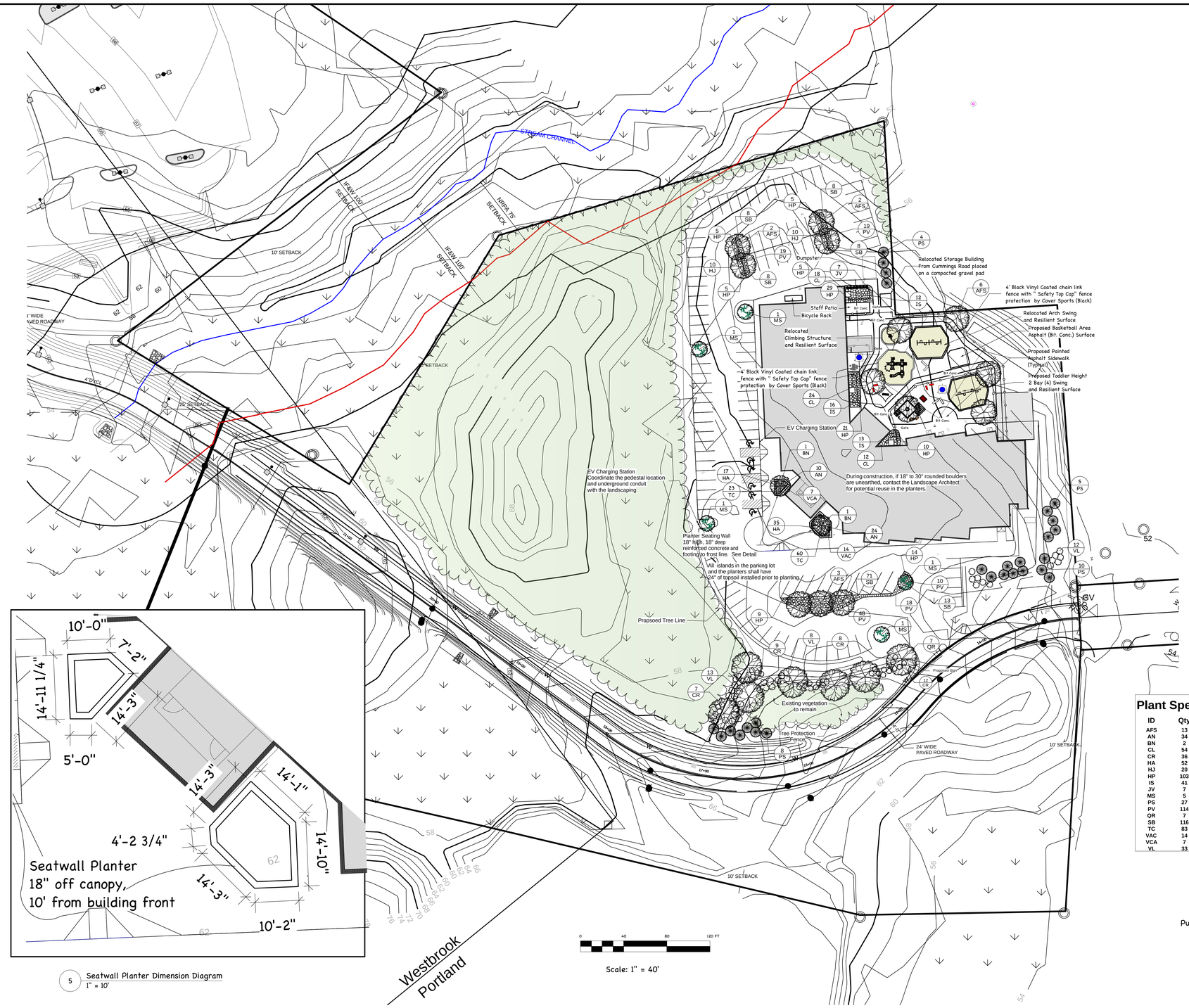
PROJECT NUMBER: 181.06068

DATE: 08/22/2019

SHEET TITLE AND NUMBER:

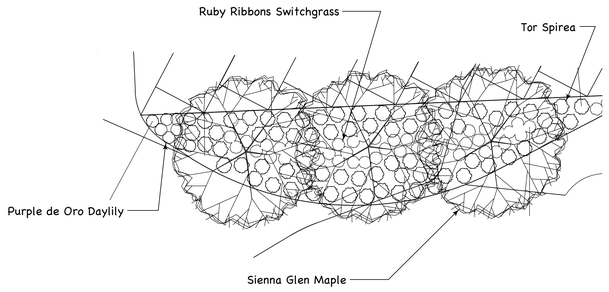
EXISTING CONDITIONS

C-100

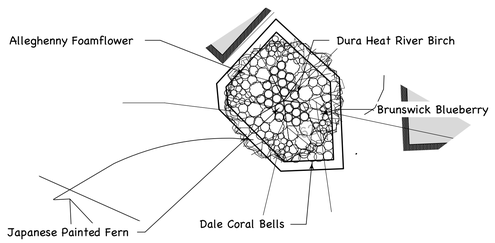


Scale: 1" = 40'

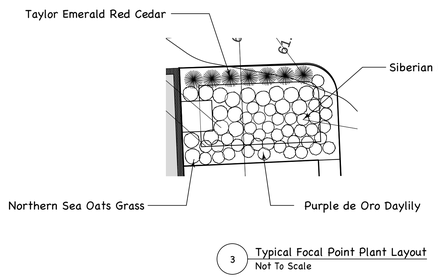
5 Seatwall Planter Dimension Diagram
1" = 10'



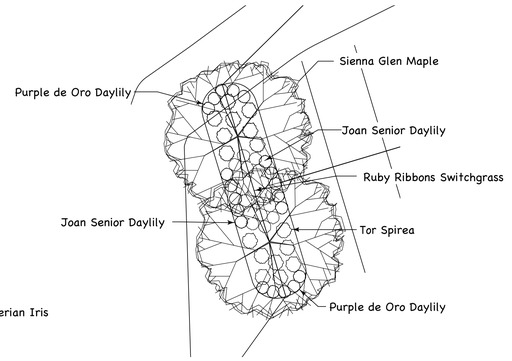
1 Center Island - Typical Plant Layout Detail
Not To Scale



2 Planter/ Seatwall - Typical Plant Layout Detail
Not To Scale



3 Typical Focal Point Plant Layout
Not To Scale



4 End Cap Island - Typical Plant Layout Detail
Not To Scale

Portland City Approval

Plant Notes:

1. The Landscape Contractor is advised that a full set of detailed written landscape specifications and related sections are in Section 329300 of the specification book.
2. The Landscape Contractor is advised of the existence of underground utilities. The Landscape Contractor shall verify utilities prior to commencing construction. Call DIGSAFE at 1-888-344-7233
3. The Landscape Contractor shall be responsible for repairing any utilities, walks, paving, curbing, etc. damaged in the performance of this job at no cost to the Owner. The Landscape Contractor shall notify the Landscape Architect immediately if they encounter any site conditions, which will not allow them to carry out the landscape installation according to the drawings.
4. Planting of trees shall not occur until all erosion control is in place and all grading and paving is completed. All islands and planting areas, shall have 24" of planting soil mix, see specification 329300. 2.5 installed and rolled prior to planting. The finished elevation of the planting soil mix shall be 2" below to the top of the curb or even with adjacent ground. All islands and medians are crowned a minimum of 6" at the center of the island or graded to drain. Submit a sample of the topsoil with NPK, pH, calcium, aluminum effective cation exchange capacity tests and fertility recommendations as well as bulk density test of the sample. Topsoil shall be friable void of weeds, stones greater than 3/4" diametec sticks and other debris. Topsoil shall contain, 70–80% sand, 5-20% clay, 18-20% silt, 5.0-8% organic matter and a pH of 6-6.9. Notify the Landscape Architect immediately if there is standing water or other factors, which would prohibit the installation of plant material.
5. All plants shall have a normal habit of growth for the species and shall be sound, healthy and free of disease and insects. All plants shall be legibly tagged with the proper complete botanical name. They shall conform to the measurements on the Plant List and shall conform to ANSI Z60.1 - Nursery Stock, latest revision. Prior to plant installation, the Landscape Contractor shall submit a written affidavit of all plant species, cultivars, varieties, sizes and quantities that they propose to install with the name, phone number and location of all nurseries where plant material has been grown. All plants shall be grown in a latitude north of Washington D.C. The Landscape Architect will inspect all plants at the place of growth or upon delivery for conformity to the plant list and specifications. Such approval shall not affect the right of inspection and rejection during the progress of work. The Landscape Architect and Owner reserve the right to inspect, select and tag all plant material at the place of growth or select and approve a representative sample of each type of shrub, perennial, groundcover and annual. The samples selected will serve as a minimum standard for all plants of the same species used for this work.
6. The top 1/3 of wire baskets and burlap on trees shall be cut and removed. All other plant material including trees shall have all non-biodegradable materials (string, wire, pots, etc.) removed at the time of planting. Circling roots or roots that would later girdle the plant shall be straightened, cut or the root ball shall be cut utilizing a split ball technique.
7. Backfill mix shall be composed of an 80/20, top soil/ peat moss mix. Planting pits shall be excavated to three times the diameter and to the same depth of the plant root ball. Backfill1/2 of the pit at a time, and compact. See Note 8 and install slow release fertilizer after first backfill lift. Setting the tree/shrub: Each tree/ shrub shall be planted such that the trunk flare junction is level with or 1" above existing grade. All trees/shrubs where the planting depth is incorrect shall be rejected. All trees and shrubs shall have a 3" soil saucer constructed at the perimeter of the planting pit.
8. All plantings shall have slow release fertilizer installed at the time of planting. The fertilizer shall be "Roots Transplant 1 Step", installed/ applied according to manufacturers instructions according to manufacturers instructions. After the plants are installed in each area, liquid feed all plants with Roots – Liquid Concentrate. Mix and apply according to manufacturers instructions. The landscape contractor shall submit samples of the slow release fertilizer and copies of the label of the liquid fertilizer prior to plant installation. The Landscape Contractor shall not install any plant material unless appropriate watering equipment is on site. All plants shall be adequately watered the day of installation or these plants will be rejected and replaced by the Landscape Contractors at no cost to the owner.
9. All trees shall have 2 stakes and guys. Stakes shall be 2" x 2" hardwood of sufficient length to guy above the first branches. Guys shall be flexible guying chain or an approved equal. Submit a sample of guying prior to installation. Any plants with broken or damaged root balls will be rejected. The landscape contractor shall remove all stakes after 1 year.
0. Mulch to be installed to a depth of 3" after normal settling including the seasonal color area. Mulch shall be medium shredded Hemlock bark, dark brown in color. Do not place mulch in contact with the tree trunk. The Landscape Contractor shall submit a .25 cubic foot sample prior to installation.
11. All plants shall have their locations staked and approved by the Landscape Architect prior to plant installation. Plants shall be spaced according to the plan and as noted in the Plant Species List. All plants shall be oriented for best appearance and arranged to evenly occupy the space where they are planted.
12. Plant species and plant size substitutions will not be allowed unless first approved by the Landscape Architect. Any substituted plants installed without prior approval will be rejected.
13. All plants shall be warranted as noted in section 329300: 1.7 in the specifications. The landscape contractor at no cost to the owner shall replace any plants that die during the guarantee.
14. Allow deciduous and evergreen shrubs to grow together to form a continuous plant mass.
15. The contractor shall supply the quantities of plants sufficient to complete the work shown on all of the drawings. If quantities of plants listed in the plant species list do not correlate with the plantings indicated on the drawings, the quantities on the drawings shall govern. Any discrepancies between the plant list and the drawings shall not entitle the landscape contractor to additional remuneration. Notify the Landscape Architect immediately if discrepancies are detected.
16. Under no circumstance shall snow be plowed and piled on planting areas. This will result in crushing and death of the plant material.

Plant Species List

ID	Qty	Botanical Name	Common Name	Scheduled Size	Remarks
AFS	13	Acer x freemanii 'Sienna Glen'	Sienna Glen Maple	2" - 2.5" cal.	B&B
AN	34	Athyrium niponicum 'Pictum'	Japanese Painted Fern	2 qt.	18" o.c.
BN	2	Betula nigra 'BNMTF'	Dura Heat River Birch	10' - 12'	
CL	54	Chasmanthium latifolium	Northern Sea Oats	1 gal.	30" o.c.
CR	36	Cornus racemosa 'Hurzam'	Huron Gray Dogwood	24" - 30"	5' o.c.
HA	52	Heuchera americana 'Dale'	Dale Coral Bells	2 qt.	18" o.c.
HJ	20	Hemerocallis x 'Joan Senior'	Joan Senior Daylily	1 gal.	24" o.c.
HP	103	Hemerocallis x 'Purple de Oro'	Purple de Oro Daylily	1 gal.	18" o.c.
IS	41	Iris sibirica 'Caesar's Brother'	Caesar's Brother Siberian Iris	1 gal.	30" o.c.
JV	7	Juniperus virginiana `Tay;or`	Taylor Esatern Red Cedar	5' - 6'	B&B 3' o.c.
MS	5	Malus x 'Spring Snow'	Spring Snow Crabapple	2.5" - 3" cal.	B&B
PS	27	Pinus strobus	Eastern White Pine	5' - 6'	B&B, 10' o.c.
PV	114	Panicum virgatum 'Ruby Ribbons'	Ruby Ribbons Switch Grass	1 gal.	24" o.c.
QR	7	Quercus rubra	Red Oak	2" - 2.5" cal.	B&B, 10' o.c.
SB	116	Spiraea betulifolia 'Tor'	Tor Birchleaf Spirea	18" - 24"	30" o.c.
TC	83	Tiarella cordifolia	Allegheny Foamflower	1 qt	12" o.c.
VAC	14	Vaccinium angustifolium x corymbosum 'Northsky'	NorthskyBlueberry	15" - 18"	30" o.c.
VCA	7	Vaccinium angustifolium 'Brunswick'	Brunswick Blueberry	2 gal.	30" o.c.
VL	33	Viburnum lentago	Nannyberry Viburnum	30" - 36"	6' o.c.

e4h ENVIRONMENTS FOR HEALTH ARCHITECTURE
163 Fore Street, Portland, ME 04101
888.781.84 e4h | E4H - Environments For Health LLC | e4harchitecture.com

Maine Behavioral Healthcare
MaineHealth

Barry J. Hosmer ASLA
Landscape Architecture Land Planning
196 Whitney Avenue
Portland, Maine 04103
207.774.1484

KEY PLAN

C B A

MAINE BEHAVIORAL HEALTHCARE CENTER OF EXCELLENCE IN AUTISM AND DEVELOPMENTAL DISORDERS

100 ANDOVER ROAD
PORTLAND, ME

REV	DESCRIPTION	DATE
	ISSUED FOR CONSTRUCTION	01/09/20

LICENSED LANDSCAPE ARCHITECT
BARRY J. HOSMER
No. 79
STATE OF MAINE

SEAL:

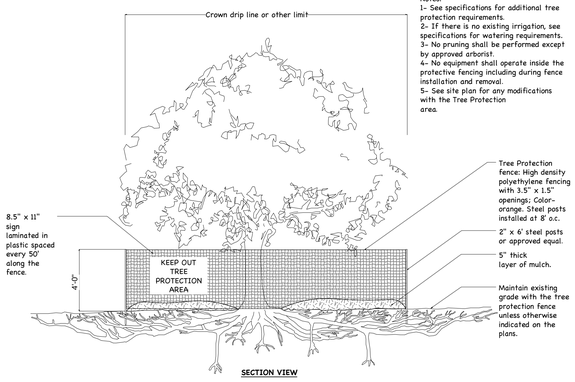
PROJECT NUMBER: 181.0606

DATE: 09/06/2019

SHEET TITLE AND NUMBER:

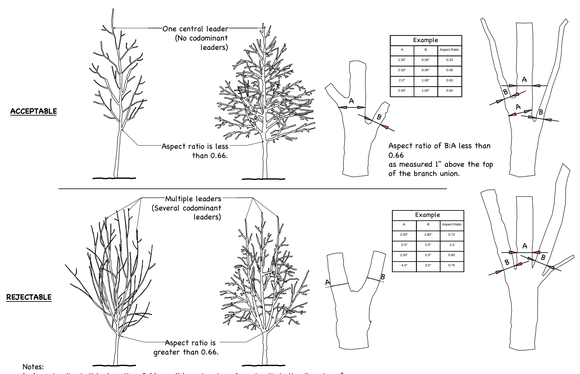
LANDSCAPE PLAN

L-100



Notes:
1- See specifications for additional tree protection requirements.
2- If there is no existing irrigation, see specifications for watering requirements.
3- No pruning shall be performed except by approved arborist.
4- No equipment shall operate inside the protective fencing including during fence installation and removal.
5- See site plan for any modifications with the Tree Protection area.

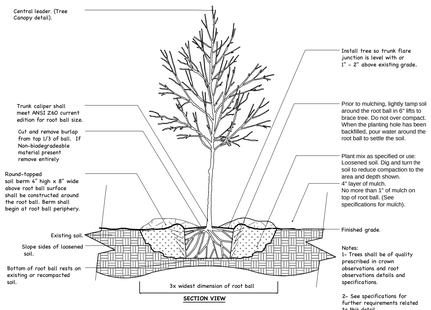
1 Tree Protetion Detail
Not to Scale



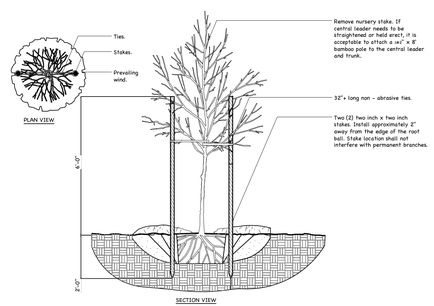
Notes:
1- Aspect ratio shall be less than 0.66 on all branch unions. Aspect ratio is the diameter of branch (B) divided by the diameter of the trunk (A) as measured 1" above the top of the branch union.

2- Any tree not meeting the crown observations detail may be rejected.

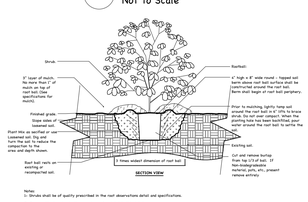
5 Tree Canopy Inspection Detail
Not to Scale



2 Tree Planting Detail
Not to Scale

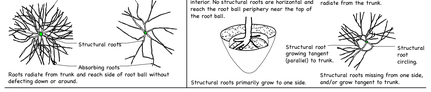


3 Tree Staking Detail (2)
Not to Scale



Notes:
1- Shrubs shall be of quality prescribed in the root observations detail and specifications.
2- See specifications for further requirements related to this detail.

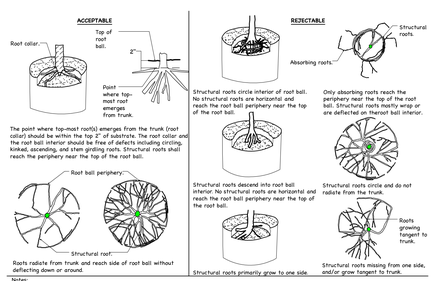
4 Shrub Planting Detail
Not to Scale



Notes:
1- Observations of roots shall occur prior to acceptance. Roots and soil may be removed during the observation process; substrate/soil shall be replaced after the observations have been completed.

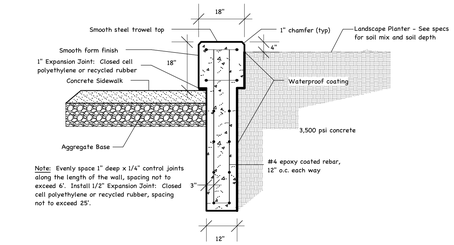
2- See specifications for observation process and requirements.

6 Root Observation Detail (B&B)
Not to Scale



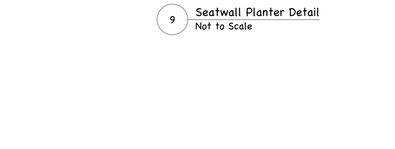
Notes:
1- Observations of roots shall occur prior to acceptance. Roots and substrate may be removed during the observation process; substrate/soil shall be replaced after observation has been completed.
2- Small roots (⅛" or less) that grow around, up, or down the root ball periphery are considered a normal condition in container production and are acceptable however they should be eliminated at the time of planting. Roots on the periphery can be removed at the time of planting. (See root ball shaving container detail)
3- See specifications for observation process and requirements.

7 Root Observation Detail (Container)
Not to Scale



Note: Evenly space 1" deep x 1/4" control joints along the length of the wall, spacing not to exceed 6'. Install 1/2" Expansion Joint: Closed cell polyethylene or recycled rubber, spacing not to exceed 25'.

8 Playground Resilient Surface Detail
Not to Scale

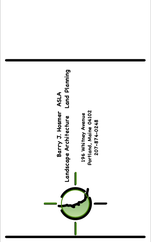


10 Typical Section - Landscape Island
Not to Scale

9 Seatwall Planter Detail
Not to Scale

Portland City Approval

e4h ENVIRONMENTS FOR HEALTH ARCHITECTURE
163 Free Street, Portland, ME 04101
207-772-2894
e4h - Environments for Health LLC - e4harchitecture.com



KEY PLAN

Barry J. Hosmer ASLA
Landscape Architecture Land Planning
134 Whitney Avenue
Portland, Maine 04103
207-874-0348

MAINE BEHAVIORAL HEALTHCARE CENTER OF EXCELLENCE IN AUTISM AND DEVELOPMENTAL DISORDERS
100 ANDOVER ROAD
PORTLAND, ME

REV	DESCRIPTION	DATE
	ISSUED FOR CONSTRUCTION	01/09/20

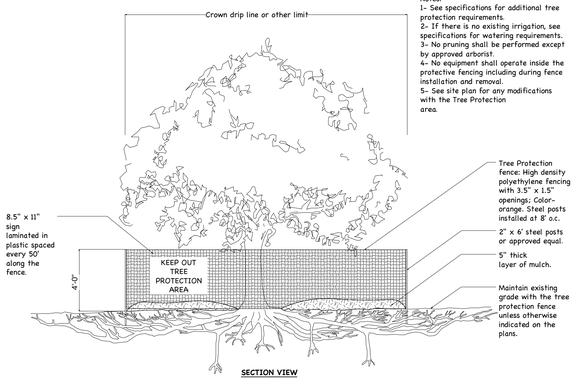


PROJECT NUMBER: 181.0606
DATE: 08/06/2019

SHEET TITLE AND NUMBER:

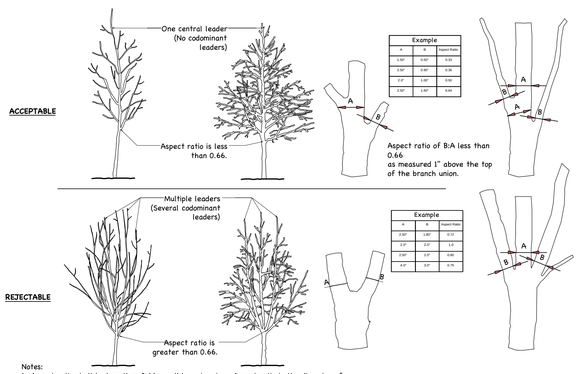
LANDSCAPE DETAILS

L-200



Notes:
1- See specifications for additional tree protection requirements.
2- If there is no existing irrigation, see specifications for watering requirements.
3- No pruning shall be performed except by approved arborist.
4- No equipment shall operate inside the protective fencing including during fence installation and removal.
5- See site plan for any modifications with the Tree Protection area.

1 Tree Protetion Detail
Not to Scale



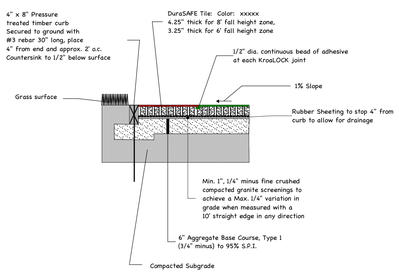
Exemple		
A	B	Aspect Ratio
1.50"	0.63"	0.42
2.50"	0.90"	0.36
3.0"	1.00"	0.33
2.50"	1.90"	0.66

Exemple		
A	B	Aspect Ratio
2.50"	1.80"	0.72
3.0"	2.0"	1.0
2.50"	2.0"	0.80
4.0"	3.0"	0.75

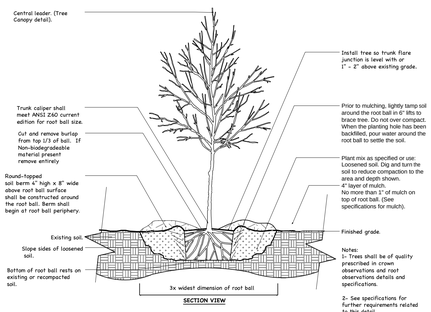
Notes:
1- Aspect ratio shall be less than 0.66 on all branch unions. Aspect ratio is the diameter of branch (B) divided by the diameter of the trunk (A) as measured 1" above the top of the branch union.

2- Any tree not meeting the crown observations detail may be rejected.

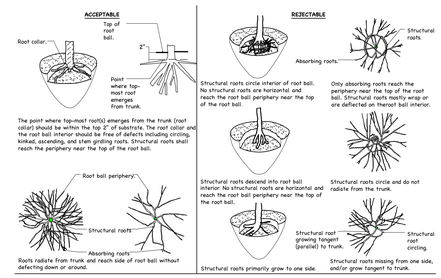
5 Tree Canopy Inspection Detail
Not to Scale



8 Playground Resilient Surface Detail
Not to Scale



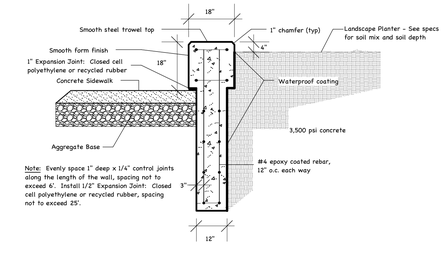
2 Tree Planting Detail
Not to Scale



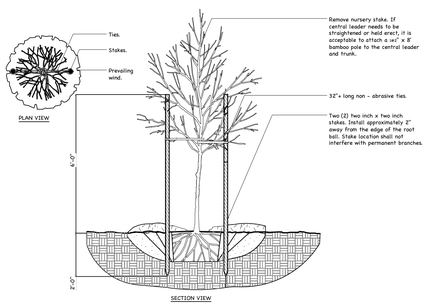
Notes:
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2- See specifications for observation process and requirements.

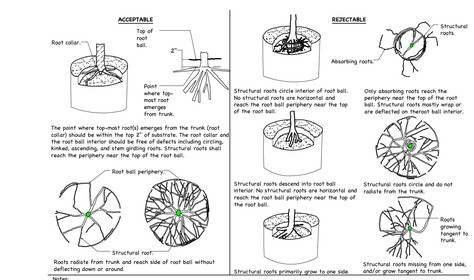
6 Root Observation Detail (B&B)
Not to Scale



9 Seatwall Planter Detail
Not to Scale

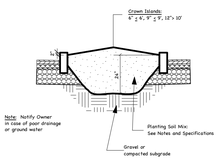


3 Tree Staking Detail (2)
Not to Scale

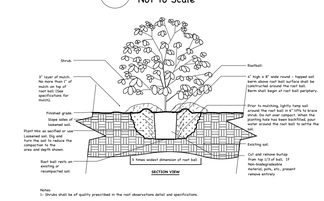


Notes:
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3- See specifications for observation process and requirements.

7 Root Observation Detail (Container)
Not to Scale



10 Typical Section - Landscape Island
Not to Scale



Notes:
1- Shrubs shall be of quality prescribed in the root observations detail and specifications.
2- See specifications for further requirements related to this detail.

4 Shrub Planting Detail
Not to Scale

ENVIRONMENTS FOR HEALTH ARCHITECTURE
e4h
163 Free Street, Portland, ME 04101
207-772-2891
888.781.64 e4h
e4h - Environments for Health LLC - e4harchitecture.com

Portland City Approval

KEY PLAN

RANSOM Consulting, Inc.
400 Commercial Street, Suite 404
Portland, ME 04101
Tel. (207) 772-2891
Fax (207) 772-3248
www.ransomenv.com

MAINE BEHAVIORAL HEALTHCARE CENTER OF EXCELLENCE IN AUTISM AND DEVELOPMENTAL DISORDERS

100 ANDOVER ROAD
PORTLAND, ME

REV	DESCRIPTION	DATE
A	DEP PERMITTING	8/23/19
	SITE PLAN REVIEW	11/20/19

STAMP

THIS DOCUMENT IS PRELIMINARY IN NATURE AND IS NOT A FINAL, SIGNED AND SEALED DOCUMENT

SEAL:

PROJECT NUMBER: 181.0606

DATE: 08/06/2019

SHEET TITLE AND NUMBER:

LANDSCAPE DETAILS

L-200

Barry J. Hosmer ASLA
Landscape Architecture Land Planning
196 Whitney Avenue
Portland, Maine 04102
207-874-0248

LOCATION MAP N.T.S.

SITE
CONGRESS ST
STROUDWATER
RTE 22
MAINE TURNPIKE
RTE 9
I-295

MATCH LINE

PORTLAND CITY APPROVAL

GEORGE M. HUTCHINS
6551/121,125

CONSERVATION EASEMENT
GEORGE M. HUTCHINS
TO
STATE OF MAINE DEPARTMENT OF
INLAND FISHERIES AND WILDLIFE
11,061/285
(DEER YARD)

34
54.2± ACRES

CENTRAL MAINE POWER COMPANY
2046/430

250'

N54°47'20"E
1,080'

WESTBROOK
PORTLAND

S76°38'20"E
264.39'

S55°59'35"E
889.53'

PORTLAND
WESTBROOK

N73°27'30"E
372.47'

P.O.B.

N86°34'35"E
150.00'

S03°25'25"E
378.02'

S52°29'35"W

N31°00'35"E
269.23'

S58°16'30"E
120.00'

119.99' FORMERLY HARMON DRIVE

P.O.B.

R=770.00'
L=12.51'
LC=N58°38'16"W
12.51'

N18°15'45"E
1471.28'

S21°33'25"W
329.00'

ROBERT A. PLUMMER III
11,392/121

834.28'
N76°42'35"W

367.92'
N77°12'58"W

359.56'
N76°41'50"W

184.22'
N76°44'10"W

495.28'
S16°52'20"W

WILLIAM B. & ELLA G. CLEMENT
2475/229

SNR CORPORATION
7627/48

SNR CORPORATION
13,874/246

RICHARD F. NORTH
11,492/1

ANTON E. & SUSAN E. STURCHIO
12,008/293

LOT 8

WESTBROOK
PORTLAND

THE TENNIS RACKET
3721/248
TO
HARVEY PATRY
8607/284

GEORGE M. HUTCHINS
6551/121,125
200
22.3197 ACRES

GEORGE M. HUTCHINS
6551/121,125
100
10.1558 ACRES

No.	Bearing	Distance
L1	S86°47'35"E	60.52
L2	N78°25'25"E	46.50

N86°34'35"E 70.00'
S03°25'25"E 219.34'
N03°25'25"W 219.98'
N86°34'35"E 30.00'
R=20.00
L=31.42

N86°34'35"E 400.00'
S03°25'25"E 230.00'
N03°25'25"W 230.00'
N86°34'35"E 460.00'
60.00'

13
94,000 SQ.FT.
2.1580 ACRES

12c
UNUM
FORMERLY
PORTEOUS, MITCHELL & BRAUN CO.
6612/141
LOTS 11, 12c & 12b
RECORDED IN PLAN BOOK 144, PAGE 73
AND AMENDED IN PLAN BOOK 153, PAGE 12

12b

N86°34'35"E 310.00'
S03°25'25"E 358.00'
N86°34'35"E 150.00'

P.O.B.

11
80,328 SQ.FT.
1.8441 ACRES

R=20.00'
L=31.42'

S04°04'07"E
180.86'

N86°34'35"E 287.00'
S03°51'54"E 55.07'
S03°19'30"W 4.96'

HARRY HARMON DRIVE

STREET ACCEPTANCE
BY CITY OF PORTLAND
NOV. 3, 1997

10
77,365 SQ.FT.
1.7761 ACRES
N/F PLC ASSOC.
11,002/312

30' DRAINAGE EASEMENT FOR CITY OF PORTLAND

S03°25'25"E 242.56'
N86°34'35"E 335.76'
N89°54'36"E 190.57'

9
GEORGE M. HUTCHINS
6551/121,125
RECORDED IN
PLAN BK 153 PG 12
84,002 SQ.FT.
1.9284 ACRES
TOTAL AREA=
119,281 SQ.FT.
2.7383 ACRES

35,279 S.F.
0.8099 Ac.
TO BE ADDED
TO 9

N12°55'05"E
149.41'

214.72'
N76°37'06"W

PRIVATE 30' DRAINAGE EASEMENT

112' TEL EASEMENT

S76°37'06"E 230.00'

148.97' P.O.B.
S76°37'06"E

MH

30' DRAINAGE EASEMENT

25' DRAINAGE EASEMENT

7
6
5

350.00'

RECORDED IN PLAN
BOOK 124, PAGE 80

N13°22'54"E 370.00'

S13°22'54"W 350.00'

215.00'
S76°37'06"E

230.00'
S76°37'06"E

203.38'
S76°37'06"E

215.00'

R=20.00
L=27.51

S13°24'36"W
45.66'

ORIGINAL PLAN RECORDED IN
PLAN BOOK 124, PAGE 80,
BY LAND USE CONSULTANTS

CONSERVATION EASEMENT
GEORGE M. HUTCHINS TO
STATE OF MAINE DEPARTMENT OF
INLAND FISHERIES AND WILDLIFE
11,061/285 NOV. 20, 1992

S72°25'25"E
240.00'

LOT 19 P.B. 153/12
1.89 ACRES

N86°34'35"E 235.82'

CONSERVATION EASEMENT
GEORGE M. HUTCHINS TO
STATE OF MAINE DEPT. OF
INLAND FISHERIES & WILDLIFE
11,306/220
FEB. 16, 1994
LOT 19 1992
PLAN APPROVED
NOT APPROVED
1.2768 ACRES

N86°34'35"E 270.00'

18
FORMERLY
ROBERT PAZOLT
7559/210
NOW FEDERAL EXPRESS

S03°25'25"E 229.00'
S03°25'25"E 220.00'
S03°25'25"E 224.47'

11,061/285
(DEER YARD)
34

N86°34'35"E 180.00'
N86°34'35"E 194.84'

S80°28'35"E 110.00'

54,639 S.F.
1.2543 Ac.

50,628 S.F.
1.1623 Ac.

17
N/F
ROBERT C. ELDER
7116/275

S80°28'35"E 70.00'
123.54'
S81°01'55"E
119.17'

SUBJECT TO CONSERVATION IN 11,061/285

TO ELDER FAMILY
PORTLAND ASSOCIATES
LIMITED PARTNERSHIP
11,306/227

N/F
REGIONAL WASTE SYSTEM
7121/127

STATE OF MAINE
RELEASE OF
CONSERVATION
EASEMENT TO
GEORGE M. HUTCHINS
11,306/224
FEB. 16, 1994

16
N/F
CADCAM ASSOCIATES
8170/139

60' RIGHT OF WAY

DRIVE

15

4

CITY OF PORTLAND
30' SEWER
EASEMENT
3004/304

SEAL

PLAN REFERENCES:

1. PLAN FOR CITY OF PORTLAND CONGRESS STREET SEWERAGE SYSTEM BY E.C. JORDAN DATED MAY 22, 1967 REVISED JULY 5, 1967.
2. FINAL PLAN PHASE 1 STROUDWATER ESTATES, PORTLAND, MAINE, BY LAND USE CONSULTANTS, INC. DATED SEPT. 10, 1979 RECORDED IN PLAN BOOK 124, PAGE 80.
3. FINAL PLAN PHASE 2 SUBDIVISION STROUDWATER ESTATES, PORTLAND, MAINE, BY E.C. JORDAN DATED SEPT. 10, 1984 RECORDED IN PLAN BOOK 144, PAGE 73.
4. FINAL PLAN PHASE 2 AMENDMENT 1 SUBDIVISION STROUDWATER ESTATES, PORTLAND, MAINE, BY E.C. JORDAN DATED DEC. 13, 1985 RECORDED IN PLAN BOOK 153, PAGE 12.
5. SUBDIVISION – PLAT PLAN, PHASE 3, STROUDWATER ESTATE MADE FOR GEORGE M. HUTCHINS DATED SEPT. 11, 1992 BY OWEN HASKELL, INC. (NOT APPROVED).
6. STANDARD BOUNDARY SURVEY, HARRY HARMON DRIVE – STROUDWATER ESTATES FOR CITY OF PORTLAND STREET ACCEPTANCE MADE FOR GEORGE M. HUTCHINS DATED JAN. 21, 1997 BY OWEN HASKELL, INC. RECORDED IN PLAN BOOK 200 PAGE 312 ON JULY 7, 2000.
7. TOPOGRAPHIC PLAN – LOT 9, STROUDWATER ESTATES, HUTCHINS DRIVE, PORTLAND & WESTBROOK, MAINE DATED JULY 2, 1998 BY TITCOMB ASSOCIATES.

CERTIFICATION:

OWEN HASKELL, INC. HEREBY CERTIFIES THAT THIS PLAN IS BASED ON, AND THE RESULT OF, AN ON THE GROUND FIELD SURVEY AND THAT TO THE BEST OF OUR KNOWLEDGE, INFORMATION AND BELIEF, IT CONFORMS TO THE BOARD OF LICENSURE FOR PROFESSIONAL LAND SURVEYORS STANDARDS FOR A CATEGORY 1, CONDITION II, SURVEY WITH THE FOLLOWING EXCEPTIONS:

1) NO NEW DEED DESCRIPTIONS; 2) NO REPORT
3) NOT ALL CORNERS SET

John P.R. Cyr
JOHN P.R. CYR, PLS NO. 509

DATE 6-26-01

STATE OF MAINE
JOHN P.R. CYR
2509
REGISTERED
LAND SURVEYOR

State of Maine, Cumberland ss.
Registry of Deeds
Received April 12, 2002
at 10 h 53 m A.M. and recorded in
Plan Book 202 Page 147
John B. O'Brien

GRAPHIC SCALE
0 50' 100' 200' 400'

MASTER PLAN

6-26-01	ADDED P.O.B., TOTAL AREA & 81.45' DIST. ON LOT 9
6-12-01	REVISED LOT 100 AND ADDED NOTES
2-23-00	ADDED NAMES ALONG CONGRESS STREET

STANDARD BOUNDARY SURVEY
SUBDIVISION – STROUDWATER ESTATES
ON
HUTCHINS DRIVE & HARRY HARMON DRIVE
PORTLAND, MAINE
MADE FOR
GEORGE M. HUTCHINS
1000 CONGRESS STREET, PORTLAND, MAINE

OWEN HASKELL, INC.
16 CASCO ST., PORTLAND, ME 04101 (207)774-0424
PROFESSIONAL LAND SURVEYORS

Drwn By	OHI	Date	Job No.
Trace By	JLW	OCT. 29, 1998	92035P
Check By	JPRC	Scale	Drwg. No.
Book No.	–	1" = 100'	1 of 2

● DENOTES 5/8" IRON ROD SET WITH CAP #509

CONGRESS STREET

202



MASTER PLAN

PLAN REFERENCES:

1. PLAN FOR CITY OF PORTLAND CONGRESS STREET SEWERAGE SYSTEM BY E.C. JORDAN DATED MAY 22, 1967 REVISED JULY 5, 1967.
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1) NO NEW DEED DESCRIPTIONS; 2) NO REPORT
3) NOT ALL CORNERS SET

JOHN P.R. CYR, PLS NO. 509

DATE 6-26-01

State of Maine, Cumberland ss
Registry of Deeds
Received April 12, 2002
at 10h 55m A M and recorded in
Plan Book 202 Page 171
Attest: John B. O'Brien

6-26-01	ADDED P.O.B., TOTAL AREA & 81.45' DIST. ON LOT 9
6-12-01	REVISED LOT 100 AND ADDED NOTES
2-23-00	ADDED NAMES ALONG CONGRESS STREET

STANDARD BOUNDARY SURVEY
SUBDIVISION – STROUDWATER ESTATES
ON
HUTCHINS DRIVE & HARRY HARMON DRIVE
PORTLAND, MAINE
MADE FOR
GEORGE M. HUTCHINS
1000 CONGRESS STREET, PORTLAND, MAINE

OWEN HASKELL, INC.
16 CASCO ST., PORTLAND, ME 04101 (207)774-0424
PROFESSIONAL LAND SURVEYORS

Drwn By	OHI	Date	Job No.
Trace By	JLW	OCT. 29, 1998	92035P
Check By	JPRC	Scale	Dwg. No.
Book No.	–	1" = 100'	1 of 2

NORTH

WETLAND
IMPACT #
3146 SF

SNOW STORAGE
75' NRPA SETBACK
100' MIFW SETBACK
DUMPSTER 6' SOLID ENCLOSURE
FUTURE ADDITION
EOP
SLIPFORM CONCRETE CURB 6" REVEAL AROUND PARKING LOT
CONC. SIDEWALK
PATHS & PLAYGROUND (SEE L-100)
FUTURE ADDITION
MOUNTABLE CURB FOR MAINTENANCE VEHICLES (SEE DETAILS)
PROPOSED BUILDING 29,104 SF
SIDEWALK
HANDICAP RAMPS (TYP.) SEE DETAIL
BITUMINOUS PAVEMENT
PLANTERS (SEE L-100)
MAINE BEHAVIORAL HEALTHCARE
BIKE RACK
GRAVEL MAINTENANCE PATH
EXISTING SPRING HARBOR HOSPITAL SITE IDENTIFICATION SIGN
CONCRETE SIDEWALK WITH INTEGRAL CURB 6" REVEAL AROUND SIDEWALK.
SNOW STORAGE
SIGHT DISTANCE
EXIST SIDEWALK
NEW CADD BUILDING IDENTIFICATION SIGN
POSTED SPEED 15MPH
POSTED SPEED 25MPH
WESTBROOK
PORTLAND
Harry Harman Drive (bituminous)
Hutchins Drive
Outer Congress St.
TBM Nail in CMP3 elevation = 52.45
CIR1118 up 1.4'
CMP3
18"CMP inv=51.8'
inv=52.6'
sign "Woodard & Curran"
CMP2
18"RCP inv=61.1'
inv=63.8'
12" culvert
6" culvert

0 20 40 80
SCALE in FEET
1"=40'

SPACE & BULK TABLE

	Required	Proposed
Lot Size	none	9.30 acres
Minimum Street Frontage	60'	60'
Front Yard Minimum [1]	27'	75'+
Rear Yard	25'	125'±
Yard Right	25'	39'
Yard Left	25'	275'±
Maximum Lot Coverage	75%	23%
Maximum Height	75'	27'
Maximum Impervious Area	75%	23%
Pavement Setback	10'	10'
Off Street Parking Spaces	71	119
Loading Bays	0	0
Discharge to Wetland	25'	25'

Building Height = 26' - 8"

[1] Measured from Andover Road

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KEY PLAN

C
B
A

MAINE BEHAVIORAL HEALTHCARE CENTER OF EXCELLENCE IN AUTISM AND DEVELOPMENTAL DISORDERS
100 ANDOVER ROAD
PORTLAND, ME

REV	DESCRIPTION	DATE
A	DEP PERMITTING	8/23/19
B	TMP APPLICATION	10/21/19
C	DEP REVICITY PRELIM.	10/22/19
D	90% CD OWNER REVIEW	11/20/19
E	CITY SUBMISSION	11/21/19

STATE OF MAINE
MAUREEN P. McGLONE #7705
LICENSED PROFESSIONAL ENGINEER

SEAL:

PROJECT NUMBER: 181.06068
DATE: 08/22/2019
SHEET TITLE AND NUMBER:

SITE PLAN

C-101

NORTH

LEGEND—NEW

—UE— UNDERGROUND ELECTRIC

—SS— SANITARY SEWER

—OHE— OVERHEAD ELECTRIC

—W— WATER

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CADD BUILDING FFE= 60.00

INV.=54.0± @ BLDG.

PAD MOUNTED TRANSFORMER

EXISTING SPRING HARBOR HOSPITAL SITE IDENTIFICATION SIGN

6" PVC L=45' S= 0.02

6" PVC L=52' S= 0.02

6" PVC L=43' S= 0.02

2" DOMESTIC SERVICE

4" FIRE SERVICE

INSTALL NEW POWER POLE. DROP DOWN TO TRANSFORMER

CLEANOUT

4' DIA. SMH 1
RIM=59' ±
INV. IN=52.96'
INV. OUT=52.86'

4' DIA. SMH 2
RIM=59.80' ±
INV. IN=51.96'
INV. OUT=51.86'

CONNECT 6" PVC SANITARY SERVICE TO EXISTING WITH INSERTA-TEE FITTING
EXISTING 8" INV.=47.87' ASSUMED
FIELD VERIFY EXISTING PIPE ELEV.
INV. AT INSERTA-TEE=51±

EXISTING WATER METER (TO BE RELOCATED)

RELOCATE EXISTING WATER METER PIT. COORDINATE WITH PORTLAND WATER DISTRICT.

Harry Harmon Drive (bituminous)

Hutchins Drive (bituminous)

Congress St. (bituminous)

15" RCP

Inv. in: 49.4'
Inv. in: 47.3'
Inv. in: 51.2'
Inv. in: 51.9'
Inv. in: 59.2'
Inv. out: 56.2'
Inv. in: 52.1'
Inv. out: 51.4'
Inv. in: 42.8'
Inv. out: 43.23'
Inv. out: 50.1'
Inv. out: 41.0'

N 5084.0068
E 5350.7023

TBM Nail in CMP3
elevation = 52.45'

CIR1118
up 1.4'

CMP3

18"CMP
inv=51.8'

inv=52.6'

sign
"Woodard & Curran"

CMP2

18"RCP
inv=61.1'

inv=63.8'

12" culvert

6" culvert

WESTBROOK
PORTLAND

0 20 40 80
SCALE in FEET
1"=40'

NOTES

1. INSTALL NEW METER PIT AND SERVICE LINES AS SHOWN. TEST LINES THEN CUT EXISTING LINE AND CONNECT WITH FIELD LOK RESTRAINING JOINT FITTINGS.
2. REMOVE METER AND CONTINUE DI BETWEEN MECHANICAL FITTINGS.
3. PERFORM CONNECTION TO EXISTING WATER DURING LOW DEMAND TIME PERIOD TO MINIMIZE DISRUPTION.

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STATE OF MAINE
MAUREEN P. McCLONE #7705
LICENSED PROFESSIONAL ENGINEER

SEAL:

PROJECT NUMBER: 181.06068

DATE: 08/22/2019

SHEET TITLE AND NUMBER:

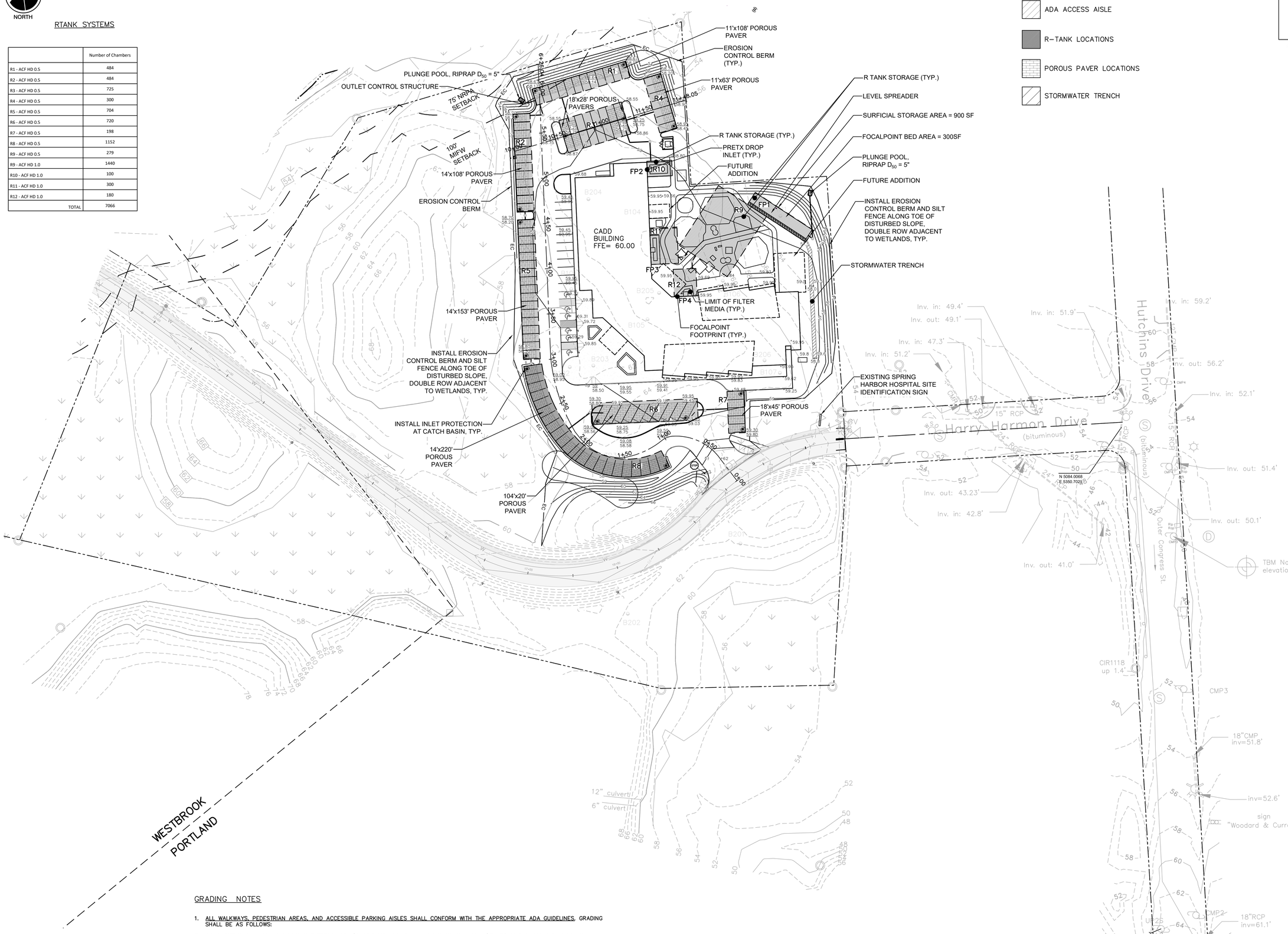
UTILITIES

C-103

NORTH

RTANK SYSTEMS

	Number of Chambers
R1 - ACF HD 0.5	484
R2 - ACF HD 0.5	484
R3 - ACF HD 0.5	725
R4 - ACF HD 0.5	300
R5 - ACF HD 0.5	704
R6 - ACF HD 0.5	720
R7 - ACF HD 0.5	198
R8 - ACF HD 0.5	1152
R9 - ACF HD 0.5	279
R10 - ACF HD 1.0	1440
R11 - ACF HD 1.0	100
R12 - ACF HD 1.0	300
TOTAL	7066



GRADING NOTES

1. ALL WALKWAYS, PEDESTRIAN AREAS, AND ACCESSIBLE PARKING AISLES SHALL CONFORM WITH THE APPROPRIATE ADA GUIDELINES, GRADING SHALL BE AS FOLLOWS:
2. WALKWAYS SHALL HAVE A MAXIMUM CROSS SLOPE (PERPENDICULAR TO THE DIRECTION OF TRAVEL)OF 2% AND A MAXIMUM RUNNING SLOPE(ALONG THE DIRECTION OF TRAVEL)OF 5%.
3. CURB RAMPS OR RAMPS WITH HANDRAILS MAY HAVE A RUNNING SLOPE OF UP TO 8.3% (1" PER FOOT); HOWEVER, THE MAXIMUM CROSS SLOPE IS STILL 2%.
4. LANDING AREAS, ACCESSIBLE PARKING AISLES, AND AREAS WHERE PEDESTRIANS ARE TURNING SHALL HAVE A MAXIMUM SLOPE OF 2% IN ALL DIRECTIONS.
5. IF THE CONTRACTOR DETERMINES THAT ANY THE ABOVE STANDARDS ARE NOT COMPATIBLE WITH SITE CONDITIONS/PROPOSED GRADING THEY SHALL CONTACT THE ENGINEER/OWNER'S REP UPON DISCOVERY AND REQUEST GUIDANCE.
6. ANY WORK DONE OUTSIDE OF THESE GUIDELINES (WITHOUT FIRST REQUESTING GUIDANCE FROM THE ENGINEER/OWNER'S REP) SHALL BE REMOVED AND REPLACED AT NO ADDITIONAL COST TO THE OWNER.

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STATE OF MAINE
MAUREEN P. McGLONE
#7705
LICENSED PROFESSIONAL ENGINEER

SEAL:

PROJECT NUMBER: 181.06068
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SHEET TITLE AND NUMBER:

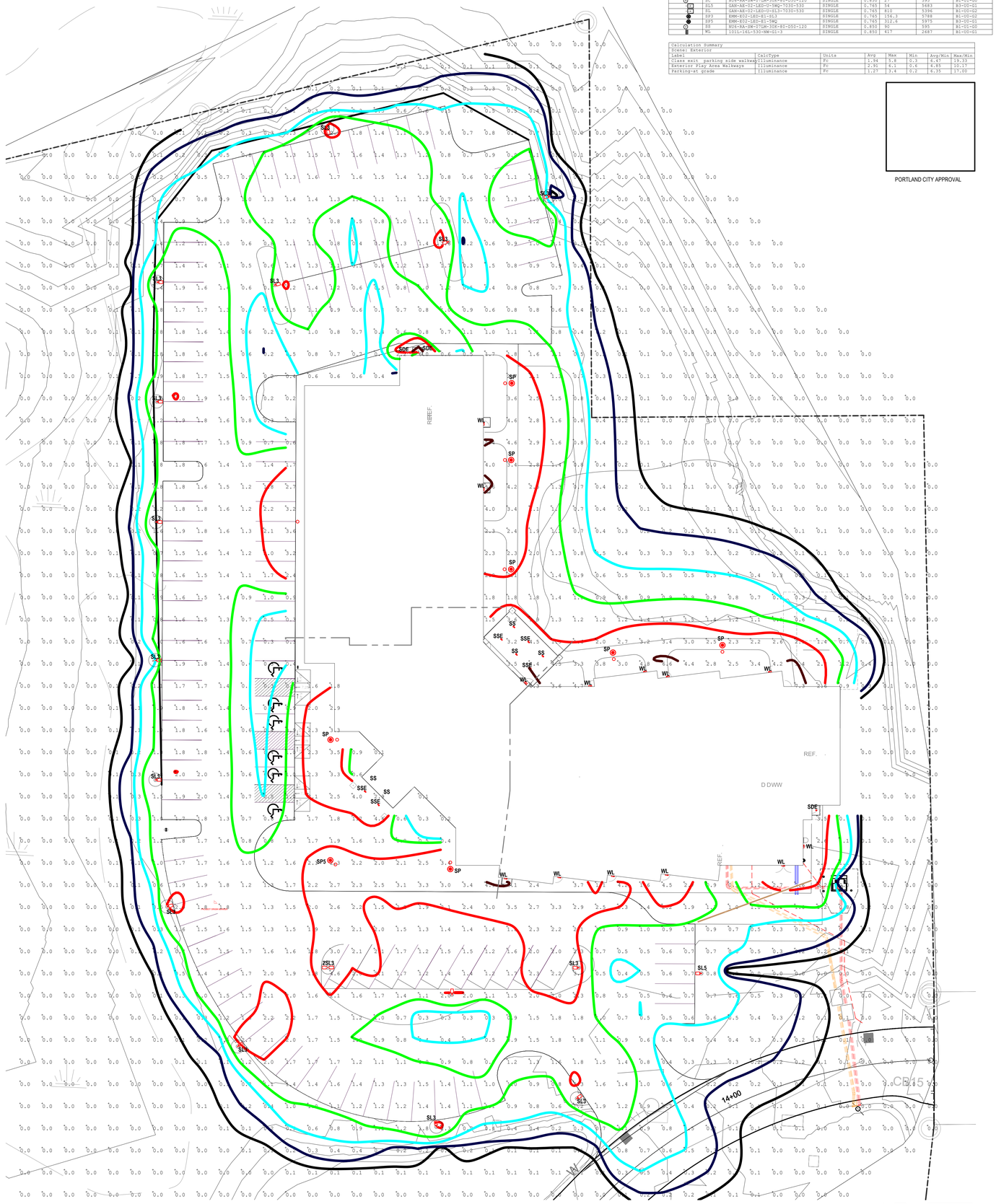
GRADING & DRAINAGE

C-102

Luminaire Schedule							
Scene: Exterior							
Symbol	LD	Description	Arrangement	LLF	Total Watts	Lum. Lumens	BUG Rating
	28L	GAN-AE-02-LED-D-SL3-T030-530-2	BACK-BACK	0.765	108	5396	B1-U0-G2
	BC	NOE-RA-SW-DTLM-30K-80-D55-120	SINGLE	0.850	27	595	B1-U0-G0
	SL5	GAN-AE-02-LED-D-SWQ-T030-530	SINGLE	0.765	54	5683	B3-U0-G1
	SL	GAN-AE-02-LED-D-SL3-T030-530	SINGLE	0.765	810	5396	B1-U0-G2
	SP3	EMM-E02-LED-E1-SL3	SINGLE	0.765	156.3	5788	B1-U0-G2
	SP5	EMM-E02-LED-E1-SWQ	SINGLE	0.765	312.6	5975	B3-U0-G1
	SS	NOE-RA-SW-DTLM-30K-80-D55-120	SINGLE	0.850	90	595	B1-U1-G0
	WL	IO1L-14L-530-NW-D1-3	SINGLE	0.850	417	2687	B1-U0-G1

Calculation Summary							
Scene: Exterior							
Label	CalcType	Units	Avg	Max	Min	Avg/Min	Max/Min
Class exit parking side walkway	Illuminance	Fc	1.94	5.8	2.3	4.47	19.33
Exterior Play Area Walkways	Illuminance	Fc	2.91	6.1	0.6	4.85	10.17
Parking-at grade	Illuminance	Fc	1.27	3.4	0.2	6.35	17.00

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1 ESP101 **Electrical Photometric Plan**
1" = 20'-0"

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100 ANDOVER ROAD
PORTLAND, ME

REV	DESCRIPTION	DATE

NOT FOR CONSTRUCTION

SEAL:

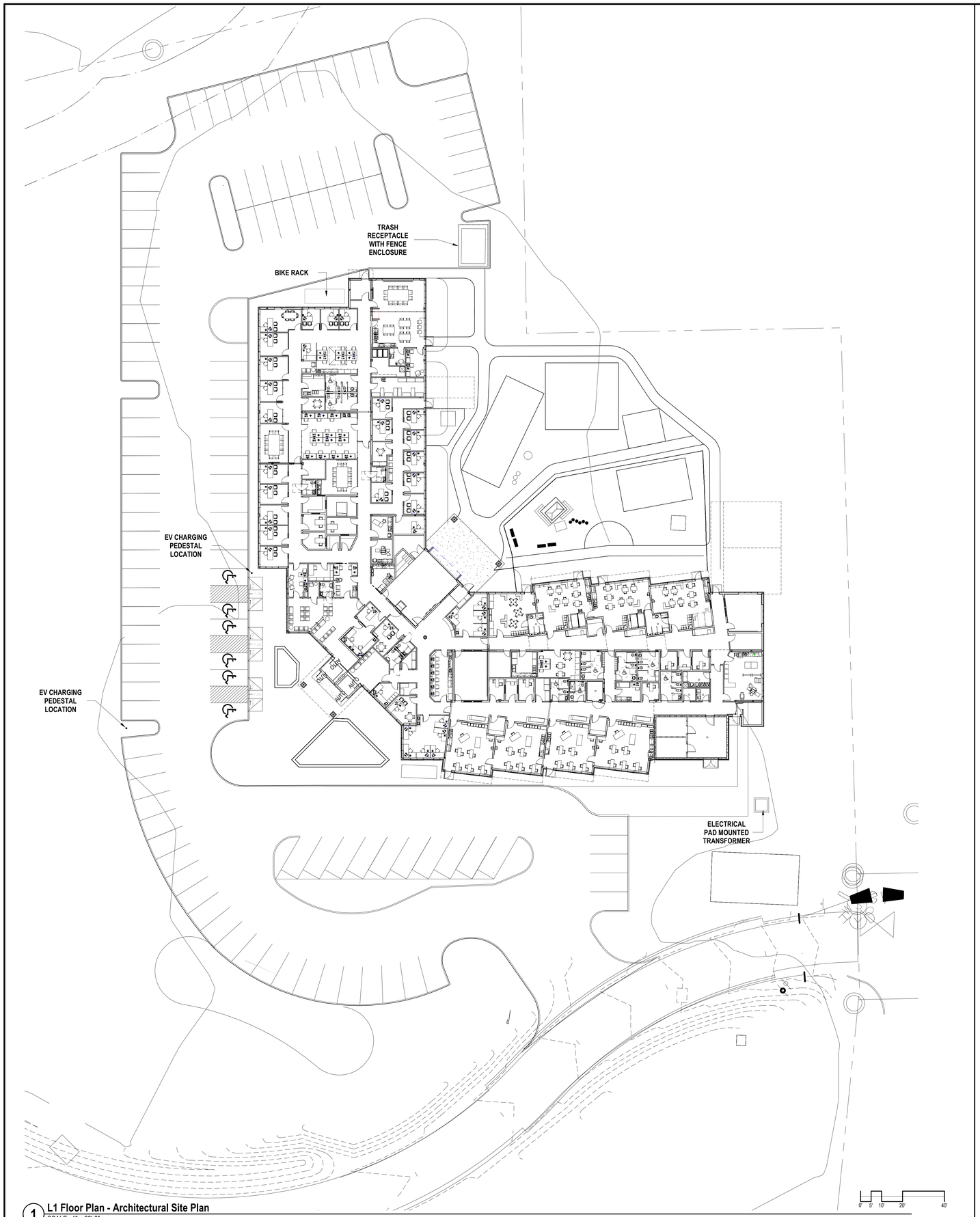
PROJECT NUMBER: 195211200

DATE:

SHEET TITLE AND NUMBER:

ESP101

Photometric Plan



1 **L1 Floor Plan - Architectural Site Plan**
SCALE: 1" = 20'-0"

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REV	DESCRIPTION	DATE
	90% CD OWNER REVIEW	11/20/19

NOT FOR CONSTRUCTION

SEAL:

PROJECT NUMBER: 2018005
DATE: November 08, 2019
SHEET TITLE AND NUMBER:

AS-101

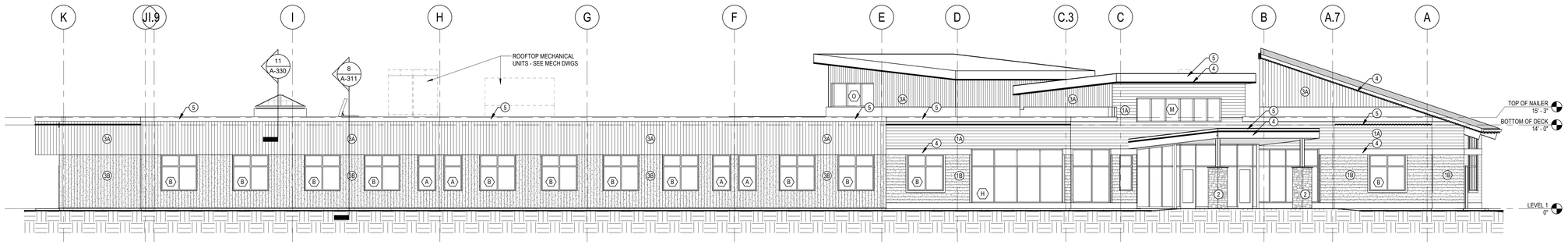
ARCHITECTURAL SITE PLAN



PORTLAND CITY APPROVAL
NOT TO SCALE

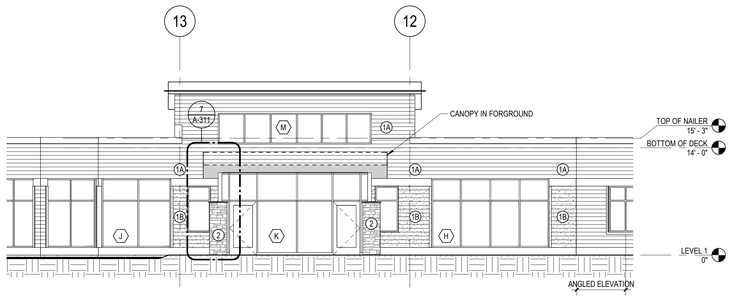


PORTLAND CITY APPROVAL
NOT TO SCALE



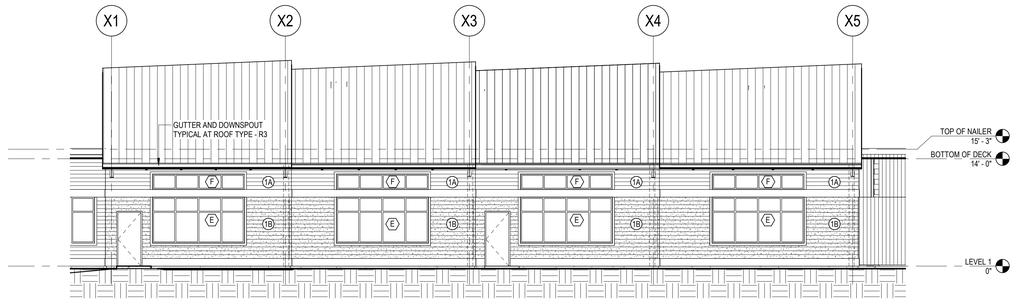
01 WEST ELEVATION AREA C

A-200 SCALE: 1/8" = 1'-0"



02 SOUTH ELEVATION AREA B

A-200 SCALE: 1/8" = 1'-0"



03 SOUTH CLASSROOM ELEVATION AREA A

A-200 SCALE: 1/8" = 1'-0"

1A FIBER CEMENT SIDING:
HARDIE BOARD
COLOR: 1A & 1B TBD

1B

2 FIBER CEMENT SIDING:
NICHIHA - KURASTONE
LEDGESTONE W/
CHISELED SILL
COLOR: TBD

3A METAL SIDING:
ATAS - RIGID WALL
COLOR: 3A & 3B TBD

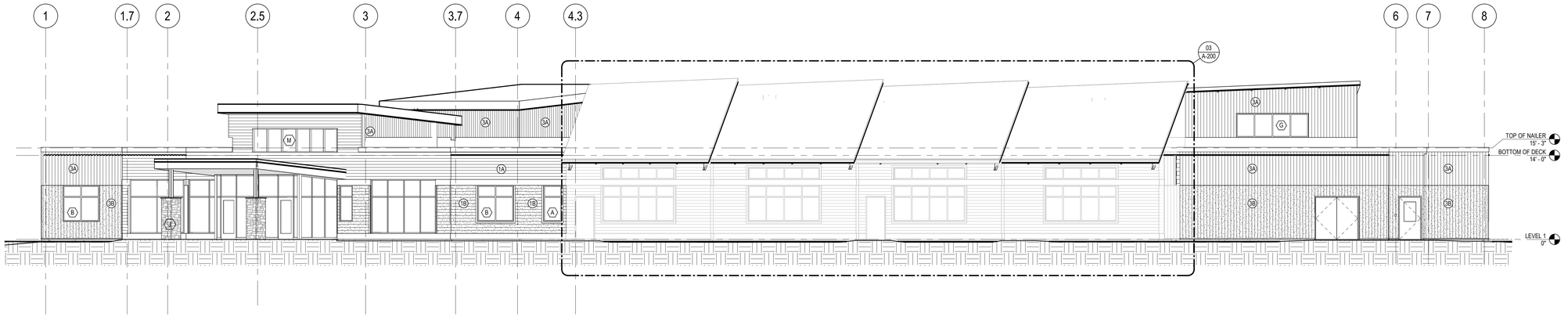
3B

4 CEMENTITIOUS TRIM
COLOR: TBD

5 PREFINISHED METAL
ROOF EDGE
COLOR: TBD

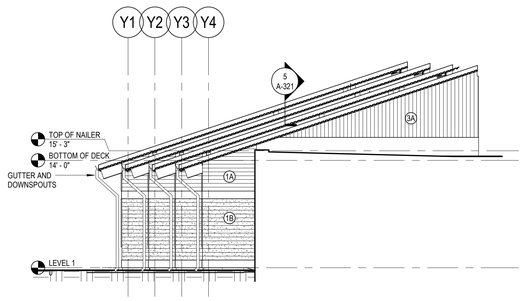
EXTERIOR MATERIAL LEGEND

SCALE: 1/8" = 1'-0"



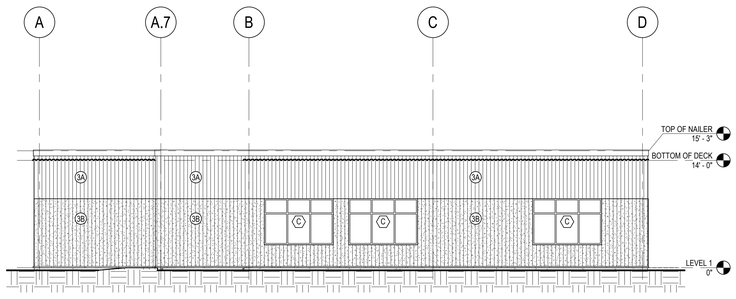
04 SOUTH ELEVATION AREA A

A-200 SCALE: 1/8" = 1'-0"



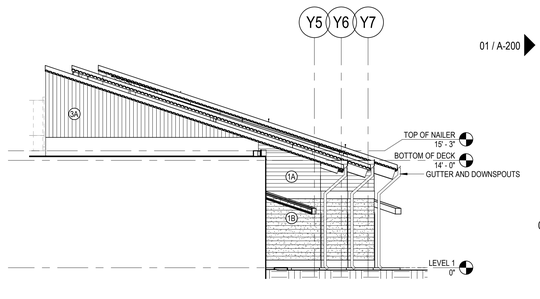
05 CLASS WING SOUTH

A-200 SCALE: 1/8" = 1'-0"



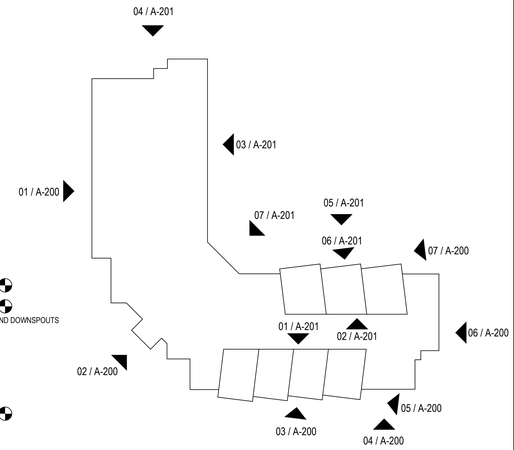
06 EAST ELEVATION AREA A

A-200 SCALE: 1/8" = 1'-0"



07 CLASS WING EAST

A-200 SCALE: 1/8" = 1'-0"



KEY PLAN

SCALE: 3" = 1'-0"

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100 ANDOVER ROAD
PORTLAND, ME

REV	DESCRIPTION	DATE
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NOT FOR CONSTRUCTION

SEAL:

PROJECT NUMBER: 2018005

DATE: November 08, 2019

SHEET TITLE AND NUMBER:

A-200

EXTERIOR ELEVATIONS



1 OVERALL FLOOR PLAN
A-100 SCALE: 3/32" = 1'-0"

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SHEET TITLE AND NUMBER:

A-100

OVERALL PLAN

PORTLAND CITY APPROVAL

ROOF PLAN LEGEND

- LOW SLOPED STEEL AREA WITH FLAT MEMBRANE ROOF TYPE - R1
- TAPERED INSULATION AREAS WITH ARROW INDICATING DRAINAGE DIRECTION - ROOF TYPE - R2
- SLOPED ROOF AREA WITH STANDING SEAM METAL ROOF TYPE - R3
- RD — ROOF DRAIN
- WALKWAY DESIGNATION - WALKWAY ROLL PROVIDED BY ROOFING MANUFACTURER

ROOF TYPE - R1 MAIN FLAT ROOF
- EPDM ROOF MEMBRANE
- 1/2" COVER BOARD
- TAPERED INSULATION FOR MIN 1/4" PER 1'-0" DRAINAGE
- 4" MIN RIGID INSULATION
- VAPOR RETARDER
- 1/2" THERMAL BARRIER
- STRUCTURAL METAL DECK

ROOF TYPE - R2 LOW SLOPE ROOF
- EPDM ROOF MEMBRANE
- 1/2" COVER BOARD
- 4" MIN INSULATION
- 1/2" THERMAL BARRIER
- STRUCTURAL METAL DECK

ROOF TYPE - R4 LOW SLOPE ROOF (NO ISULATION)
- EPDM ROOF MEMBRANE
- 1/2" COVER BOARD
- 1/2" THERMAL BARRIER
- STRUCTURAL METAL DECK

ROOF TYPE - R3 LOW SLOPE ROOF
- 2" METAL STANDING SEAM PANEL
- 4" ZEE-RIB SUPPORT CHANNELS
- #30 FELT UNDERLAYMENT
- 4" RIGID INSULATION
- VAPOR BARRIER
- 1/2" THERMAL BARRIER
- STRUCTURAL DECK

PREFINISHED ALUMINUM GUTTER AND DOWNSPOUT - COLOR TO MATCH ROOF EDGE - TYPICAL AT ALL SHED ROOF AREAS

PREFINISHED ALUMINUM GUTTER AND DOWNSPOUT - COLOR TO MATCH ROOF EDGE - TYPICAL AT ROOF TYPE - R3

ROOF EDGE SPILLOUT SCUPPER TYP EACH SIDE

ROOF EDGE SPILLOUT W/ SPLASHPADS ON LOWER ROOF

SKYLIGHT

ACCESS HATCH W/ LADDER SAFETY POST

HATCH SAFETY RAILING SYSTEM W/ SELF LATCHING GATE

MECHANICAL ROOTOP UNITS

MECHANICAL ROOTOP UNIT

WALKWAY PADDING

HIGH POINT (+5")

REF.

PROJECT ORIGIN MARKER

1 ROOF PLAN OVERALL
A-110 SCALE: 3/32" = 1'-0"

0' 2' 4' 8' 16'

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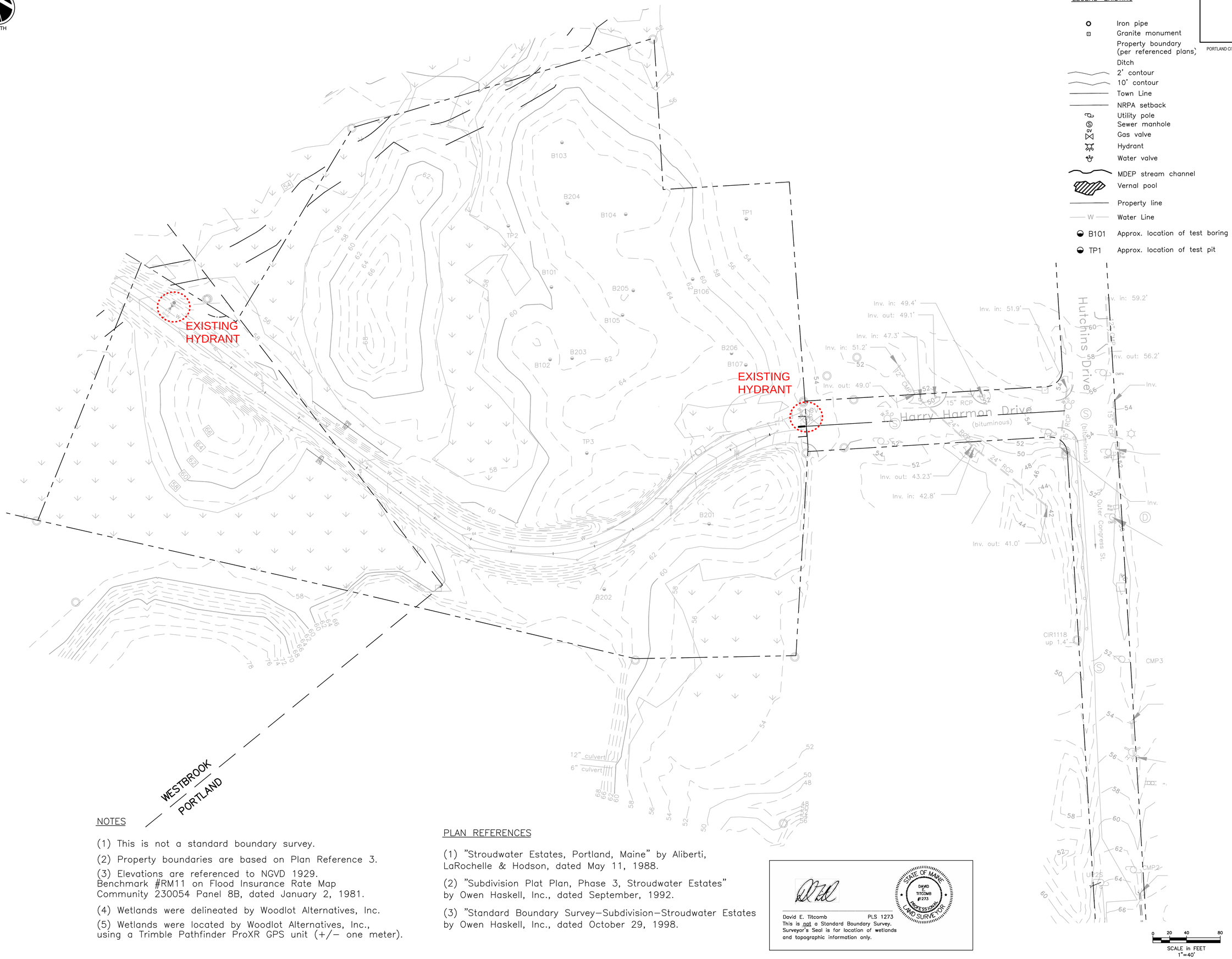
PROJECT NUMBER: 2018005
DATE: November 08, 2019

SHEET TITLE AND NUMBER:

A-110

OVERALL ROOF PLAN

NORTH



LEGEND—EXISTING

- Iron pipe
- Granite monument
- Property boundary (per referenced plans)
- Ditch
- 2' contour
- 10' contour
- Town Line
- NRPA setback
- Utility pole
- Sewer manhole
- Gas valve
- Hydrant
- Water valve
- MDEP stream channel
- Vernal pool
- Property line
- W — Water Line
- B101 Approx. location of test boring
- TP1 Approx. location of test pit

NOTES

(1) This is not a standard boundary survey.

(2) Property boundaries are based on Plan Reference 3.

(3) Elevations are referenced to NGVD 1929.
Benchmark #RM11 on Flood Insurance Rate Map
Community 230054 Panel 8B, dated January 2, 1981.

(4) Wetlands were delineated by Woodlot Alternatives, Inc.

(5) Wetlands were located by Woodlot Alternatives, Inc.,
using a Trimble Pathfinder ProXR GPS unit (+/− one meter).

PLAN REFERENCES

(1) "Stroudwater Estates, Portland, Maine" by Aliberti, LaRochelle & Hodson, dated May 11, 1988.

(2) "Subdivision Plat Plan, Phase 3, Stroudwater Estates" by Owen Haskell, Inc., dated September, 1992.

(3) "Standard Boundary Survey—Subdivision—Stroudwater Estates by Owen Haskell, Inc., dated October 29, 1998.

David E. Titcomb PLS 1273
This is not a Standard Boundary Survey.
Surveyor's Seal is for location of wetlands and topographic information only.

STATE OF MAINE · DAVID E TITCOMB #1273 · PROFESSIONAL LAND SURVEYOR

0 20 40 80
SCALE in FEET
1"=40'

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REV	DESCRIPTION	DATE
A	DEP PERMITTING	8/23/19
B	DEP REVICITY PRELIM.	10/22/19

SEAL:

PROJECT NUMBER: 181.06068

DATE: 08/22/2019

SHEET TITLE AND NUMBER:

EXISTING CONDITIONS

C-100

NORTH

WETLAND
IMPACT #
3146 SF

SNOW STORAGE

75' NRPA SETBACK

100' MIFW SETBACK

DUMPSTER 6' SOLID ENCLOSURE

FUTURE ADDITION

EOP

CONC. SIDEWALK

PATHS & PLAYGROUND (SEE L-100)

FUTURE ADDITION

MOUNTABLE CURB FOR MAINTENANCE VEHICLES (SEE DETAILS)

SLIPFORM CONCRETE CURB 6" REVEAL AROUND PARKING LOT

PROPOSED BUILDING 29,104 SF

SIDEWALK

HANDICAP RAMPS (TYP.) SEE DETAIL

GRAVEL MAINTENANCE PATH

BITUMINOUS PAVEMENT

PLANTERS (SEE L-100)

MAINE BEHAVIORAL HEALTHCARE

BIKE RACK

EXISTING HYDRANT

EXIST SIDEWALK

EXISTING HYDRANT

CONCRETE SIDEWALK WITH INTEGRAL CURB 6" REVEAL AROUND SIDEWALK.

SNOW STORAGE

SIGN

POSTED SPEED 15MPH

POSTED SPEED 25MPH

WESTBROOK
PORTLAND

Harry Harmon Drive (bituminous)

Hutchins Drive

Outer Congress St.

12" culvert

6" culvert

CIR1118 up 1.4'

CMP3

CMP2

18"CMP inv=51.8'

inv=52.6'

sign "Woodard & Curran"

18"RCP inv=61.1'

inv=63.8'

TBM Nail in CMP3 elevation = 52.45

Inv. out: 50.1'

Inv. out: 51.4'

Inv. out: 56.2'

Inv. in: 52.1'

Inv. in: 59.2'

Inv. in: 51.9'

Inv. in: 49.4'

Inv. out: 49.1'

Inv. in: 47.3'

Inv. in: 51.2'

Inv. out: 49.0'

Inv. out: 43.23'

Inv. in: 42.8'

Inv. out: 41.0'

0 20 40 80
SCALE in FEET
1"=40'

SPACE & BULK TABLE

	Required	Proposed
Lot Size	none	9.30 acres
Minimum Street Frontage	60'	60'
Front Yard Minimum [1]	27'	75'±
Rear Yard	25'	125'±
Yard Right	25'	39'
Yard Left	25'	275'±
Maximum Lot Coverage	75%	23%
Maximum Height	75'	27'
Maximum Impervious Area	75%	23%
Pavement Setback	10'	10'
Off Street Parking Spaces	71	119
Loading Bays	0	0
Discharge to Wetland	25'	25'

Building Height = 26' - 8"

[1] Measured from Andover Road

LEGEND–EXISTING

- Iron pipe
- Granite monument
- Property boundary (per referenced plans
- Ditch
- 2' contour
- 10' contour
- Town Line
- NRPA setback
- Utility pole
- Sewer manhole
- Gas valve
- Hydrant
- Water valve
- MDEP stream channel
- Property line
- W — Water Line
- B101 Approx. location of test boring
- TP1 Approx. location of test pit

PORTLAND CITY APPROVAL

ENVIRONMENTS FOR HEALTH ARCHITECTURE
163 Free Street, Portland, ME 04101
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888.781.8441

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Maine Behavioral Healthcare
MaineHealth

RANSOM
Consulting, Inc.
400 Commercial Street, Suite 404
Portland, ME 04101
Tel. (207) 772-2891
Fax (207) 772-3248
www.ransomenv.com

KEY PLAN

C
B
A

MAINE BEHAVIORAL HEALTHCARE
CENTER OF EXCELLENCE IN AUTISM AND DEVELOPMENTAL DISORDERS
100 ANDOVER ROAD
PORTLAND, ME

REV	DESCRIPTION	DATE
A	DEP PERMITTING	8/23/19
B	TWP APPLICATION	10/21/19
C	DEP REVICITY PRELIM.	10/22/19

STATE OF MAINE
MAUREEN P. McCLONE
#7705
LICENSED PROFESSIONAL ENGINEER

SEAL:

PROJECT NUMBER: 181.06068

DATE: 08/22/2019

SHEET TITLE AND NUMBER:

SITE PLAN

C-101

NORTH

LEGEND—EXISTING

- Iron pipe
- Granite monument
- Property boundary (per referenced plans
- Ditch
- 2' contour
- 10' contour
- Town Line
- NRPA setback
- Utility pole
- Sewer manhole
- Gas valve
- Hydrant
- Water valve
- MDEP stream channel
- Property line
- W — Water Line
- B101 Approx. location of test boring
- TP1 Approx. location of test pit

75' NRPA SETBACK

100' MIFW SETBACK

PROPOSED BUILDING 29,104 SF

MAINE BEHAVIORAL HEALTHCARE
FFE= 62.50

INV.=48.5± @ BLDG.

PAD MOUNTED TRANSFORMER

2" DOMESTIC SERVICE

4" FIRE SERVICE

INSTALL NEW POWER POLE. DROP DOWN TO TRANSFORMER

CLEANOUT

4' DIA. SMH
RIM=62' ±
INV. IN=57.95'
INV. OUT=57.85'

4' DIA. SMH
RIM=61.5' ±
INV. IN=57.4'
INV. OUT=57.3'

CONNECT 6" PVC SANITARY SERVICE TO EXISTING WITH INSERTA-TEE FITTING
INV.=56.9' ASSUMED
FIELD VERIFY EXISTING PIPE ELEV.

EXISTING WATER METER (TO BE RELOCATED)

RELOCATE EXISTING WATER METER PIT. COORDINATE WITH PORTLAND WATER DISTRICT.

Harry Harmon Drive (bituminous)

Hutchins Drive (bituminous)

Outer Congress St.

15" RCP

24" RCP

12" culvert

6" culvert

Inv. in: 49.4'
Inv. in: 49.1'
Inv. in: 47.3'
Inv. in: 51.2'
Inv. out: 49.0'
Inv. in: 51.9'
Inv. in: 59.2'
Inv. out: 56.2'
Inv. in: 52.1'
Inv. out: 51.4'
Inv. out: 43.23'
Inv. in: 42.8'
Inv. out: 50.1'
Inv. out: 41.0'

TBM Nail in CMP3
elevation = 52.45'

CIR1118
up 1.4'

CMP3

18"CMP
inv=51.8'

inv=52.6'

sign
"Woodard & Curran"

CMP2

18"RCP
inv=61.1'

inv=63.8'

WESTBROOK
PORTLAND

NOTES

1. INSTALL NEW METER PIT AND SERVICE LINES AS SHOWN. TEST LINES THEN CUT EXISTING LINE AND CONNECT WITH FIELD LOK RESTRAINING JOINT FITTINGS.
2. REMOVE METER AND CONTINUE DI BETWEEN MECHANICAL FITTINGS.
3. PERFORM CONNECTION TO EXISTING WATER DURING LOW DEMAND TIME PERIOD TO MINIMIZE DISRUPTION.

FOR PERMITTING ONLY

0 20 40 80
SCALE in FEET
1"=40'

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B
A

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CENTER OF EXCELLENCE IN AUTISM AND DEVELOPMENTAL DISORDERS
100 ANDOVER ROAD
PORTLAND, ME

REV	DESCRIPTION	DATE
A	DEP PERMITTING	8/23/19
B	DEP REV/CITY PRELIM.	10/22/19

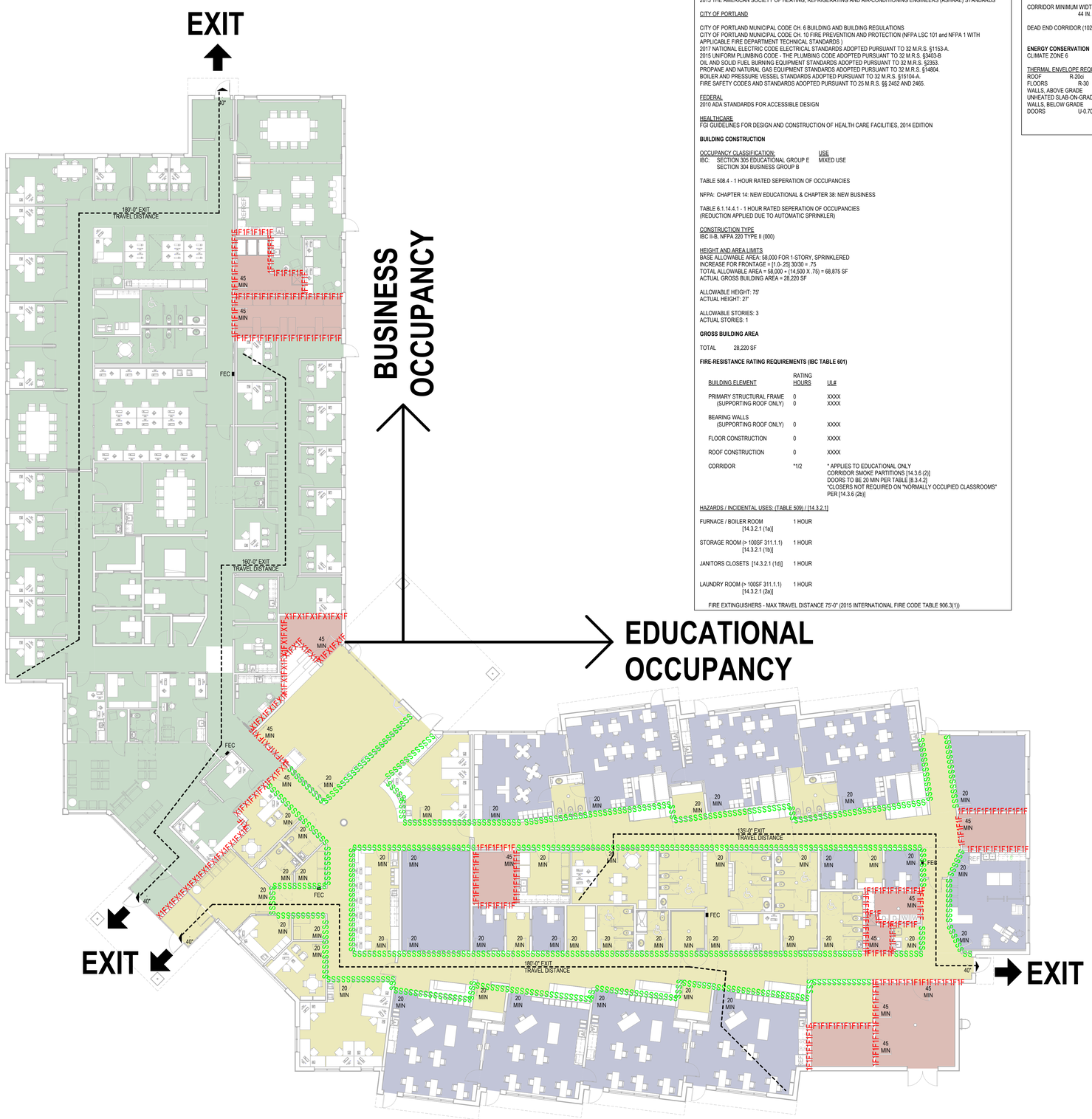
STATE OF MAINE
MAUREEN P. McGLONE
#7705
LICENSED PROFESSIONAL ENGINEER
SEAL:

PROJECT NUMBER: 181.06068
DATE: 08/22/2019

SHEET TITLE AND NUMBER:

UTILITIES

C-103



CODE SUMMARY

PROJECT DESCRIPTION:
NEW STEEL FRAMED, METAL STUD BUILDING CONSISTING OF 8 CLASSROOMS, SENSORY ROOMS, CLINICAL SPACES, OFFICES, OUTDOOR PLAY AREA AND SUPPORT SPACES. COMPLETE MECHANICAL, ELECTRICAL, PLUMBING AND FIRE PROTECTION SYSTEMS TO SERVE THE NEW BUILDING. THE BUILDING SHALL BE FURNISHED WITH A FULLY AUTOMATIC SUPERVISED FIRE-EXTINGUISHING SPRINKLER SYSTEM.

APPLICABLE CODES:

STATE OF MAINE
MAINE UNIFORM BUILDING AND ENERGY CODE "MUBEC"
2015 INTERNATIONAL BUILDING CODE (IBC)
2009 INTERNATIONAL ENERGY CONSERVATION CODE (IECC)

2013 THE AMERICAN SOCIETY OF HEATING, REFRIGERATING AND AIR-CONDITIONING ENGINEERS (ASHRAE) STANDARDS

CITY OF PORTLAND

CITY OF PORTLAND MUNICIPAL CODE CH. 6 BUILDING AND BUILDING REGULATIONS
CITY OF PORTLAND MUNICIPAL CODE CH. 10 FIRE PREVENTION AND PROTECTION (NFPA LSC 101 and NFPA 1 WITH APPLICABLE FIRE DEPARTMENT TECHNICAL STANDARDS)
2017 NATIONAL ELECTRIC CODE ELECTRICAL STANDARDS ADOPTED PURSUANT TO 32 M.R.S. §1153-A.
2015 UNIFORM PLUMBING CODE - THE PLUMBING CODE ADOPTED PURSUANT TO 32 M.R.S. §3403-B
OIL AND SOLID FUEL BURNING EQUIPMENT STANDARDS ADOPTED PURSUANT TO 32 M.R.S. §2353.
PROPANE AND NATURAL GAS EQUIPMENT STANDARDS ADOPTED PURSUANT TO 32 M.R.S. §14804.
BOILER AND PRESSURE VESSEL STANDARDS ADOPTED PURSUANT TO 32 M.R.S. §15104-A.
FIRE SAFETY CODES AND STANDARDS ADOPTED PURSUANT TO 25 M.R.S. §§ 2452 AND 2465.

FEDERAL
2010 ADA STANDARDS FOR ACCESSIBLE DESIGN

HEALTHCARE
FGI GUIDELINES FOR DESIGN AND CONSTRUCTION OF HEALTH CARE FACILITIES, 2014 EDITION

BUILDING CONSTRUCTION

OCCUPANCY CLASSIFICATION: — USE
IBC: SECTION 305 EDUCATIONAL GROUP E — MIXED USE
SECTION 304 BUSINESS GROUP B

TABLE 508.4 - 1 HOUR RATED SEPERATION OF OCCUPANCIES

NFPA: CHAPTER 14: NEW EDUCATIONAL & CHAPTER 38: NEW BUSINESS

TABLE 6.1.14.4.1 - 1 HOUR RATED SEPERATION OF OCCUPANCIES
(REDUCTION APPLIED DUE TO AUTOMATIC SPRINKLER)

CONSTRUCTION TYPE
IBC II-B, NFPA 220 TYPE II (000)

HEIGHT AND AREA LIMITS
BASE ALLOWABLE AREA: 58,000 FOR 1-STORY, SPRINKLERED
INCREASE FOR FRONTAGE = [1.0-.25] 30/30 = .75
TOTAL ALLOWABLE AREA = 58,000 + (14,500 X .75) = 68,875 SF
ACTUAL GROSS BUILDING AREA = 28,220 SF

ALLOWABLE HEIGHT: 75'
ACTUAL HEIGHT: 27'

ALLOWABLE STORIES: 3
ACTUAL STORIES: 1

GROSS BUILDING AREA

TOTAL 28,220 SF

FIRE-RESISTANCE RATING REQUIREMENTS (IBC TABLE 601)

BUILDING ELEMENT	RATING HOURS	UL#
PRIMARY STRUCTURAL FRAME	0	XXXX
(SUPPORTING ROOF ONLY)	0	XXXX
BEARING WALLS		
(SUPPORTING ROOF ONLY)	0	XXXX
FLOOR CONSTRUCTION	0	XXXX
ROOF CONSTRUCTION	0	XXXX
CORRIDOR	*1/2	* APPLIES TO EDUCATIONAL ONLY CORRIDOR SMOKE PARTITIONS [14.3.6 (2)] DOORS TO BE 20 MIN PER TABLE [8.3.4.2] *CLOSERS NOT REQUIRED ON "NORMALLY OCCUPIED CLASSROOMS" PER [14.3.6 (2b)]

HAZARDS / INCIDENTAL USES: (TABLE 509) / [14.3.2.1]

FURNACE / BOILER ROOM [14.3.2.1 (1a)]	1 HOUR
STORAGE ROOM (> 100SF 311.1.1) [14.3.2.1 (1b)]	1 HOUR
JANITORS CLOSETS [14.3.2.1 (1d)]	1 HOUR
LAUNDRY ROOM (> 100SF 311.1.1) [14.3.2.1 (2a)]	1 HOUR

FIRE EXTINGUISHERS - MAX TRAVEL DISTANCE 75'-0" (2015 INTERNATIONAL FIRE CODE TABLE 906.3(1))

CODE SUMMARY (CONT.)

EXIT ACCESS DIMENSIONS: (IBC) - [NFPA]

ASSEMBLY USE EXCEPTION (303.1.3) [14.1.3.3.1] "A SPACE USED FOR ASSEMBLY PURPOSES (UNDER GROUP E)... IS NOT CONSIDERED A SEPERATE OCCUPANCY"

DOOR MINIMUM CLEAR WIDTH (1010.1) [7.2.1.2.3.2] 32 IN.

COMMON PATH OF TRAVEL (1006.2.1) [14.2.5.3.1] 75 FT. (EDUCATIONAL)
100 FT. (BUSINESS)

EXIT TRAVEL DISTANCE (TABLE 1017.2) 200 FT. [14.2.6.3]
300 FT. (BUSINESS)

CORRIDOR MINIMUM WIDTH (TABLE 1020.2) [14.2.3.2]72 IN. (EDUCATIONAL CORRIDORS WITH OCC LOAD OF 100 OR MORE)
44 IN. (BUSINESS)

DEAD END CORRIDOR (1020.4) [14.2.5.2] 50 FT. (EDUCATIONAL & BUSINESS)

ENERGY CONSERVATION
CLIMATE ZONE 6

THERMAL ENVELOPE REQUIREMENTS:
ROOF R-20ci
FLOORS R-30
WALLS, ABOVE GRADE R-13 + R-7.5ci
UNHEATED SLAB-ON-GRADE R-10 FOR 24 IN. BELOW
WALLS, BELOW GRADE R-7.5ci
DOORS U-0.70

LIFE SAFETY LEGEND

- NON-RATED WALL
- SSSSSSSS — SMOKE PARTITION
- X1FX1FX1F — 1-HOUR FIRE-RATED WALL
- 1FS1FS1FS — 1-HOUR FIRE-RATED SMOKE BARRIER
- 2F 2F 2F 2F — 2-HOUR FIRE-RATED WALL
- SMOKE COMPARTMENT
- xx' — EXIT ACCESS TRAVEL DISTANCE
- xx' — TRAVEL DISTANCE TO SMOKE COMPARTMENT DOOR
- xx' — SUITE EXIT TRAVEL DISTANCE
- xx' — DEAD END CORRIDOR
- SUITE
- A 44" — EXIT #, WIDTH IN INCHES
- 45 — FIRE-RATING OF DOOR, IN MINUTES
- S — CORRIDOR DOORS, SMOKE-RESISTANT
- MHO — MAGNETIC HOLD-OPEN
- FEC — FIRE EXTINGUISHER & CABINET
- FE — FIRE EXTINGUISHER
- FHC — FIRE HOSE CABINET
- EXIT SIGN
- OCFS — OVERHEAD COILING FIRE SHUTTER
- OCSS — OVERHEAD COILING SMOKE SHUTTER
- SP — STANDPIPE
- HAZARDOUS AREA

EXITS

EXIT	WIDTH (INCHES)
LEVEL 1	
-	160
	160

OCCUPANT LOAD CALCULATIONS

AREA	OCCUPANT LOAD FACTOR	OCCUPANT LOAD	REQ. EXIT WIDTH / OCC	TOTAL REQ. EXIT WIDTH (INCHES)
BUSINESS				
10562 SF	100 SF	137	0.2	27.4
CLASSROOM				
5488 SF	20 SF	282	0.2	56.4
EDUCATIONAL				
7998 SF	100 SF	100	0.2	20.0
STORAGE				
1397 SF	200 SF	11	0.2	2.2
25444 SF		530		106.0

1 **LIFE SAFETY PLAN**
A-001 SCALE: 3/32" = 1'-0"

0' 2' 4' 8' 16'

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Maine Behavioral Healthcare
MaineHealth

KEY PLAN

MAINE BEHAVIORAL HEALTHCARE CENTER OF EXCELLENCE IN AUTISM AND DEVELOPMENTAL DISORDERS
100 ANDOVER ROAD
PORTLAND, ME

REV	DESCRIPTION	DATE
	DD PRICING	08/16/19

NOT FOR CONSTRUCTION

SEAL:

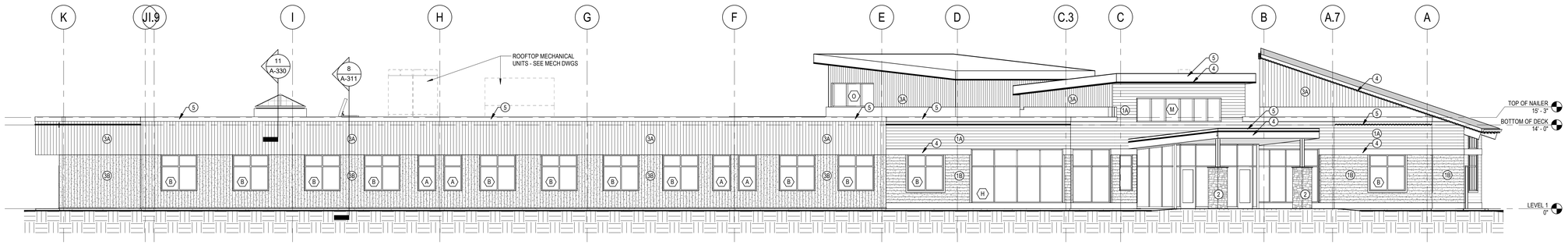
PROJECT NUMBER: 2018005

DATE: August 16, 2019

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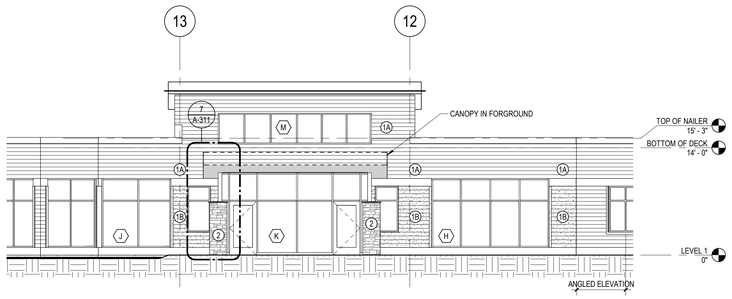
A-001

LIFE SAFETY PLAN



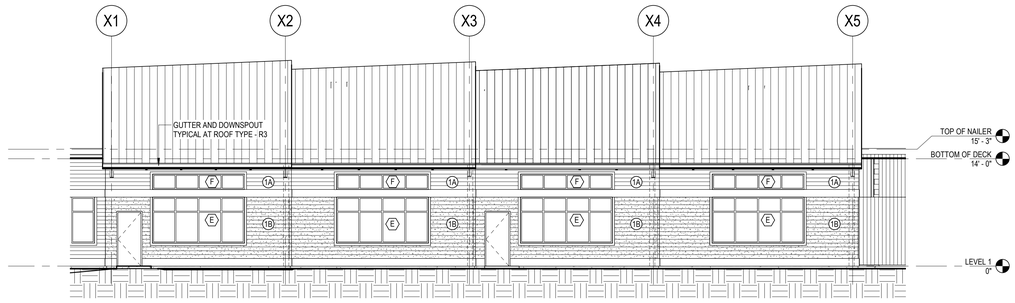
01 WEST ELEVATION AREA C

A-200 SCALE: 1/8" = 1'-0"



02 SOUTH ELEVATION AREA B

A-200 SCALE: 1/8" = 1'-0"



03 SOUTH CLASSROOM ELEVATION AREA A

A-200 SCALE: 1/8" = 1'-0"

1A FIBER CEMENT SIDING:
HARDIE BOARD
COLOR: 1A & 1B TBD

1B

2 FIBER CEMENT SIDING:
NICHIHA - KURASTONE
LEDGESTONE W/
CHISELED SILL
COLOR: TBD

3A METAL SIDING:
ATAS - RIGID WALL
COLOR: 3A & 3B TBD

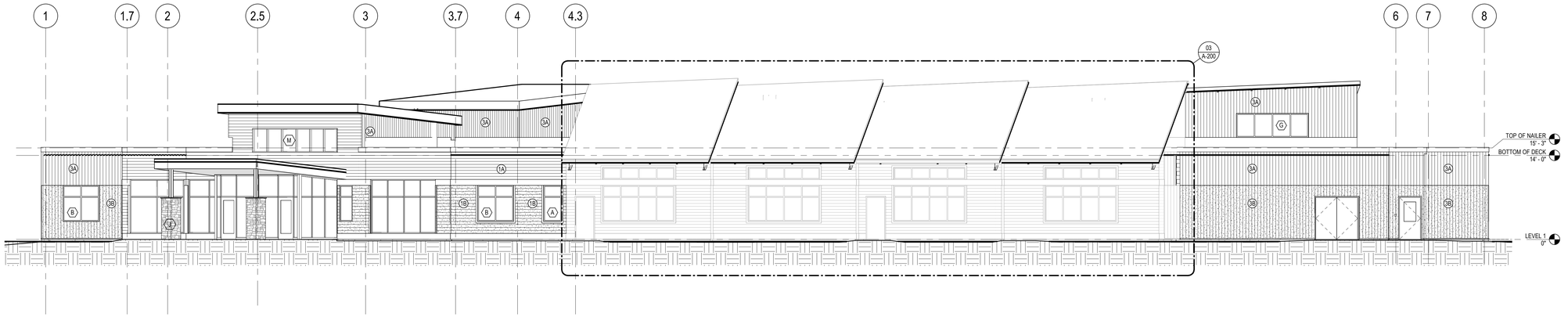
3B

4 CEMENTITIOUS TRIM
COLOR: TBD

5 PREFINISHED METAL
ROOF EDGE
COLOR: TBD

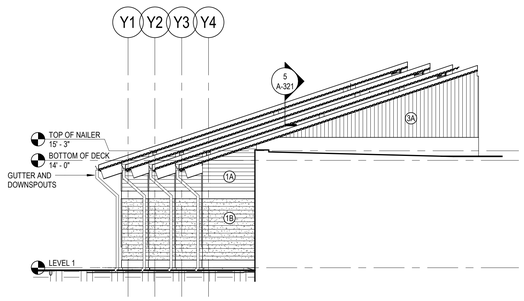
EXTERIOR MATERIAL LEGEND

SCALE: 1/8" = 1'-0"



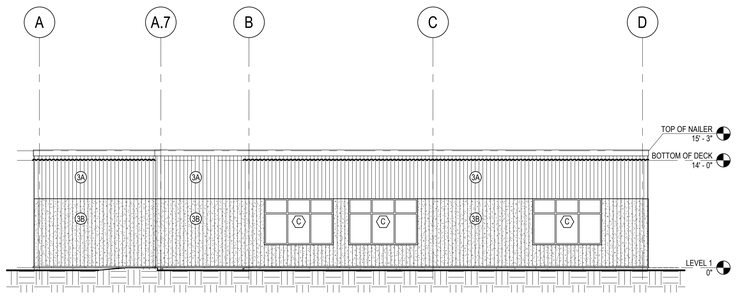
04 SOUTH ELEVATION AREA A

A-200 SCALE: 1/8" = 1'-0"



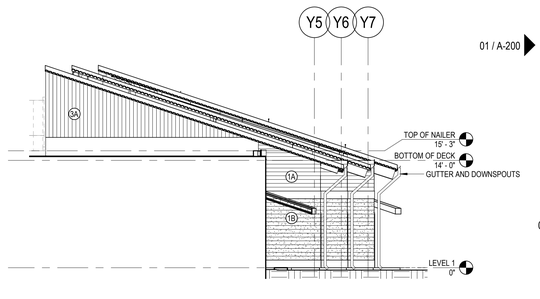
05 CLASS WING SOUTH

A-200 SCALE: 1/8" = 1'-0"



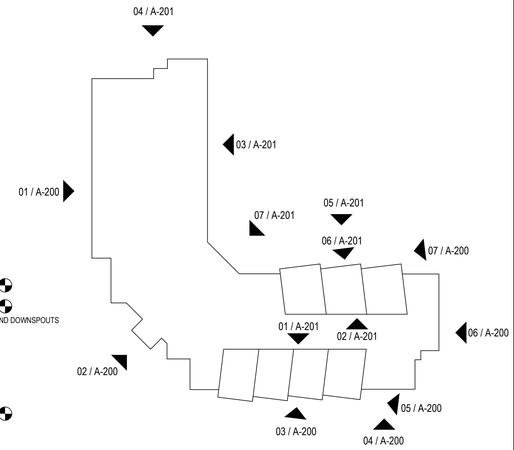
06 EAST ELEVATION AREA A

A-200 SCALE: 1/8" = 1'-0"



07 CLASS WING EAST

A-200 SCALE: 1/8" = 1'-0"



KEY PLAN

SCALE: 3" = 1'-0"

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PORTLAND, ME

REV	DESCRIPTION	DATE
	DD PRICING	08/16/19
	90% CD OWNER REVIEW	11/20/19

NOT FOR CONSTRUCTION

SEAL:

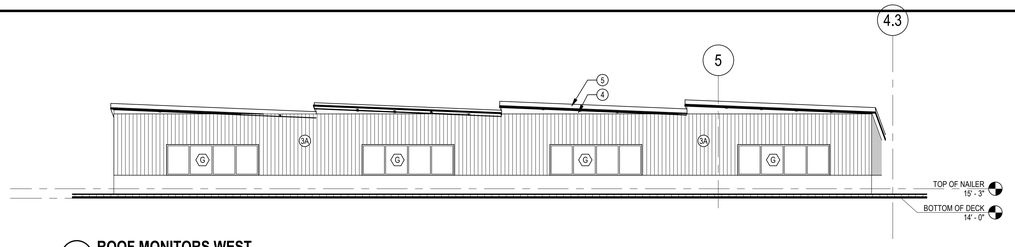
PROJECT NUMBER: 2018005

DATE: November 08, 2019

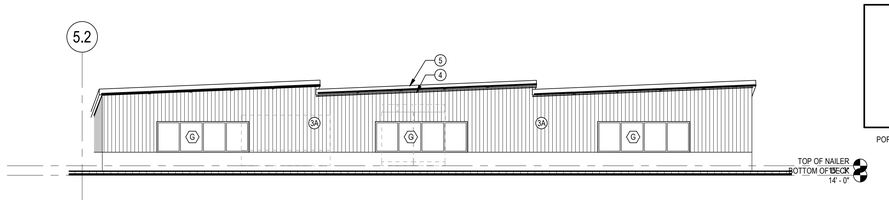
SHEET TITLE AND NUMBER:

A-200

EXTERIOR ELEVATIONS

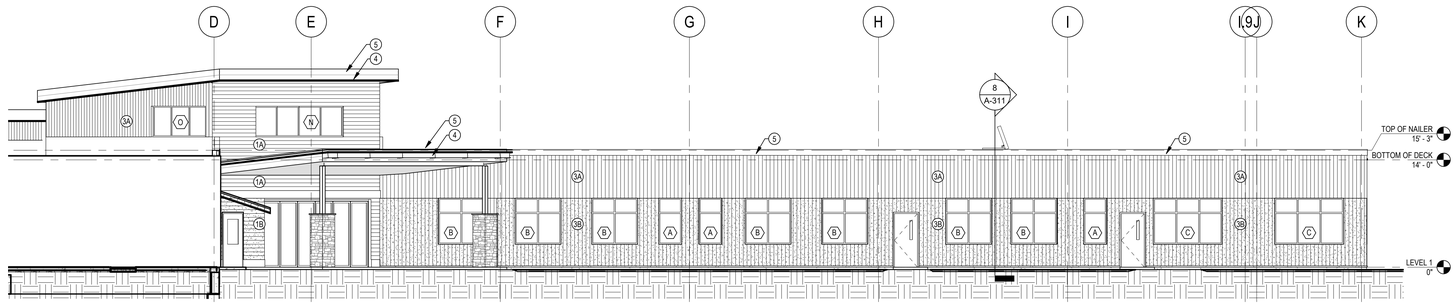


01 ROOF MONITORS WEST
A-201 SCALE: 1/8" = 1'-0"

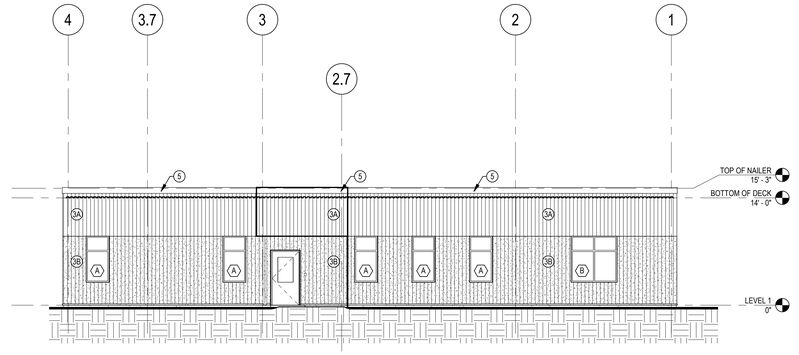


02 ROOF MONITORS EAST
A-201 SCALE: 1/8" = 1'-0"

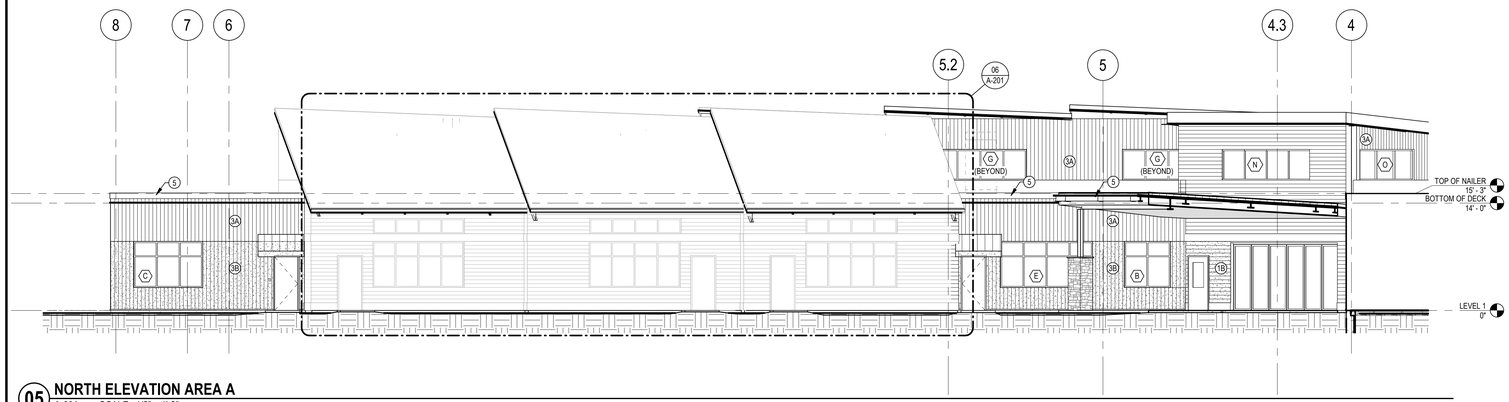
PORTLAND CITY APPROVAL



03 EAST ELEVATION AREA C
A-201 SCALE: 1/8" = 1'-0"



04 NORTH ELEVATION AREA C
A-201 SCALE: 1/8" = 1'-0"



05 NORTH ELEVATION AREA A
A-201 SCALE: 1/8" = 1'-0"

1A FIBER CEMENT SIDING:
HARDIE BOARD
COLOR: 1A & 1B TBD

1B

2 FIBER CEMENT SIDING:
NICHIHA - KURASTONE
LEDGESTONE W/
CHISELED SILL
COLOR: TBD

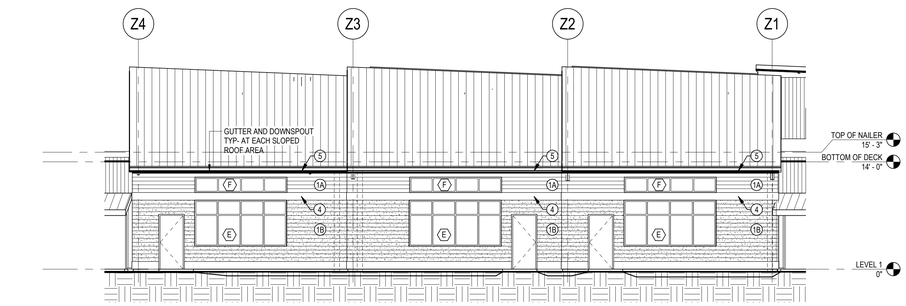
3A METAL SIDING:
ATAS - RIGID WALL
COLOR: 3A & 3B TBD

3B

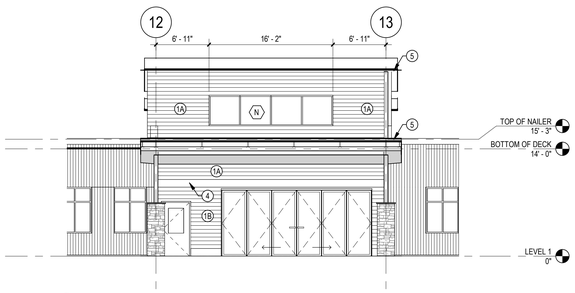
4 CEMENTITIOUS TRIM
COLOR: TBD

5 PREFINISHED METAL
ROOF EDGE
COLOR: TBD

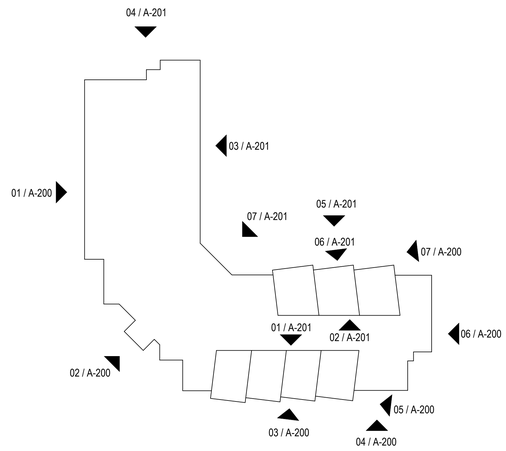
EXTERIOR MATERIAL LEGEND
SCALE: 1/8" = 1'-0"



06 NORTH CLASSROOM ELEVATION AREA A
A-201 SCALE: 1/8" = 1'-0"



07 NORTH ELEVATION AREA B
A-201 SCALE: 1/8" = 1'-0"



KEY PLAN
SCALE: 3" = 1'-0"

0' 2' 4' 8' 16'

ENVIRONMENTS FOR HEALTH ARCHITECTURE
e4h
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Maine Behavioral Healthcare
MaineHealth



KEY PLAN

MAINE BEHAVIORAL HEALTHCARE CENTER OF EXCELLENCE IN AUTISM AND DEVELOPMENTAL DISORDERS
100 ANDOVER ROAD
PORTLAND, ME

REV	DESCRIPTION	DATE
	DD PRICING	08/16/19
	90% CD OWNER REVIEW	11/20/19

NOT FOR CONSTRUCTION

SEAL:

PROJECT NUMBER: 2018005
DATE: November 08, 2019

SHEET TITLE AND NUMBER:

A-201

EXTERIOR ELEVATIONS

EROSION CONTROL NOTES

EROSION CONTROL MEASURES AND SITE STABILIZATION

THE PRIMARY EMPHASIS OF THE EROSION AND SEDIMENT CONTROL PLAN IS AS FOLLOWS:

- RAPID VEGETATION OF EXPOSED AREAS TO MINIMIZE THE PERIOD OF SOIL EXPOSURE.
- RAPID STABILIZATION OF DRAINAGE PATHS TO AVOID CHANNEL EROSION.
- THE USE OF ON-SITE MEASURES TO CAPTURE SEDIMENT (HAY BALES, STONE CHECK DAMS, SILT FENCE, SILT SAC, PLUNGE POOL, ETC.)
- DEVELOPMENT OF A CAREFUL CONSTRUCTION SEQUENCE.

THE FOLLOWING TEMPORARY AND PERMANENT EROSION AND SEDIMENT CONTROL DEVICES WILL BE IMPLEMENTED AS PART OF THE SITE DEVELOPMENT. THESE DEVICES SHALL BE INSTALLED AS INDICATED ON THE PLANS OR AS DESCRIBED WITHIN THIS REPORT. FOR FURTHER REFERENCE, SEE THE MAINE EROSION AND SEDIMENT CONTROL BMPs, MARCH 2003.

TEMPORARY EROSION CONTROL MEASURES

THE FOLLOWING MEASURES ARE PLANNED AS TEMPORARY EROSION & SEDIMENTATION CONTROL MEASURES DURING CONSTRUCTION. THESE TEMPORARY EROSION CONTROL MEASURES SHOULD BE REMOVED WITHIN 30 DAYS AFTER PERMANENT STABILIZATION HAS BEEN ESTABLISHED.

1. CRUSHED STONE–STABILIZED CONSTRUCTION ENTRANCES SHALL BE PLACED AT SITE ENTRANCES.

2. SILTATION FENCE OR WOOD WASTE COMPOST BERMS (EROSION CONTROL BERM) SHALL BE INSTALLED DOWNSTREAM OF ANY DISTURBED AREAS TO TRAP RUNOFF BORNE SEDIMENTS UNTIL THE TRIBUTARY AREAS ARE VEGETATED. THE SILT FENCE AND/OR THE EROSION CONTROL BERMS SHALL BE INSTALLED PER THE DETAILS PROVIDED AND INSPECTED REGULARLY, INCLUDING BEFORE AND AFTER A STORM EVENT OF 0.5 INCHES OR GREATER. REPAIRS SHALL BE MADE IF THERE ARE ANY SIGNS OF EROSION OR SEDIMENTATION BELOW THE FENCE OR BERM LINE. IF THERE ARE SIGNS OF UNDERCUTTING AT THE CENTER OR THE EDGES, OR IMPOUNDING OF LARGE VOLUMES OF WATER BEHIND FENCE OR BERM, THE BARRIER SHALL BE REPLACED WITH A STONE CHECK DAM.

3. STRAW, HAY MULCH AND HYDROSEEDING IS INTENDED TO PROVIDE COVER FOR BARE OR SEEDED AREAS UNTIL VEGETATION IS ESTABLISHED AND SHOULD BE APPLIED WITHIN 7 DAYS AT A RATE OF 90 POUNDS PER 1,000 SQUARE FEET. MULCH PLACED BETWEEN APRIL 15TH AND SEPEMBER 30TH (ON SLOPES OF LESS THEN 15%) SHALL BE ANCHORED BY APPLYING WATER. MULCH PLACED ON SLOPES OF EQUAL TO OR STEEPER THAN 15% SHALL BE COVERED BY FABRIC NETTING AND ANCHORED WITH STAPLES IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION. SLOPES STEEPER THAN 3:1 SHALL RECEIVE EROSION CONTROL BLANKETS.

4. STOCKPILES SHALL BE STABILIZED WITHIN SEVEN DAYS BY EITHER TEMPORARILY SEEDING THE STOCKPILE BY A HYDROSEED METHOD CONTAINING AN EMULSIFIED MULCH TACKIER OR BY COVERING WITH A SUITABLE MULCH, SUCH AS SHREDDED HAY, STRAW, OR EROSION CONTROL MIX. STOCKPILES SHALL BE SURROUNDED BY SEDIMENTATION BARRIERS AT THE TIME OF FORMATION.

5. STATE AND LOCAL ROADS SHALL BE SWEPT TO CONTROL MUD AND DUST AS NECESSARY. ADDITIONAL STONE SHALL BE ADDED TO THE STABILIZED CONSTRUCTION ENTRANCE TO MINIMIZE THE TRACKING OF MATERIAL OFF THE SITE AND ONTO THE SURROUNDING ROADWAYS.

6. DURING GRUBBING OPERATIONS STONE CHECK DAMS SHALL BE INSTALLED AT ANY EVIDENT CONCENTRATED FLOW DISCHARGE POINTS AND AS DIRECTED ON THE EROSION CONTROL PLANS.

7. SILT FENCE HAS A MINIMUM STAKE SPACING OF 6 FEET, UNLESS THE FENCE IS SUPPORTED BY WIRE FENCE REINFORCEMENT (MINIMUM 14 GAUGE AND WITH A MAXIMUM MESH SPACING OF 6 INCHES), IN WHICH CASE STAKES MAY BE SPACED A MAXIMUM OF 10 FEET APART. THE BOTTOM OF THE FENCE MUST BE ANCHORED. SEE DETAIL ON PLAN SET.

8. STORM DRAIN CATCH BASIN INLET PROTECTION SHALL BE PROVIDED THROUGH THE USE OF STONE SEDIMENT BARRIERS OR APPROVED SEDIMENT BAGS (SUCH AS SILT SACK). INSTALLATION DETAILS ARE PROVIDED IN THE PLAN SET. THE BARRIERS SHALL BE INSPECTED AFTER EACH RAINFALL AND REPAIRS MADE AS NECESSARY. SEDIMENT SHALL BE REMOVED AND THE BARRIER RESTORED TO ITS ORIGINAL DIMENSIONS WHEN THE SEDIMENT HAS ACCUMULATED TO HALF THE DESIGN DEPTH OF THE BARRIER. THE BARRIER SHALL BE REMOVED WHEN THE TRIBUTARY DRAINAGE AREA HAS BEEN STABILIZED.

9. WATER AND/OR CALCIUM CHLORIDE SHALL BE FURNISHED AND APPLIED IN ACCORDANCE WITH MDOT SPECIFICATIONS–SECTION 637–DUST CONTROL.

10. LOAM AND SEED IS INTENDED TO SERVE AS THE PRIMARY PERMANENT VEGETATIVE MEASURE FOR ALL BARE AREAS NOT PROVIDED WITH OTHER EROSION CONTROL MEASURES, SUCH AS RIPRAP.

11. WATER FROM CONSTRUCTION TRENCH DEWATERING OR TEMPORARY STREAM DIVERSION SHALL PASS FIRST THROUGH A FILTER BAG OR SECONDARY CONTAINMENT STRUCTURE (e.g. HAYBALE LINED POOL) PRIOR TO DISCHARGE. THE DISCHARGE SITE SHALL BE SELECTED TO AVOID FLOODING, ICING AND SEDIMENT DISCHARGES TO A PROTECTED RESOURCE. IN NO CASE SHALL THE FILTER BAG OR CONTAINMENT STRUCTURE BE LOCATED WITHIN 75 FEET OF A PROTECTED NATURAL RESOURCE.

PERMANENT EROSION CONTROL MEASURES

THE FOLLOWING PERMANENT EROSION CONTROL MEASURES HAVE BEEN DESIGNED AS PART OF THE EROSION/SEDIMENTATION CONTROL PLAN:

12. ALL AREAS DISTURBED DURING CONSTRUCTION, BUT NOT SUBJECT TO OTHER RESTORATION (PAVING, RIPRAP, ETC.) WILL BE LOAMED, LIMED, FERTILIZED, MULCHED AND SEEDED. ALL EXPOSED SOIL WHICH WILL REMAIN FOR 1 YEAR AFTER COMPLETION OF CONSTRUCTION SHALL BE MULCHED USING EROSION CONTROL MIX AS SPECIFIED IN MAINE DOT SECTION 619 OR SHALL BE LOAMED AND SEEDED.

13. CATCH BASINS SHALL BE PROVIDED WITH SEDIMENT SUMPS AND INLET HOODS FOR ALL OUTLET PIPES THAT ARE 18" IN DIAMETER OR LESS.

IMPLEMENTATION SCHEDULE

THE FOLLOWING CONSTRUCTION SEQUENCE SHALL BE REQUIRED TO INSURE THE EFFECTIVENESS OF THE EROSION AND SEDIMENTATION CONTROL MEASURES ARE OPTIMIZED:
NOTE: FOR ALL GRADING ACTIVITIES, THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION NOT TO OVEREXPOSE THE SITE BY LIMITING THE DISTURBED AREA. THE CONSTRUCTION OF BMPs SHOULD EITHER BE PERFORMED AFTER THE TRIBUTARY AREA IS STABILIZED OR TEMPORARY EROSION CONTROL MEASURES NEED TO BE IMPLEMENTED TO PROTECT THE BMPs FROM BEING CLOGGED WITH CONSTRUCTION SEDIMENT.

14. INSTALL CRUSHED STONE TO STABILIZED CONSTRUCTION ENTRANCES.

15. INSTALL PERIMETER SILT FENCE.

16. CLEAR AND GRUB SITE WITHIN THE SPECIFIED CLEARING LIMITS.

17. COMMENCE INSTALLATION OF DRAINAGE INFRASTRUCTURE.

18. COMMENCE EARTHWORK AND GRADING TO SUBGRADE.

19. COMMENCE STORM WATER BMPs CONSTRUCTION.

20. COMMENCE INSTALLATION OF ELECTRICAL SERVICE.

21. COMMENCE INSTALLATION OF WATER AND SEWER INFRASTRUCTURE.

22. CONTINUE EARTHWORK AND GRADING TO SUBGRADE AS NECESSARY FOR CONSTRUCTION.

23. COMPLETE INSTALLATION OF UNDERGROUND UTILITIES TO WITHIN 5' OF THE BUILDINGS.

24. INSTALL LIGHT POLE FOUNDATIONS AND UTILITY POLES.

25. COMPLETE REMAINING EARTHWORK OPERATIONS.

26. COMPLETE INSTALLATION OF DRAINAGE INFRASTRUCTURE.

27. INSTALL SUBBASE AND BASE GRAVEL WITHIN PROPOSED ROADWAYS AND PARKING LOTS.

28. INSTALL CURBING AS NEEDED/REQUIRED.

29. INSTALL BASE COURSE PAVING FOR ACCESS DRIVE AND PARKING AREA AS WELL AS CONCRETE SURFACES.

30. LOAM, LIME, FERTILIZE, SEED AND MULCH DISTURBED AREAS AND COMPLETE ALL LANDSCAPING.

31. INSTALL SURFACE COURSE PAVING FOR ACCESS DRIVE AND PARKING AREAS.

32. ONCE THE SITE IS STABILIZED AND A 90% CATCH OF VEGETATION HAS BEEN OBTAINED, REMOVE ALL TEMPORARY EROSION CONTROL MEASURES.

IMPLEMENTATION SCHEDULE (CONTINUED)

33. TOUCH UP LOAM AND SEED.

NOTE: ALL BARE AREAS NOT SUBJECT TO FINAL PAVING, RIPRAP OR GRAVEL, SHALL BE VEGETATED.

PRIOR TO CONSTRUCTION OF THE PROJECT, THE CONTRACTOR SHALL SUBMIT TO THE OWNER A SCHEDULE FOR THE COMPLETION OF THE WORK, WHICH WILL SATISFY THE ABOVE CONSTRUCTION SEQUENCE IN THE SPECIFIED ORDER. HOWEVER, SEVERAL SEPARATE ITEMS MAY BE CONSTRUCTED SIMULTANEOUSLY. WORK MUST ALSO BE SCHEDULED OR PHASED TO REDUCE THE EXTENT OF THE EXPOSED AREAS AS SPECIFIED BELOW. THE INTENT OF THIS SEQUENCE IS TO PROVIDE FOR EROSION CONTROL AND TO HAVE STRUCTURAL MEASURES SUCH AS SILT FENCE AND CONSTRUCTION ENTRANCES IN PLACE BEFORE LARGE AREAS OF LAND ARE STRIPPED.

EROSION, SEDIMENTATION AND STABILIZATION CONTROL PLAN

THE EROSION CONTROL PLAN IS INCLUDED IN THE PLAN SET.

WINTER STABILIZATION PLAN

THE WINTER CONSTRUCTION PERIOD IS FROM NOVEMBER 1 THROUGH APRIL 15. IF THE CONSTRUCTION SITE IS NOT STABILIZED WITH PAVEMENT, A ROAD GRAVEL BASE, 75% MATURE VEGETATION COVER OR RIPRAP BY NOVEMBER 15TH, THEN THE SITE SHALL BE PROTECTED WITH OVER–WINTER STABILIZATION.

WINTER EXCAVATION AND EARTHWORK SHALL BE COMPLETED SUCH THAT ANY AREAS LEFT EXPOSED CAN BE CONTROLLED BY THE CONTRACTOR. EXPOSED AREAS SHALL BE LIMITED TO THOSE AREAS IN WHICH WORK IS EXPECTED TO COMMENCE AND COMPLETE IN THE NEXT FIFTEEN (15) DAYS AND THAT CAN BE MULCHED WITHIN ONE DAY PRIOR TO ANY SNOW EVENT.

ALL AREAS SHALL BE CONSIDERED TO BE BARE UNTIL THE SUBBASE GRAVEL IS INSTALLED WITHIN PAVEMENT/BUILDING AREAS OR THE AREAS HAVE BEEN LOAMED, SEEDED AND MULCHED. HAY AND STRAW MULCH RATE SHALL BE A MINIMUM OF 150 POUNDS PER 1,000 SQUARE FEET (3 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED.

THE CONTRACTOR SHALL INSTALL ANY ADDED MEASURES, WHICH MAY BE NECESSARY TO CONTROL EROSION/SEDIMENTATION FROM THE SITE DEPENDENT UPON THE ACTUAL SITE AND WEATHER CONDITIONS. CONTINUATION OF EARTHWORK OPERATIONS ON ADDITIONAL AREAS SHALL NOT BEGIN UNTIL THE EXPOSED SOIL SURFACE OF THE AREA BEING WORKED HAS BEEN STABILIZED, IN ORDER TO MINIMIZE AREAS WITHOUT EROSION CONTROL PROTECTION.

34. SOIL STOCKPILES
STOCKPILES OF SOIL OR SUBSOIL SHALL BE MULCHED FOR OVER WINTER PROTECTION WITH HAY OR STRAW AT TWICE THE NORMAL RATE (NO 150 LBS./1,000 SF (3 TONS PER ACRE) OR WITH A FOUR–INCH LAYER OF WOODWASTE EROSION CONTROL MIX. THIS SHALL BE DONE WITHIN 24 HOURS OF STOCKING AND RE–ESTABLISHED PRIOR TO ANY RAINFALL OR SNOWFALL. ANY SOIL STOCKPILE SHALL NOT BE PLACED (EVEN COVERED WITH HAY OR STRAW) WITHIN 100 FEET FROM ANY NATURAL RESOURCES.

35. NATURAL RESOURCE PROTECTION
ANY AREAS WITHIN 75 FEET FROM ANY NATURAL RESOURCES, IF NOT STABILIZED WITH A MINIMUM OF 90% MATURE VEGETATION CATCH, SHALL BE MULCHED BY DECEMBER 1ST AND ANCHORED WITH PLASTIC NETTING OR PROTECTED WITH EROSION CONTROL MATS. DURING WINTER CONSTRUCTION, A DOUBLE LINE OF SEDIMENT BARRIERS (I.E. SILT FENCE BUCKED WITH HAY BALES OR EROSION CONTROL MIX) SHALL BE PLACED BETWEEN ANY NATURAL RESOURCE AND THE DISTURBED AREA. PROJECTS CROSSING THE NATURAL RESOURCE SHALL BE PROTECTED A MINIMUM DISTANCE OF 75 FEET ON EITHER SIDE FROM THE RESOURCE. EXISTING PROJECTS NOT STABILIZED BY DECEMBER 1ST SHALL BE PROTECTED WITH THE SECOND LINE OF SEDIMENT BARRIER TO ENSURE FUNCTIONALITY DURING THE SPRING THAW AND RAINS.

36. SEDIMENT BARRIERS
DURING FROZEN CONDITIONS, SEDIMENT BARRIERS SHALL CONSIST OF WOODWASTE FILTER BERMS AS FROZEN SOIL PREVENTS THE PROPER INSTALLATION OF HAY BALES AND SEDIMENT SILT FENCES.

37. MULCHING
AN AREA SHALL BE CONSIDERED BARE UNTIL AREAS OF FUTURE LOAM AND SEED HAVE BEEN LOAMED, SEEDED AND MULCHED. HAY AND STRAW MULCH SHALL BE APPLIED AT A RATE OF 150 LBS. PER 1,000 SQUARE FEET OR 3 TONS/ACRE (TWICE THE NORMAL ACCEPTED RATE OF 75 LBS. PER 1,000 S.F. OR 1.5 TONS/ACRE) AND SHALL BE PROPERLY ANCHORED. MULCH SHALL NOT BE SPREAD ON TOP OF SNOW. THE SNOW SHALL BE REMOVED DOWN TO A ONE INCH DEPTH OR LESS PRIOR TO APPLICATION. AFTER EACH DAY OF FINAL GRADING, THE AREA SHALL BE PROPERLY STABILIZED WITH ANCHORED HAY OR STRAW OR EROSION CONTROL MATTING. AN AREA SHALL BE CONSIDERED TO HAVE BEEN EITHER MULCHED WITH STRAW OR HAY AT A RATE OF 150 LBS. PER 1,000 S.F. (3 TONS/ACRE) AND ADEQUATELY ANCHORED THAT GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH.

BETWEEN THE DATES OF NOVEMBER 1ST AND APRIL 15TH ALL MULCH SHALL BE ANCHORED BY PEG LINE, MULCH NETTING, TRACKING OR WOOD CELLULOSE FIBER. WHEN GROUND SURFACE IS NOT VISIBLE THROUGH THE MULCH THEN COVER IS SUFFICIENT. AFTER NOVEMBER 1ST, MULCH AND ANCHORING OF ALL BARE SOIL SHALL OCCUR AT THE END OF EACH FINAL GRADING WORKDAY.

38. MULCHING ON SLOPES AND DITCHES
SLOPES SHALL NOT BE LEFT EXPOSED FOR ANY EXTENDED TIME OF WORK SUSPENSION UNLESS FULLY MULCHED AND ANCHORED WITH PEG AND NETTING OR WITH EROSION CONTROL BLANKETS. MULCHING SHALL BE APPLIED AT A RATE OF 230 LBS./1,000 S.F. ON ALL SLOPES GREATER THAN 8%.

MULCH NETTING SHALL BE USED TO ANCHOR MULCH IN ALL DRAINAGE WAYS WITH A SLOPE GREATER THAN 3% FOR SLOPES EXPOSED TO DIRECT WINDS AND FOR ALL OTHER SLOPES GREATER THAN 8%. EROSION CONTROL BLANKETS SHALL BE USED IN LIEU OF MULCH IN ALL DRAINAGE WAYS WITH SLOPES GREATER THAN 8%. EROSION CONTROL MIX CAN BE USED TO SUBSTITUTE EROSION CONTROL BLANKETS ON ALL SLOPES EXCEPT DITCHES.

39. SEEDING
BETWEEN THE DATES OF OCTOBER 15TH AND APRIL 1ST, LOAM OR SEED WILL NOT BE REQUIRED. DURING PERIODS OF ABOVE FREEZING TEMPERATURES, FINISHED AREAS SHALL BE FINE GRADED AND EITHER PROTECTED WITH MULCH OR TEMPORARILY SEEDED AND MULCHED UNTIL SUCH TIME AS THE FINAL TREATMENT CAN BE APPLIED. IF THE DATE IS AFTER NOVEMBER 1ST AND IF THE EXPOSED AREA HAS BEEN LOAMED, FINAL GRADED WITH A UNIFORM SURFACE, THEN THE AREA MAY BE DORMANT SEEDED AT A RATE OF THREE TIMES HIGHER THAN SPECIFIED FOR PERMANENT SEED AND THEN MULCHED. DORMANT SEEDING MAY BE SELECTED TO BE PLACED PRIOR TO THE PLACEMENT OF MULCH AND FABRIC NETTING ANCHORED WITH STAPLES. IF DORMANT SEEDING IS USED FOR THE SITE, ALL DISTURBED AREAS SHALL RECEIVE 4" OF LOAM AND SEED AT AN APPLICATION RATE OF 5 LBS./1,000 S.F.

ALL AREAS SEEDED DURING THE WINTER SHALL BE INSPECTED IN THE SPRING FOR ADEQUATE CATCH. ALL AREAS INSUFFICIENTLY VEGETATED (LESS THAN 90% CATCH) SHALL BE REVEGETATED BY REPLACING LOAM, SEED AND MULCH. IF DORMANT SEEDING IS NOT USED FOR THE SITE, ALL DISTURBED AREAS SHALL BE REVEGETATED IN THE SPRING.

40. DEWATERING AND TEMPORARY STREAM DIVERSION
WATER FROM CONSTRUCTION TRENCH DEWATERING OR TEMPORARY STREAM DIVERSION SHALL PASS FIRST THROUGH A FILTER BAG OR SECONDARY CONTAINMENT STRUCTURE (E.G. HAY BALE LINED POOL) PRIOR TO DISCHARGE. THE DISCHARGE SITE SHALL BE SELECTED TO AVOID FLOODING, ICING AND SEDIMENT DISCHARGES TO A PROTECTED RESOURCE. IN NO CASE SHALL THE FILTER BAG OF CONTAINMENT STRUCTURE BE LOCATED WITHIN 75 FEET OF A PROTECTED NATURAL RESOURCE.

41. INSPECTION AND MONITORING
MAINTENANCE MEASURES SHALL BE APPLIED AS NEEDED DURING THE ENTIRE CONSTRUCTION SEASON. AFTER EACH RAINFALL, SNOW STORM OR PERIOD OF THAWING AND RUNOFF, THE SITE CONTRACTOR SHALL PERFORM A VISUAL INSPECTION OF ALL INSTALLED EROSION CONTROL MEASURES AND PERFORM REPAIRS AS NEEDED TO INSURE THEIR CONTINUOUS FUNCTION. FOLLOWING THE TEMPORARY AND/OR FINAL SEEDING AND MULCHING, THE CONTRACTOR SHALL IN THE SPRING INSPECT AND REPAIR ANY DAMAGES AND/OR UNESTABLISHED SPOTS. ESTABLISHED VEGETATIVE COVER MEANS A MINIMUM OF 85% TO 90% OF AREAS VEGETATED WITH VIGOROUS GROWTH.

STANDARDS FOR TIMELY STABILIZATION OF CONSTRUCTION SITES DURING WINTER

1. STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SLOPES. THE APPLICANT SHALL CONSTRUCT AND STABILIZE STONE–COVERED SLOPES BY NOVEMBER 15TH. THE APPLICANT SHALL SEED AND MULCH ALL SLOPES TO BE VEGETATED BY SEPTEMBER 1ST. THE DEPARTMENT SHALL CONSIDER ANY AREA HAVING A GRADE GREATER THAN 15% TO BE A SLOPE. IF THE APPLICANT FAILS TO STABILIZE ANY SLOPE TO BE VEGETATED BY SEPTEMBER 1ST, THEN THE APPLICANT SHALL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SLOPE FOR LATE FALL AND WINTER.

   STABILIZE THE SOIL WITH TEMPORARY VEGETATION AND EROSION CONTROL MATS—BY OCTOBER 1ST, THE APPLICANT SHALL SEED THE DISTURBED SLOPE WITH WINTER RYE AT A SEEDING RATE OF 3 LBS./1,000 S.F. AND APPLY EROSION CONTROL MATS OVER THE MULCHED SLOPE. THE APPLICANT SHALL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SLOPE BY NOVEMBER 1ST, THEN THE APPLICANT SHALL COVER THE SLOPE WITH A LAYER OF WOODWASTE COMPOST OR WITH STONE RIPRAP.

   STABILIZE THE SLOPE WITH SOD—THE APPLICANT SHALL STABILIZE THE DISTURBED SLOPE WITH PROPERLY INSTALLED SOD BY OCTOBER 1ST. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SLOPE WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL. THE APPLICANT SHALL NOT USE LATE–SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 33%.

   STABILIZE THE SLOPE WITH WOODWASTE COMPOST—THE APPLICANT SHALL PLACE A SIX–INCH LAYER OF WOODWASTE COMPOST ON THE SLOPE BY NOVEMBER 15TH. PRIOR TO PLACING THE WOODWASTE COMPOST, THE APPLICANT SHALL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED SLOPE. THE APPLICANT SHALL NOT USE WOODWASTE COMPOST TO STABILIZE SLOPES HAVING GRADES GREATER THAN 50% OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.

   STABILIZE THE SLOPE WITH STONE RIPRAP—THE APPLICANT SHALL PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 1ST. THE APPLICANT SHALL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.

2. STANDARD FOR THE TIMELY STABILIZATION OF DISTURBED SOILS BY SEPTEMBER 15TH THE APPLICANT SHALL SEED AND MULCH ALL DISTURBED SOILS ON AREAS HAVING A SLOPE LESS THAN 15%. IF THE APPLICANT FAILS TO STABILIZE THESE SOILS BY THIS DATE, THEN THE APPLICANT SHALL TAKE ONE OF THE FOLLOWING ACTIONS TO STABILIZE THE SOIL FOR LATE FALL AND WINTER.

   STABILIZE THE SOIL WITH TEMPORARY VEGETATION—BY OCTOBER 1ST THE APPLICANT SHALL SEED THE DISTURBED SOIL WITH WINTER RYE AT A SEEDING RATE OF 3 LBS./1,00 S.F., LIGHTLY MULCH THE SEEDED SOIL WITH HAY OR STRAW AT 75 LBS./1,000 S.F., AND ANCHOR THE MULCH WITH PLASTIC NETTING. THE APPLICANT SHALL MONITOR GROWTH OF THE RYE OVER THE NEXT 30 DAYS. IF THE RYE FAILS TO GROW AT LEAST THREE INCHES OR COVER AT LEAST 75% OF THE DISTURBED SOIL BEFORE NOVEMBER 15TH, THEN THE APPLICANT SHALL MULCH THE AREA FOR OVER–WINTER PROTECTION AS DESCRIBED ABOVE.

   STABILIZE THE SLOPE WITH SOD—THE APPLICANT SHALL STABILIZE THE DISTURBED SLOPE WITH PROPERLY INSTALLED SOD BY OCTOBER 1ST. PROPER INSTALLATION INCLUDES THE APPLICANT PINNING THE SOD ONTO THE SLOPE WITH WIRE PINS, ROLLING THE SOD TO GUARANTEE CONTACT BETWEEN THE SOD AND UNDERLYING SOIL, AND WATERING THE SOD TO PROMOTE ROOT GROWTH INTO THE DISTURBED SOIL. THE APPLICANT SHALL NOT USE LATE–SEASON SOD INSTALLATION TO STABILIZE SLOPES HAVING A GRADE GREATER THAN 33%.

   STABILIZE THE SLOPE WITH WOODWASTE COMPOST—THE APPLICANT SHALL PLACE A SIX–INCH LAYER OF WOODWASTE COMPOST ON THE SLOPE BY NOVEMBER 15TH. PRIOR TO PLACING THE WOODWASTE COMPOST, THE APPLICANT SHALL REMOVE ANY SNOW ACCUMULATION ON THE DISTURBED SLOPE. THE APPLICANT SHALL NOT USE WOODWASTE COMPOST TO STABILIZE SLOPES HAVING GRADES GREATER THAN 50% OR HAVING GROUNDWATER SEEPS ON THE SLOPE FACE.

   STABILIZE THE SLOPE WITH STONE RIPRAP—THE APPLICANT SHALL PLACE A LAYER OF STONE RIPRAP ON THE SLOPE BY NOVEMBER 1ST. THE APPLICANT SHALL HIRE A REGISTERED PROFESSIONAL ENGINEER TO DETERMINE THE STONE SIZE NEEDED FOR STABILITY AND TO DESIGN A FILTER LAYER FOR UNDERNEATH THE RIPRAP.

MAINTENANCE OF FACILITIES

THE STORM WATER FACILITIES WILL BE MAINTAINED BY THE APPLICANT. THE CONTRACT DOCUMENTS WILL REQUIRE THE CONTRACTOR TO DESIGNATE A PERSON RESPONSIBLE FOR MAINTENANCE OF THE SEDIMENTATION CONTROL FEATURES DURING CONSTRUCTION AS REQUIRED BY THE EROSION CONTROL REPORT AND/OR CONSTRUCTION PLANS. LONG–TERM OPERATION/MAINTENANCE RECOMMENDED FOR THE STORM WATER FACILITIES IS PRESENTED BELOW AND SHOULD BE RECERTIFIED EVERY FIVE YEARS.

THE RESPONSIBLE PARTY MAY CONTRACT WITH SUCH PROFESSIONALS, AS MAY BE NECESSARY IN ORDER TO COMPLY WITH THIS PROVISION AND MAY RELY ON THE ADVICE OF SUCH PROFESSIONALS IN CARRYING OUT ITS DUTY HERE UNDER, PROVIDED THAT THE FOLLOWING OPERATION AND MAINTENANCE PROCEDURES ARE HEREBY ESTABLISHED AS A MINIMUM FOR COMPLIANCE WITH THIS SECTION.

INSPECTION AND MAINTENANCE FREQUENCY AND CORRECTIVE MEASURES: THE FOLLOWING AREAS, FACILITIES AND MEASURES WILL BE INSPECTED AND THE IDENTIFIED DEFICIENCIES WILL BE CORRECTED. CLEAN–OUT MUST INCLUDE THE REMOVAL AND LEGAL DISPOSAL OF ANY ACCUMULATED SEDIMENTS AND DEBRIS.

CATCH BASINS:
INSPECT CATCH BASINS TWO TIMES PER YEAR (PREFERABLY IN SPRING AND FALL) TO ENSURE THAT THE CATCH BASINS ARE WORKING IN THEIR INTENDED FASHION AND THAT THEY ARE FREE OF DEBRIS. CLEAN STRUCTURES WHEN SEDIMENT DEPTHS REACH 12" FROM INVERT OF OUTLET. IF THE BASIN OUTLET IS DESIGNED WITH A HOOD TO TRAP FLOATABLE MATERIALS (I.E. SNOUT) CHECK TO ENSURE WATERTIGHT SEAL IS WORKING. AT A MINIMUM, REMOVE FLOATING DEBRIS AND HYDROCARBONS AT THE TIME OF THE INSPECTION.

VEGETATED AREAS:
INSPECT SLOPES AND EMBANKMENT EARLY IN THE GROWING SEASON TO IDENTIFY ACTIVE OR POTENTIAL EROSION PROBLEMS. REPLANT BARE AREAS OR AREAS WITH SPARSE GROWTH. WHERE EROSION IS EVIDENT, ARMOR THE AREA WITH AN APPROPRIATE LINING OR DIVERT THE EROSIVE FLOWS TO ON–SITE AREAS ABLE TO WITHSTAND THE CONCENTRATED FLOWS. THE FACILITIES WILL BE INSPECTED AFTER MAJOR STORMS AND ANY IDENTIFIED DEFICIENCIES WILL BE CORRECTED.

DITCHES, SWALES AND OTHER OPEN STORM WATER CHANNELS: INSPECT TWO TIMES PER YEAR (PREFERABLY IN SPRING AND FALL) TO ENSURE THEY ARE WORKING IN THEIR INTENDED FASHION AND THAT THEY ARE FREE OF SEDIMENT AND DEBRIS. REMOVE ANY OBSTRUCTIONS TO FLOW, INCLUDING ACCUMULATED SEDIMENTS, DEBRIS AND VEGETATED GROWTH. REPAIR ANY EROSION OF THE DITCH LINING.

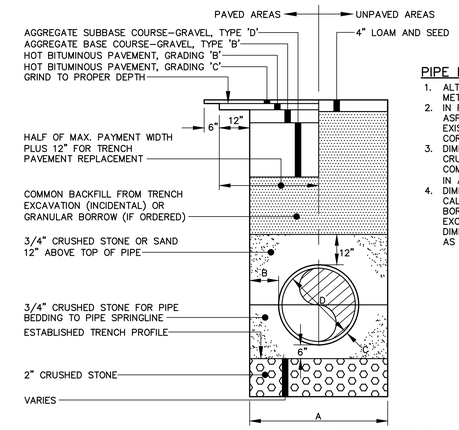
VEGETATED DITCHES WILL BE MOWED AT LEAST ANNUALLY OR OTHERWISE MAINTAINED TO CONTROL THE GROWTH OF WOODY VEGETATION AND MAINTAIN FLOW CAPACITY. ANY WOODY VEGETATION GROWING THROUGH RIPRAP LININGS MUST ALSO BE REMOVED. REPAIR ANY SLUMPING SIDE SLOPES AS SOON AS PRACTICABLE. IF THE DITCH HAS A RIPRAP LINING, REPLACE RIPRAP ON AREAS WHERE ANY UNDERLYING FILTER FABRIC OR UNDERDRAIN GRAVEL IS SHOWING THROUGH THE STONE OR WHERE STONES HAVE DISLODGED. CORRECT ANY EROSION OF THE CHANNEL'S BOTTOM OR SIDESLOPES. THE FACILITIES SHOULD BE INSPECTED AFTER MAJOR STORMS AND ANY IDENTIFIED DEFICIENCIES WILL BE CORRECTED.

ROADWAYS AND PARKING SURFACES:
CLEAR ACCUMULATIONS OF WINTER SAND IN PARKING LOTS AND ALONG ROADWAYS AT LEAST ONCE A YEAR, PREFERABLY IN THE SPRING. ACCUMULATIONS ON PAVEMENT MAY BE REMOVED BY PAVEMENT SWEEPING. ACCUMULATIONS OF SAND ALONG ROAD SHOULDERS MAY BE REMOVED BY GRADING EXCESS SAND TO THE PAVEMENT EDGE AND REMOVING IT MANUALLY OR BY A FRONT–END LOADER.

CONSTRUCTION NOTES

SUBGRADE PREPARATION

1. SUBGRADE PREPARATION IN SHOULD BE IN ACCORDANCE WITH GEOTECHNICAL ENGINEER RECOMMENDATIONS FOUND IN THE GEOTECHNICAL REPORT BY HALEY AND ALDRICH, INC. DATED MAY 16, 2007.
2. EXCAVATE THE FULL THICKNESS OF FILL MATERIALS BELOW THE BUILDING FOOTPRINT (AND FOUNDATION BEARING ZONES) AND REPLACE WITH COMPACTED GRANULAR FILL. SUITABLE FOUNDATION SUBGRADES INCLUDE UNDISTURBED NATIVE SOILS OR COMPACTED GRANULAR FILL PLACED ABOVE UNDISTURBED NATIVE SOILS. IN GENERAL, REMOVAL OF UNSUITABLE SOILS FROM THE PROPOSED BUILDING FOOTPRINT AND FOUNDATION BEARING ZONES SHOULD BE ANTICIPATED TO DEPTHS OF APPROXIMATELY 1 TO 3 FEET. GREATER DEPTHS OF OVER–EXCAVATION MAY BE REQUIRED IN LOCALIZED AREAS TO COMPLETELY REMOVE UNSUITABLE SOILS FROM THESE AREAS. REMOVAL OF UNSUITABLE SOILS SHOULD BE OBSERVED BY THE PROJECT GEOTECHNICAL ENGINEER PRIOR TO BACKFILLING WITH COMPACTED STRUCTURAL FILL
3. ALL TOPSOIL, PAVEMENTS, DEBRIS, FROZEN SOILS, AND LOOSE OR DISTURBED SOILS SHOULD BE REMOVED FROM AREAS RECEIVING NEW CONSTRUCTION.
4. EXISTING FOUNDATIONS, SLABS, AND/OR UTILITIES ASSOCIATED WITH FORMER SITE BUILDINGS AND ANY PAST USES, IF ENCOUNTERED, SHOULD BE REMOVED FROM BELOW THE PROPOSED BUILDING FOOTPRINT. THESE MATERIALS SHOULD BE COMPLETELY REMOVED FROM FOUNDATION BEARING ZONES AND REPLACED WITH COMPACTED GRANULAR FILL.
5. UNDERGROUND STRUCTURES AND UNDERGROUND PIPING, LOCATED BENEATH THE PROPOSED PAVEMENTS OR LANDSCAPED AREAS SHOULD BE REMOVED TO AT LEAST 2 FEET BELOW PROPOSED FINISHED GRADE.
6. THE ENDS OF UNDERGROUND PIPES AND UTILITY CONDUITS TO BE ABANDONED IN–PLACE SHOULD BE CAPPED AND/OR FILLED WITH CONCRETE OR GROUTED.
7. ANY UNSTABLE AREAS IDENTIFIED SHOULD BE UNDERCUT AT LEAST 12 INCHES, OR TO COMPETENT SOIL, AND REPLACED WITH COMPACTED STRUCTURAL FILL, CRUSHED STONE, OR COMMON FILL. THE DEPTH OF UNDERCUTTING AND TYPE OF BACKFILL MATERIAL SHOULD BE SELECTED WITH CONSIDERATION OF PROPOSED USE (I.E., BUILDING OR PAVEMENT) AND SOIL AND WEATHER CONDITIONS ENCOUNTERED DURING CONSTRUCTION.
8. FINAL FOUNDATION AND FLOOR SLAB SUBGRADE PREPARATION SHOULD INCLUDE RE–COMPACTION OF BEARING SURFACES. CARE SHOULD BE TAKEN TO LIMIT DISTURBANCE TO BEARING SURFACES PR



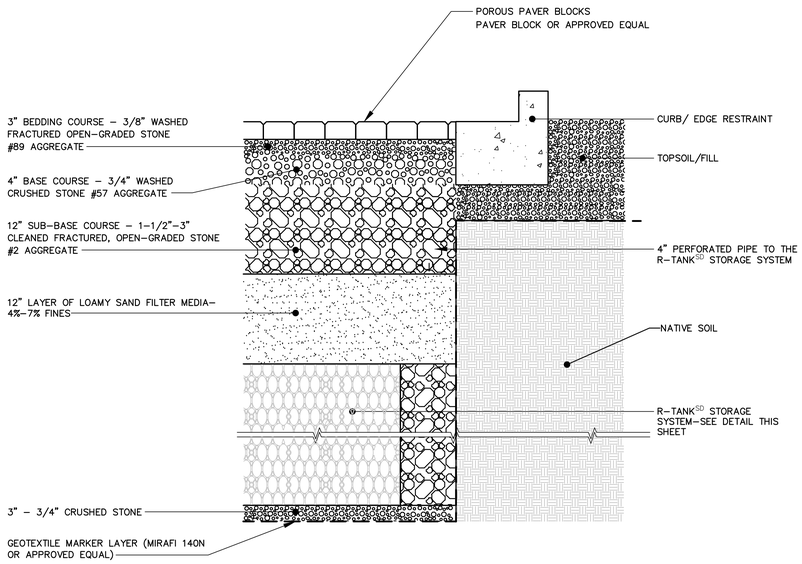
TYPICAL PIPE TRENCH INSTALLATION (WITHIN CITY RIGHT-OF-WAY)

1 NOT TO SCALE

PIPE INSTALLATION NOTES

1. ALTERNATE CONSTRUCTION METHODS OR PAYMENT METHODS SHALL BE APPROVED BY THE CITY.
2. IN PAVED AREAS, DEPTHS OF GRAVEL AND HOT MIX ASPHALT PAVEMENT SHALL MATCH THE GREATER OF EXISTING CONDITIONS OR THE REQUIREMENTS FOR THE CORRESPONDING STREET CLASSIFICATION.
3. DIMENSION B SHALL BE SUFFICIENT TO ALLOW CRUSHED STONE BEDDING TO BE PLACED AND COMPACTED UNDER THE HAUNCHES OF THE PIPE; BUT IN ALL CASES DIMENSION B SHALL BE AT LEAST 9".
4. DIMENSION A IS THE MAXIMUM WIDTH ALLOWED FOR CALCULATING PAY QUANTITIES UNDER GRANULAR BORROW, CRUSHED STONE, STRUCTURAL EARTH EXCAVATION, AND STRUCTURAL ROCK EXCAVATION. DIMENSION A SHALL BE BASED ON PIPE DIAMETER D, AS SET FORTH IN THE FOLLOWING TABLE:

PIPE DIAMETER, D (INCHES)	MAX. TRENCH WIDTH, A (FEET)
4	4.0
6	4.0
8	4.0
10	4.0
12	5.0
15	5.0
18	5.0
21	5.0
24	6.0
27	6.0
30	6.0
36	6.0
42	7.0
48	7.0



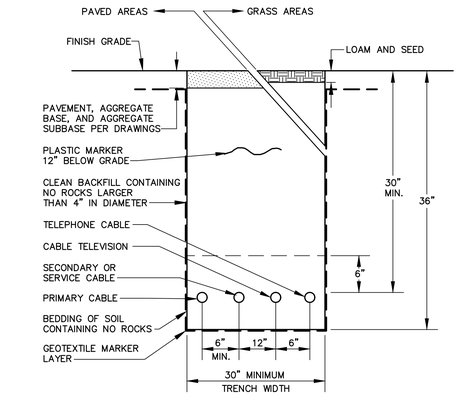
PERVIOUS PAVER ABOVE R-TANK^{SD} (TYPICAL)

3 NOT TO SCALE

R-TANK$_{SD}$ - HS-20 LOADS

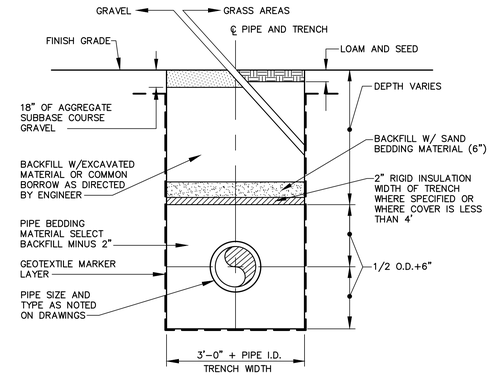
7 NOT TO SCALE

1.) REFER TO DETAIL FOR PERVIOUS PAVER ABOVE R TANK.
2.) FOR ADDITIONAL INFORMATION PLEASE CONTACT:
ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com



UNDERGROUND UTILITY TRENCH DETAIL (WITHIN SITE)

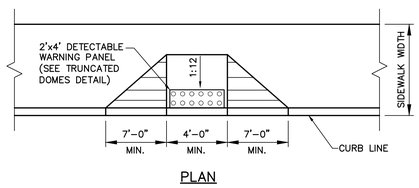
2 NOT TO SCALE



1. SAND BACKFILL AND RIGID INSULATION AS REQUIRED.

WATER TRENCH SECTION

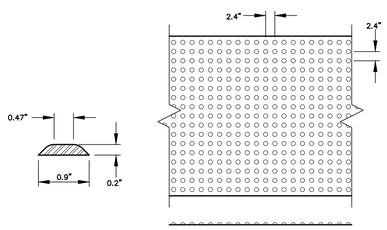
4 NOT TO SCALE



PLAN

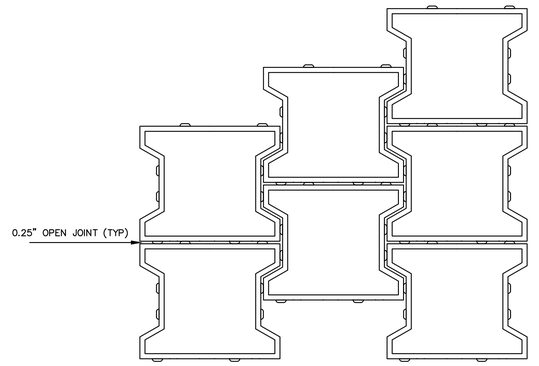
SIDEWALK RAMP

6 NOT TO SCALE

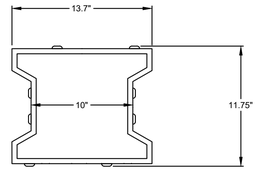


TRUNCATED DOMES DETAIL

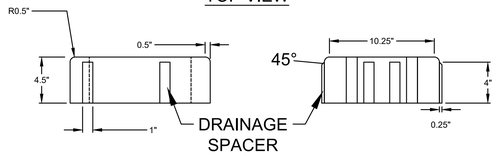
8 NOT TO SCALE



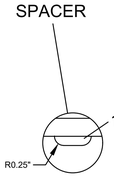
TOP VIEW - INTERCONNECTED BLOCKS



TOP VIEW



END VIEW SIDE VIEW

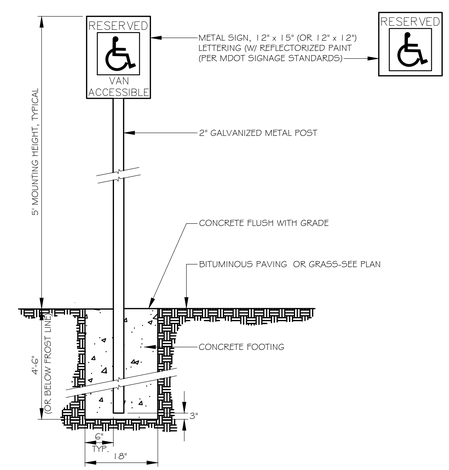


POWERBLOCK OPEN JOINT PAVER

5 NOT TO SCALE

NOTES:

1. SIGNS SHALL BE FABRICATED & INSTALLED IN ACCORDANCE WITH MAINE DEPARTMENT OF TRANSPORTION STANDARD SPECIFICATIONS, HIGHWAYS AND BRIDGES REVISION OF DECEMBER 2002, SECTION 645.
2. ALL PERMANENT SIGNS ON THIS PROJECT ARE CLASSIFIED UNDER SECTION 645.03(b) TYPE I REGULATORY WARNING AND ROUTE MARKER ASSEMBLY SIGNS.
3. SIGN MATERIAL SHALL BE AS SPECIFIED IN SECTION 719 OF THE MDOT STANDARD SPECIFICATIONS.
4. POSTS MAY BE 2" METAL UNLESS IN THE PUBLIC RIGHT OF WAY. SIGNS IN THE PUBLIC RIGHT OF WAY TO BE ON BREAKAWAY POSTS.



A.D.A. PARKING SIGNAGE

9 NOT TO SCALE

NOTES:

PORTLAND CITY APPROVAL

ENVIRONMENTS FOR HEALTH ARCHITECTURE
e4h
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Maine Behavioral Healthcare MaineHealth

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Tel. (207) 772-2891
Fax (207) 772-3248
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KEY PLAN

MAINE BEHAVIORAL HEALTHCARE CENTER OF EXCELLENCE IN AUTISM AND DEVELOPMENTAL DISORDERS
100 ANDOVER ROAD
PORTLAND, ME

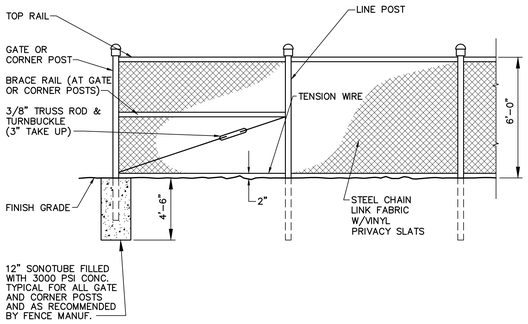
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A	DEP PERMITTING	09/23/19
B	DEP REVICITY PRELIM.	10/22/19
C	90% CD OWNER REVIEW	11/20/19
D	CITY SUBMISSION	11/21/19
E	ISSUED FOR CONSTRUCTION	01/09/20

STATE OF MAINE
MAUREEN P. McGLONE
#7705
LICENSED PROFESSIONAL ENGINEER
SEAL:

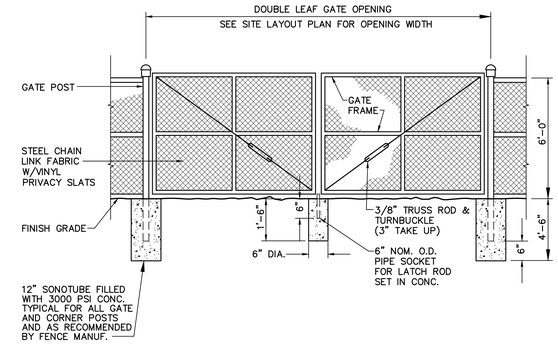
PROJECT NUMBER: 181.06068
DATE: 08/16/2019
SHEET TITLE AND NUMBER:

DETAILS

C-201

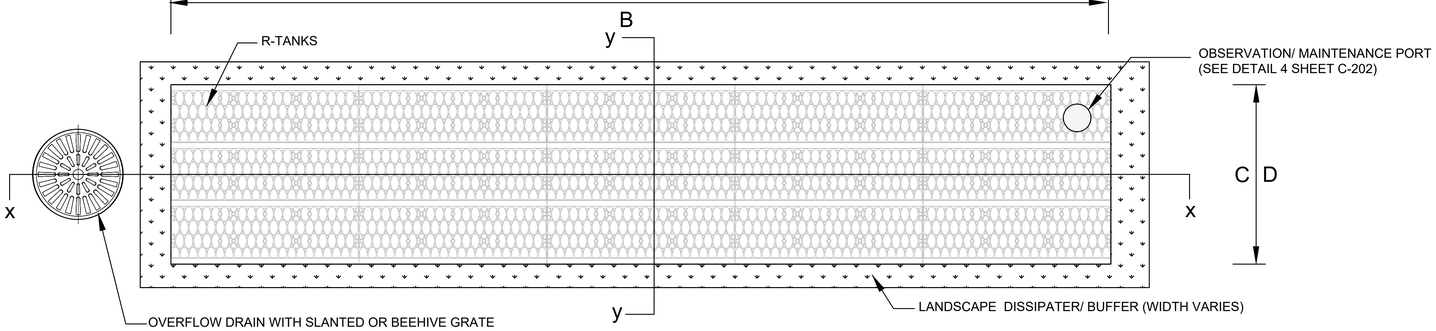


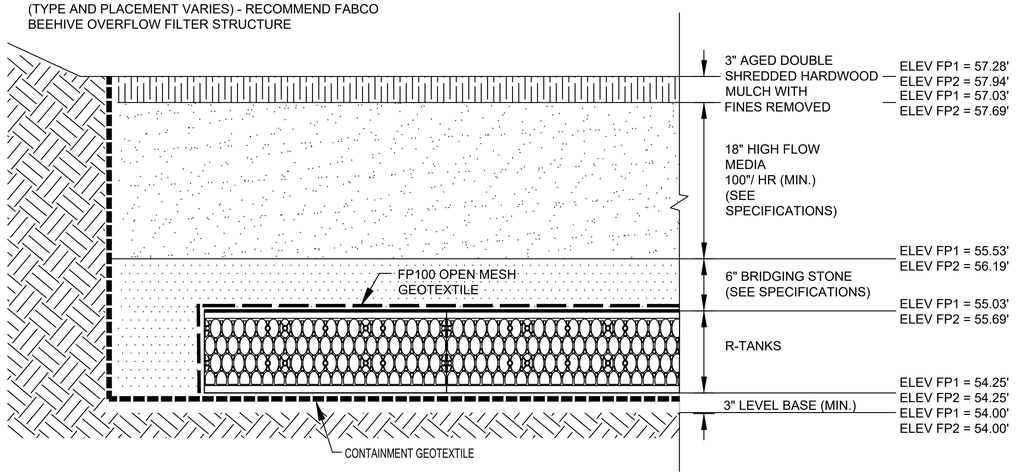
1 DUMPSTER ENCLOSURE FENCE
NOT TO SCALE



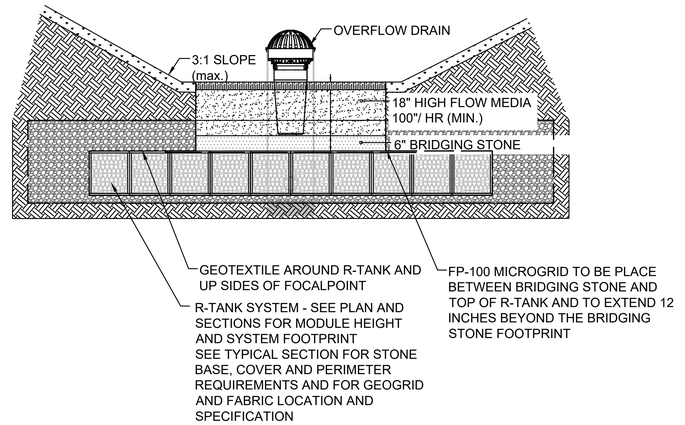
2 DUMPSTER ENCLOSURE GATE DETAIL
NOT TO SCALE

PORTLAND CITY APPROVAL

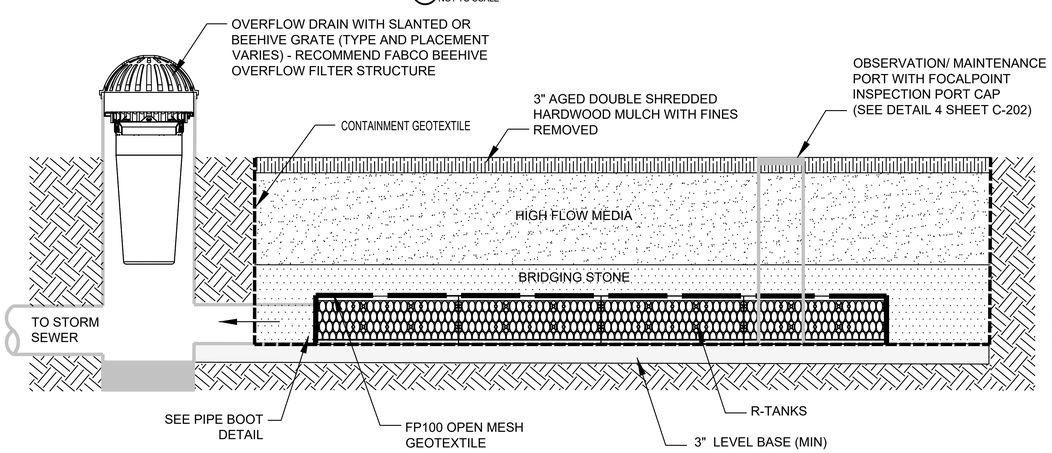




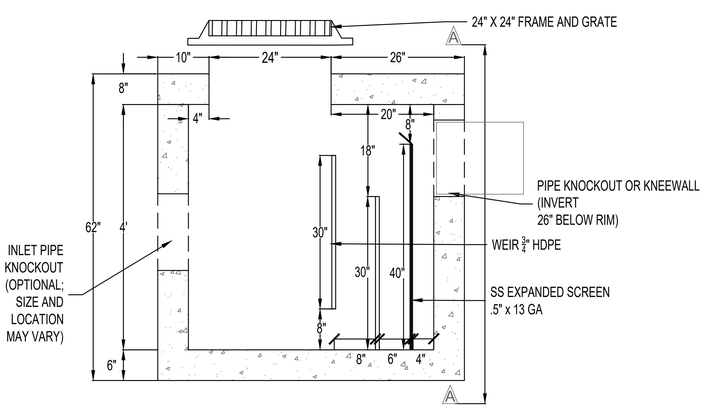
3 FOCAL POINT DETAIL
NOT TO SCALE



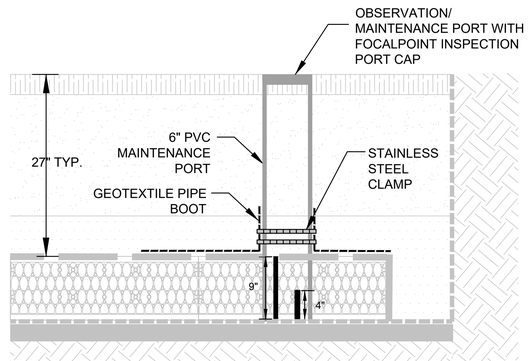
4 FOCAL POINT SECTION Y-Y
NOT TO SCALE



5 FOCAL POINT SECTION X-X
NOT TO SCALE



6 PRETXT DROP INLET PRETREATMENT CROSS SECTION
NOT TO SCALE



7 OBSERVATION/MAINTENANCE PORT
NOT TO SCALE

FOR ADDITIONAL INFORMATION PLEASE CONTACT: ACF ENVIRONMENTAL, 1-800-448-3636, www.acfenvironmental.com

ENVIRONMENTS FOR HEALTH ARCHITECTURE
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MaineHealth

RANSOM
Consulting, Inc.
400 Commercial Street, Suite 404
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Tel. (207) 772-2891
Fax (207) 772-3248
www.ransomenv.com

KEY PLAN

C
B
A

MAINE BEHAVIORAL HEALTHCARE
CENTER OF EXCELLENCE IN AUTISM AND DEVELOPMENTAL DISORDERS
100 ANDOVER ROAD
PORTLAND, ME

REV	DESCRIPTION	DATE
A	DEP PERMITTING	08/23/19
B	DEP REV/CITY PRELIM.	10/22/19
C	90% CD OWNER REVIEW	11/20/19
D	CITY SUBMISSION	11/21/19
E	ISSUED FOR CONSTRUCTION	01/09/20

STATE OF MAINE
MAUREEN P. McCLONE
#7705
LICENSED PROFESSIONAL ENGINEER
SEAL:

PROJECT NUMBER: 181.06068
DATE: 08/16/2019
SHEET TITLE AND NUMBER:
DETAILS
C-202

PORTLAND CITY APPROVAL

Material staging

Line of erosion control - See detail 2 on C-200

Material delivery routes and truck holding areas

Line of construction fencing

Construction entrance - See detail 6 on C-200

FUTURE ADDITION

10' SETBACK

25' SETBACK

B101 B102 B103 B104 B105 B106 B107 B201 B202 B203 B204 B205 B206 B301 B302 B303

100

OUTLET 4

INV. OUT=56.50

18" SD L=41' S=0.003

INV. IN=56.62

60.22LP

24' WIDE PAVED ROADWAY

Harry Harmon Drive (bituminous)

Hutchins Drive (bituminous)

Outer Congress St.

Inv. in: 49.4'
Inv. out: 49.1'
Inv. in: 47.3'
Inv. in: 51.2'
Inv. out: 49.0'
Inv. in: 51.9'
Inv. in: 59.2'
Inv. out: 56.2'
Inv. in: 52.1'
Inv. out: 51.4'
Inv. out: 43.23'
Inv. in: 42.8'
Inv. out: 41.0'
Inv. out: 50.1'

15" RCP
24" RCP
18" RCP
12" RCP

CB15

CMP4

TBM Nail in CMP3 elevation = 52.45'

CIR1118 up 1.4'

CMP3

18"CMP inv=51.8'

inv=52.6'

sign "Woodard & Curran"

CMP2

18"RCP inv=61.1'

inv=63.8'

12" culvert

6" culvert

Westbrook

Portland

0 20 40 80
SCALE in FEET
1"=40'

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888.781.8441 207.773.8841 163 Free Street, Portland, ME 04101 e4harchitecture.com

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C B A

KEY PLAN

MAINE BEHAVIORAL HEALTHCARE CENTER OF EXCELLENCE IN AUTISM AND DEVELOPMENTAL DISORDERS
100 ANDOVER ROAD
PORTLAND, ME

REV	DESCRIPTION	DATE
A	DEP PERMITTING	8/8/19

STAMP

THIS DOCUMENT IS PRELIMINARY IN NATURE AND IS NOT A FINAL, SIGNED AND SEALED DOCUMENT

SEAL:

PROJECT NUMBER: 181.06068

DATE: 08/06/2019

SHEET TITLE AND NUMBER:

BASE PLAN

C-100

PLANNING BOARD REPORT
PORTLAND, MAINE

Mercy Hospital – Phase 2 Expansion
175 Fore River Parkway
Level III Site Plan
PL-000820-2019
Northern Light Health, Applicant

Submitted to: Brandon Mazer, Chair and Members of the Portland Planning Board Public Hearing Date: February 25, 2020	Prepared by: Matthew Grooms, AICP, Senior Planner Date: February 21, 2020

I. INTRODUCTION

Northern Light Health submitted a Level III site plan application for the second phase of Mercy Hospital's Fore River Campus development; a multi-phase proposal outlined by a 2001 Conditional Zoning Agreement to redevelop a large industrial and railroad site as a new medical facility. For a more detailed history of the conditional zoning agreement, phase one of this development and the overall process to date, please see the memo submitted for the first Planning Board workshop.



Figure 1: Aerial view of the Mercy Fore River Campus

Phase two involves construction of a new four-story addition to the rear of the existing hospital building, and development of a new two-story Ambulatory Surgical Center (ASC) building, which would be built on the central part of the site on an infilled portion of the existing wetland pond. Aside from the expansion of on-site uses, the development also provides 95 additional surface parking spaces for use by patients, visitors and staff, and a comprehensive reconfiguration of the campus open space scheme.

A preliminary workshop was held by the Planning Board on November 26, 2019. At that workshop, members of the Board focused heavily on the proposal to fill in the majority of the existing wet pond, which was previously identified as valuable natural habitat and a key component of the 2001 conditional zoning agreement and subsequent 2006 site plan approval for Phase I.

A second workshop was held on January 28, 2019, where staff and the applicant continued to discuss compliance of the project with the requirements of the conditional zoning agreement, responses to Board and staff feedback from prior reviews and in particular, justification for filling of the wetland area. Based upon feedback from the second workshop, this item is now being referred to the Planning Board for a public hearing, and is being reviewed against the requirements of the CZA and the city's site plan requirements.

Notices have been sent to 56 property owners and interested citizens in the vicinity of the project and a legal advertisement was published in the February 16th and 17th editions of the *Portland Press Herald*.

Applicant: Northern Light Health (Nick Munro, Facility Project Manager)

Consultants: Gorrill-Palmer (Steve Bushey)

II. REQUIRED REVIEWS

Waiver Requests	Applicable Standards
Request: Waiver of the flooding standard. Staff Comments: Reviewers do not have any concerns regarding this waiver request (*Att. A2*)	Technical Manual, *Section 5 Portland Stormwater Management Standards and MaineDEP Chapter 500 Stormwater Management*
Request: Waiver to omit curb and sidewalk along the Fore River Parkway between the southerly driveway and the north end of the property Staff Comments: Staff is requesting evidence of compliance with Sec. 14-506 of the City Code.	Site Plan Standard 14-526 (a) 2 c
Review	**Applicable Standards**
Site Plan	Section 14-526
Conditional Zoning Agreement 2001	Section 10 *Development Standards*

III. PROJECT DATA

Existing Zoning	2001 Conditional Zoning Agreement
Existing Use	Hospital and Medical Office Building (MOB) and associated facilities and parking
Proposed Use	Hospital, MOB and Ambulatory Surgical Center (ASC) & associated facilities
Parcel Size	33.5 acres total; approx. 20 acres developable

	Existing	Proposed	Net Change
Building Footprint	64, 629 SF	102,343 SF	Hospital: +20,140 sq ft
Building Floor Area	Hospital: 138,099sq ft MOB: 82,186 sq ft	Hospital: 192,988 sq ft MOB:82,186 sq ft ASC: 34,987 sq ft	Hospital: +54,889 sq ft MOB: 0 New ASC: +34,987sq ft
Impervious Surface Area	50%	66%	16%
Parking Spaces	762	857	+95
Bicycle Parking Spaces	58 spaces		



Figure 2: Proposed Phase 2 Site Layout

IV. PLANNING BOARD WORKSHOPS

A. NOVEMBER 26, 2019

In its initial workshop, staff and the applicant provided the Board with a first look at phase 2 of this development proposal and received the following feedback:

- **Wetland Fill**: The existing wetland is a critical component of both the CZA and approved Master Plan for Mercy Hospital and has previously been recognized as valuable wildlife habitat for various bird species and has been integrated into the Portland Trails system. At the November workshop, the Board asked that additional analysis be completed to determine whether or not the pond was protected under the CZA agreement on the basis of its value as wildlife habitat.

- **Design Review:** In reviewing the building design for both the hospital addition and ASC building, the Board requested that the hospital extension entrance be made more prominent, and that the screening of rooftop mechanical equipment be further assessed, particularly in consideration of potential long views of the building from vantage points on the Western Promenade.

- **Pedestrian Circulation:** At the time of the November workshop, a concept for internal site circulation had not been fully developed, and the Board requested a plan identifying exact sidewalk locations with prioritization given to pedestrian circulation.

- **Landscaping:** The Board stressed the need for a more robust landscape plan with a focus on recreating natural spaces lost as part of this development proposal and as buffer to soften proposed surface parking.

- **Signage:** One member of the Board weighed in on the scale of proposed hospital logo, which was identified as being too large for the building.

- **Portland Trails and Bus Stop:** At the time of the November workshop, it was unclear to what extent the proposed open space reconfiguration would impact the existing easement held by Portland Trails and similarly, whether or not the proposed bus shelter relocation could occur as part of this phase of the development.

B. JANUARY 28, 2020

Following the first workshop, the applicant developed a more thorough letter of compliance outlining how the development as proposed was consistent with the requirements of the CZA with regards to the wetland fill, noting site and programmatic constraints, infeasibility of an alternative site configuration based upon a robust alternatives analysis, and issuance of the NRPA permit by Maine DEP for wetland fill as documented. As an effort to mitigate these impacts, the applicant agreed to work with the City to protect and maintain the future pond in perpetuity as a key resource for the campus, and have designed the pond and surrounding area as a natural space suitable for use by wildlife in the future.

Staff also reviewed the materials and researched areas of critical wildlife habitat in the state, as identified by Maine Department of Inland Fisheries and Wildlife, and found that the pond in question is not identified as prime habitat. The points below highlight areas of discussion at this second workshop, and relevant updates to topics listed at the first workshop.

- **Wetland Fill**: The Board articulated a general concern with filling existing wetlands, and noted that the Maine DEP threshold for permitting wetland fill should not be considered as satisfactory justification. Nevertheless, the Board noted that the City did not have regulations that would prevent such filling, and indicated that they would be supportive of the proposal as shown in a public hearing. The Board did request, that if in the future, a parking structure were to be built that could accommodate the on-site parking demand more efficiently

than the existing and proposed surface parking areas, that the Hospital should consider a plan to replace such surface parking with landscaped or pervious surface, and add to the natural space on the campus.

- **Design Review:** Prior to the second workshop, the building floor plan and elevations for the hospital addition were updated to include more pronounced entry points and a more logical first floor layout as requested by a member of the Board. The other remaining comment, regarding screening of mechanical equipment atop the ASC building, was addressed in the second workshop, when the applicant indicated that they would provide the requested screening.

- **Pedestrian Circulation:** A pedestrian circulation plan was provided following the first workshop, and staff had limited comments related to bicycle facility and crosswalk improvements. The applicant has since provided an updated plan and accompanying narrative that addresses all of staff's comments related to site circulation.

- **Landscaping:** The Board stressed the need for a more robust landscape plan with a focus on recreating natural spaces lost as part of this development proposal and as buffer to soften proposed surface parking. The landscape plan has been subsequently revised to address these concerns.

- **Signage:** At both the first and second workshop, the Board and staff requested that the scale and quantity of building mounted signs be reduced. Prior to the second workshop, one sign was removed, and following the second workshop, the design of the sign was revised to staff's satisfaction.

- **Portland Trails and Bus Stop:** At the time of the November workshop, it was unclear to what extent the proposed open space reconfiguration would impact the existing easement held by Portland Trails and similarly, whether or not the proposed bus shelter relocation could occur as part of this phase of the development. The applicant has since coordinated with Portland Trails and has agreed to work with Portland Trails on trail amenities, design and location. Regarding the bus shelter, the applicant is currently in discussions with METRO, to determine a date when the new service would become active. Staff will be looking for an update from the applicant at the public hearing.

- **Transportation Demand Management (TDM):** At the second workshop, staff stated that the TDM plan included with the initial application material did not conform with City standards, and that it needed to be updated. A TDM plan was received on February 21, 2020 and has had minimal review by staff. This document is included within this application material, and will be discussed in detail at the public hearing. It should be noted that finalization of the TDM plan is being suggested as a condition of approval.

V. NEIGHBORHOOD MEETING AND PUBLIC COMMENT

A neighborhood meeting was held on December 11th and attended by two (2) members of the public. A copy of the neighborhood meeting minutes and sign-in sheet are attached to this memo. Additionally, as of the writing of this memo, one (1) written public comment was received by the Planning Office. Comments raised have focused on the proposed loss of existing wetland, maintaining and enhancing connections to local open space sites such as the Fore River Parkway trail, status of the State Street facility and questions regarding the architecture and energy efficiency of the proposed buildings. For detailed responses to these questions, please see the attached minutes (Attachment Q).

VI. UPDATE ON ZONING ANALYSIS – CONDITIONAL ZONING AGREEMENT 2001

A. Master Plan

The City Council approved the Conditional Zoning Agreement (CZA) in 2001 that allowed this large (then 42 acres) site to be rezoned from IH to medical and related uses as listed in the CZA. A "Conceptual" Plan was attached to the CZA and the CZA language refers to it as follows:

*The **PROPERTY** shall be developed substantially in accordance with the conceptual master plan shown on Attachment 2, provided, however, that each building, whether classified as a major or minor development, shall be subject to site plan review by the Planning Board, and if applicable, subdivision review by the Planning Board. Any site plan review applications shall fully comply with the detailed site plan application requirements contained in article V (site plan) of the Land Use Code. The Planning Board may permit deviations from the conceptual master plan, as long as the deviations are consistent with the purposes of this Agreement.*

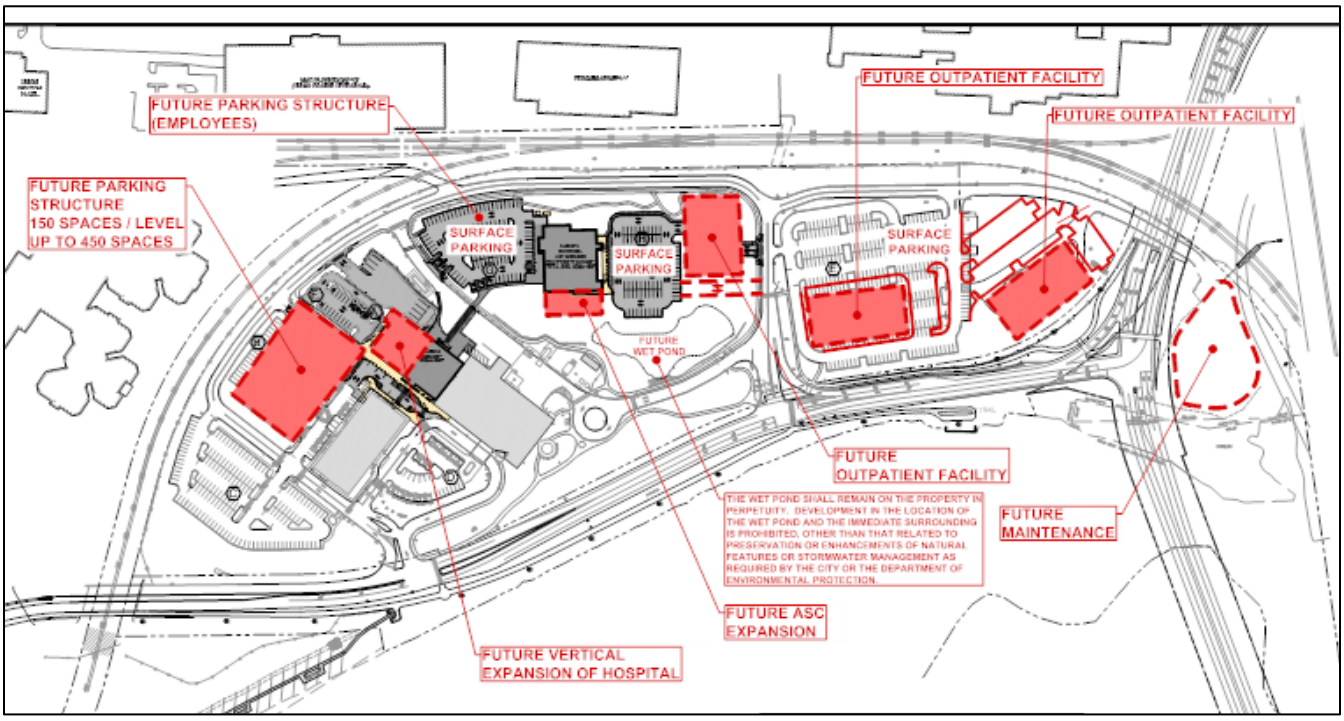


Figure 3: Revised Concept Plan for Future Phases

Staff Finding: The currently adopted Master Plan identifies a building program that is incompatible with the phase two layout, as future buildings are shown directly within the now proposed wet pond location. In response to this, the applicant has developed a new concept plan, which provides locations for future building, parking and open space areas that does not conflict with the site plan submitted for phase two. Staff have reviewed the updated Master Plan and find that it complies with this requirement.

In order to ensure future consistency, the applicant's attorney has worked with the City to legally formalize the proposed site layout with specific respect to the new wet pond location, which would be maintained for future use as an amenity and stormwater feature of Mercy Hospital's Fore River campus. A draft of this document is attached, and its execution and recording are suggested as a condition of approval.

B. Development Standards

The CZA includes a set of nine (9) development standards specifically tailored to the unique characteristics of this site and future build-out of a hospital campus. In many instances, these standards relate directly to or feature considerable overlap with general site plan review standards, and provide a regulatory framework on such themes as building and site design principles, landscaping and preservation of natural spaces, vehicular and pedestrian circulation and signage. Given this significant overlap between standards, the development review section, later in this memorandum, regularly refers back to analysis or narrative provided in this section. CZA standards and staff discussion of compliance are described below.

CZA Preamble - Development Standards: All site plans may be approved by the Planning Board only if, in addition to the dimensional requirements of paragraph 11 and the applicable provisions of article IV (subdivisions) and article V (site Plan), the development meets the following development standards.

1. *Design relationship to site*: Development proposals shall demonstrate a reasonably unified design of the site in a campus-like setting, including the architecture, the layout of the buildings, pedestrian and vehicular circulation plan, open space, drainage, and the topography, soil conditions, vegetation, and other natural features of the site. Integration of open spaces and natural features shall be achieved by incorporation of outdoor amenities for the benefit of users of the site, such as jogging and walking trails, gardens, and benches. The proposed layout of buildings and uses shall demonstrate compatibility between the buildings and other site features within the site. Consideration shall be given to compatibility of proposed perimeter on-site development with the existing and future uses off-site but adjacent to the PROPERTY.

   Staff Finding: Staff initially advised the applicant at the pre-application meeting that the proposed location of the ASC did not appear well-integrated into the campus, particularly as the building and associated surface parking and stormwater management resulted in the loss of the existing wetland. The wetland marsh area was preserved in 2006 to provide a campus amenity with aesthetic, open space and wildlife benefits and includes a public trail as formalized as part of the 2006 site plan approval.

   Following the Planning Board workshop, city staff met with the applicant to discuss outstanding concerns, in particular, the elimination of the existing pond. The applicant articulated that the proposed program takes into account changing trends in the healthcare field which necessitated a reconfiguration of the site from the approved Master Plan. Additionally, other site constraints (including required parking and circulation infrastructure) and plans for future expansion precluded the applicant from being able to preserve the existing pond in its entirety. In 2013, in anticipation of this expansion, the applicant secured approval from Maine DEP to fill in this wetland, and currently have valid authorization to complete this work.

   Corporation Counsel, in reviewing the development criteria of the CZA, determined that the proposal to shrink and relocate the pond, while maintaining it as a prominent resource and amenity of the development, was still consistent with requirements of the CZA. As mentioned above, the applicant is coordinating with the city to execute a legal agreement that would protect the future wet pond in perpetuity for use by visitors and staff. In addition to serving as a stormwater feature, the pond would be designed to function in a more recreational capacity as well, with trails around the pond that would connect to the local trail network managed by Portland Trails.

   At the November workshop, one of the key concerns raised related to the filling of the wet pond was the loss of high-value bird habitat. Following that workshop, staff reviewed state resources provided by Maine DEP, and confirmed that the wet pond location is not identified as high value wildlife habitat. Significant wildlife habitats are defined under Maine's Natural Resources Protection Act (NRPA) and such data is reviewed as part of the NRPA permitting process, which the applicant went through in 2013 for authorization by the state to fill in the wetland. It is staff's understanding that the DEP NRPA permit was in the process of being extended. Prior to the public hearing, the applicant should provide evidence that the NRPA permit remains valid, otherwise staff would suggest a condition of approval conditioning the start of construction on this permit.

   Staff continue to recommend that future development be cognizant of pedestrian circulation patterns, new impervious surface creation and the creation, in particular new surface parking, improved integration of the site with surrounding areas of the city and continued maintenance of the campus's open space features. In light of the applicant's documentation of efforts to identify the best alternative, and efforts to mitigate the loss of the wetland, staff find this requirement to be met.

2. *Landscaping:* Development proposals shall include a landscape program. All land areas not covered by structures, parking areas, or circulation facilities shall be landscaped and maintained. In order to soften the visual impact of large expanses of pavement in parking lots, vegetation shall be planted or retained in islands or planting strips where required by article IV (subdivisions) and article V (site plan) of the Land Use Code.

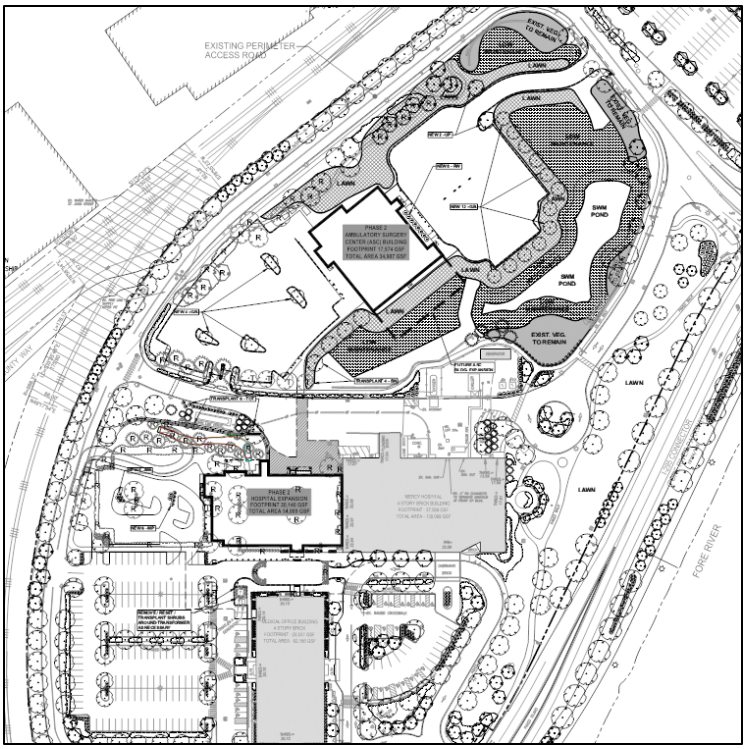


Figure 4: Proposed landscaping plan. Per CZA requirements, landscaping is intended to soften the visual impact of the site, in particular along Fore River Parkway, and enhance existing natural features.

Staff Finding: The applicant has submitted a revised landscape plan specifically focused on the area around the proposed wet pond in response to prior staff comments and Board feedback. In sum, the proposed landscape plan is robust, accounting for a desire to see natural habitat, in addition to site buffering vegetation and shade trees. The proposed landscape plan meets the intent of this standard.

3. *Pedestrian Orientation:* Development proposals shall include an integrated pedestrian circulation system, including internal sidewalks, to take advantage of the topography and natural features of the site and providing for safe pedestrian access to all buildings and parking areas with the ability to conveniently access all developed portions of the site without additional driving. The pedestrian circulation system shall link with the shoreline trail feature of the site.

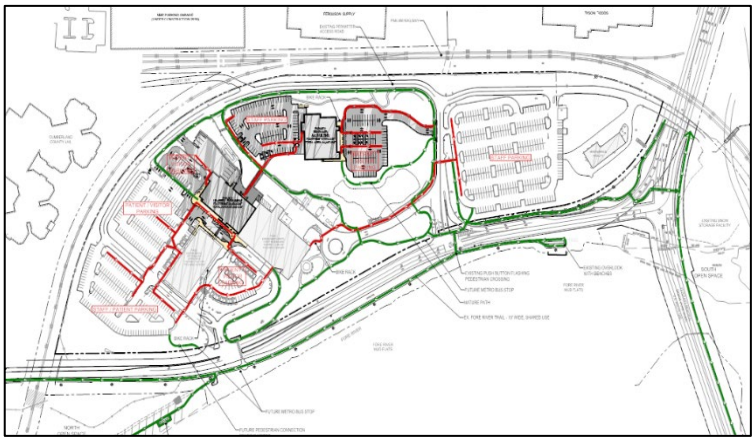


Figure 5: Pedestrian Circulation Plan. Note lines in red identify routes between buildings and parking, while lines in green represent routes to open space.

Staff Finding: The applicant has submitted a revised Pedestrian Circulation Plan that addresses comments provided to the applicant at the January 28th workshop, related to crosswalk locations, bicycle facility enhancements, and use of a Rectangular Rapid Flash Beacon (RRFB) at one crossing location. Regarding use of the RRFB, a condition is suggested that contemplates future design and planning for installation of this signal.

4. *Vehicular Access and Circulation:* The primary access to serve the entire development will be from two access points or two access points and a slip lane from the CONNECTOR as may be further developed or modified by joint agreement of the City, MDOT and the applicant. Vehicular circulation through internal driveways and roadways will provide safe and orderly access to all developed portions of the site.

Staff Finding: The proposals generally meet this standard (Attachment 1).

5. *Buffers and Screens*: Development proposals shall include appropriate measures of a dense and continuous nature (for example, a double staggered row of white pine twenty-five (25) feet on center, etc.) in order to buffer parking lot visibility from public roads.

   Staff Finding: As noted above under landscape, the landscape plan has been revised to show substantial landscaping around and within the surface parking areas to achieve the scale of buffering indicated by the CZA.

6. *Preservation of Natural Features*: Development proposals shall identify the extent to which the developer will preserve natural features including, but not limited to, existing vegetation, flood plains, rock outcroppings, surface water bodies, drainage swales and courses, and wetlands; provided any such program shall consider and be sensitive to the need to preserve such natural features.

   Staff Finding: The 3.5-acre wetlands were required to be preserved by both the MDEP and the City as part of the 2006 Site Plan review. They were seen as having wildlife, public and patient amenity value and comprising a key element in the campus open space system.

   As part of this second phase, the applicant has identified, under a full build-out scenario of the site, that it would be impossible to maintain the existing wetland and open space feature at its current extent. Eight (8) alternative configurations were assessed, which were provided to Maine DEP for consideration as part of their NRPA permit application. Maine DEP, in reviewing this application, made a similar conclusion, and permitted the proposed filling of the existing wet pond feature.

   The development standard states that "development proposals shall identify the extent to which the developer will preserve natural features … provided any such program shall consider and be sensitive to the need to preserve such natural features". In reviewing the CZA language, Corporation Counsel determined that the CZA and prior Planning Board approvals, which permits future deviation from the concept plan, does not require that the Hospital retain the current extent of its open space and natural area configuration. The applicant is responsible for proposing a strategy moving forward that achieves the aim of this standard.



Figure 6: View of the existing pond from the internal circulation driveway



Figure 7: Proposed open space configuration with pond, trail and landscaping amenities

To mitigate this impact, the applicant is proposing a smaller 0.5-acre wet pond designed to have a natural appearance, that will double as a recreational resource for use by hospital staff, visitors and patients as well as a component of the site's stormwater management system. Plans provided show a new trail network and open space area separated from vehicular traffic and generous landscaping around the pond. While reduced in size, Planning staff find that the proposed combination of pond, landscaping and pedestrian oriented amenities fulfills the requirement for preservation of natural features standard. In order to preserve this proposed feature, the applicant is working with the City to develop a legal agreement for preservation of and continued maintenance of this feature. Staff find this standard to be met.

7. ***Architectural Design:*** All buildings shall be designed or approved by a registered architect in the State of Maine. The scale, texture, colors, and massing of the buildings shall be coordinated. The full range of high-quality, permanent, and traditional or contemporary building materials and technology may be incorporated in a manner so that the development as a whole embodies distinguishing attributes that achieve the developer's desired degree of excellence and are in conformance with the architectural guidelines provided in any private development restrictions. Particular emphasis shall be placed on the appearance of building facades from public streets and highways including the CONNECTOR, from driveway and parking areas, and from other nearby buildings. Building elevation drawings shall be submitted which indicate architectural style, exterior finishes and color, building height and scale, and location and scale of window and door openings. Samples of exterior building materials shall also be submitted.



Figure 8: View of the Hospital addition, with emphasized entrance as requested by the Planning Board.



Figure 9: Rendering of ASC Building from Fore River Parkway with screening



Figure 10: Rendering of ASC Building

Staff Finding: The applicant has submitted elevations and floor plans of the hospital building addition and the ASC. These have been reviewed by the city's Urban Designer in the context of the CZA language above, as well as in relation to the Private Development Restrictions (*Attachment 1d*) that were approved as a condition to the 2006 Site Plan approval to help achieve coordination of design details across the campus.

The Design Review is included in *Attachment 1d* and finds the design approach for the two new buildings to be consistent with this standard.

8. ***Signs:*** Signage shall be focused internally to the site or to the CONNECTOR and shall not be oriented or scaled to address Route 1 or Interstate 295, with the exception of the hospital and major office buildings. Development proposals shall identify all proposed signage. Signs shall be designed in proportion and character with the building facades. All signs shall be constructed of permanent materials and shall be coordinated with the building and landscaping design through the use of appropriate materials and finishes.

Staff Finding: The applicant is proposing to revise both the building signs and the ground "information" signs to reflect the new name/logo of the hospital and to incorporate new signage on the buildings. Based upon feedback provided by the Planning Board and staff at the first and second workshop, the applicant has further revised their proposed signage package, eliminating the signage initially shown on the east façade, though retaining the new sign on the south façade, facing Fore River Parkway. The proposed replacement and new building signage satisfy this requirement.

9. ***Master Plan:*** Prior to development on the PROPERTY, MERCY shall provide a master plan of the campus. The master plan shall include the following: The location of the building(s) on the site; infrastructure of the site; identification of common areas; traffic circulation, architectural character and treatment of the building(s); proposed building envelopes; phasing and timing of the development; private development restrictions; and such other information necessary and sufficient to ensure compliance with the standards in this section. Master plans are dynamic representations that assist in guiding projects through phased development. Master plans are flexible and adaptable to changes that occur within the development process. The master plan shall be subject to periodic revision and update as needed and as phased development occurs over time.

Staff Finding: The applicant has provided an updated concept plan for future build-out of the Mercy Hospital Campus that is now consistent with the proposed phase two development. While the Master Plan development standard does not specifically require that the Master Plan be updated with each individual phase, staff continue to recommend that the document approved as part of the 2006 site plan review for phase one, be updated to reflect anticipated changes to program and site usage as shown in the revised concept plan. An updated narrative was submitted following the second workshop that effectively demonstrates compliance; however, staff continue to ask that the Master Plan Document be repackaged, which is included as a draft condition of approval.

Summary of Master Plan Data

Site Data	2001	2006	2020
Usable site (taking account loss for roads/bridges and adding in filled pond area in 2014)	25.46 acres	24.91 acres	Approximately 20 acres
Building footprint	183,335 sf	128,000 sf	Unspecified
Building floorspace	433,000 sf	544,902 sf	500,000 – 600,000 sf

Parking	1251 surface spaces	1467, some in garage	700-900 spaces (structured), unspecified surface
Impervious surface (acres)	Approx 22 acres	Approx 13 acres	Unspecified

10. *Dimensional Requirements:* The following dimensional requirements shall apply to the PROPERTY as a whole, and not additionally to individual lots (if any) within the PROPERTY:
    a. Maximum imperious surface ratio: Eighty (80) percent;
    b. Maximum building height: Ninety (90) feet;
    c. Minimum front yard landscaped buffer: Twenty (20) feet from the edge of the CONNECTOR right-of-way shall be in the form of a landscaped buffer provided, however, that the area within such buffer may include a retaining wall, walkway, trail, or pathway but no buildings, roadways, parking areas, or other expanses of pavement.
    d. Minimum side yards: Ten (10) feet;
    e. Minimum rear yard: Ten (10) feet;
    f. Pavement setback from lot boundaries: Fifteen (15) feet.

    Staff Finding: The proposal as shown conforms with the dimensional requirements established by the CZA agreement for this site. As stated above, staff is asking that the Master Plan

VII. SITE PLAN STANDARDS (SECTION 14-526)

The proposed development has been reviewed by staff for conformance with the relevant review standards of Portland's site plan ordinance and applicable regulations. Staff comments are listed below.

a) Transportation Standards

a. Impact on Surrounding Street Systems and Access and Circulation

The Traffic Engineering Reviewer has requested further information to evaluate the impacts of the proposals on the surrounding street system. In reviewing the data provided, staff have identified that the City will be implementing traffic signal improvements that would be expected to improve interface of the site with the adjacent street system.

DPW had stated that on-street bicycle accommodations (shoulders and dedicated bike lanes) are not provided consistently along Fore River Parkway. According to DPW, the most likely means of access for bicyclists is via the trail network. Their recommendation was to have pedestrian and bicycle-scale wayfinding signage be added, especially near crossing locations, points of interest and along primary routes to and from the site. The site plan has since been updated to reflect this comment.

b. Public Transit Access

The applicant has submitted a Plan showing existing and future metro Routes and Stops which identify the existing bus shelter being eliminated and replaced by two new bus shelters along Fore River Parkway that would take advantage of changes in Metro's routing, where in both an east and west bound bus would serve the campus. The City is asking that the applicant confirm the status of these conversations with Metro and revise the plan if necessary. Final determination of the shelter location is included as a draft condition of approval.

c. Parking

The applicant is providing a sufficient parking supply to accommodate the proposed uses as evidenced by the trip generation calculations that were submitted. Staff continue to recommend that structured parking be evaluated as part of any future phase.

d. Transportation Demand Management (TDM)

The applicant submitted a revised TDM plan on February 21, 2020, and staff have had limited time to review the material submitted. Staff offer the following preliminary comments, and would ask that finalization of the TDM plan be made a condition of approval.

- The Draft TDM Plan provides a good framework for the consolidated/expanded Mercy Hospital site situated on the Fore River Parkway covering all of the essential Plan elements required.
- Requested changes to the Draft Plan that would significantly strengthen it include:
    - More emphasis on specific incentives for bicycling, walking, bus transit and carpooling above and beyond promotion and encouragement - we will share examples of incentives by other large employers that are having some success
    - More reliance on electronic display and dissemination of TDM opportunities beyond the static bulletin board display(s) mentioned is needed to keep TDM promotion actively in front of employees, staff and visitors - the information on the use of the employee/staff intranet and external website should be expanded and consolidated within the 'Information and Marketing' section
    - Commitment to participation in a Transportation Management Association once one is formed.

b) Environmental Quality Standards

1. Preservation of Significant Natural Features
   In the context of the CZA Development Standards regarding the preservation of natural features staff have suggested that the applicant mitigate impact to the existing wetland by retaining that feature to the extent possible and enhancing the remaining feature with a robust landscaping plan comprised largely of native species to establish a 'natural' feel for the new pond. Staff are also requesting that the updated order for the Maine DEP SLOD/NRPA permit be provided as a condition of approval.

2. Landscaping and Landscape Preservation *See above under compliance with CZA Development Standards*

3. Water Quality, Storm Water Management and Erosion Control
   The proposed stormwater management wet pond located in the area of the existing wetlands has been reviewed by the Peer Engineer and is considered acceptable in that it meets the site plan and chapter 500 standards. Similarly, staff support a waiver of the Maine DEP Ch. 500 Flooding Standard, on account of the site's proximity to the Fore River.

c) Public Infrastructure and Community Safety Standards

1. Availability and Adequate Capacity of Public Utilities
   The applicant has provided all requisite ability to serve letters.

d) Site Lighting Standards -

The applicant has provided lighting details and a photometric plan which complies with the City's lighting standards as listed under Section 12 of the Technical Manual.

VIII. STAFF RECOMMENDATION

Subject to the proposed motions and conditions of approval listed below, Planning Division staff recommends that the Board find that the Level III site plan application (PL-000820-2019) for phase 2 of Mercy Hospital's Fore River Parkway Campus development, meets the applicable standards of Portland's Land Use Code.

IX. PROPOSED MOTIONS FOR THE BOARD TO CONSIDER

A. WAIVERS

On the basis of the application, plans, reports and other information submitted by the applicant, findings and recommendations contained in the Planning Board Report for the public hearing on February 25, 2020 for application PL-000820-2019 relevant to the Site Plan Standards of the Land Use Code and Portland's Technical and Design Standards, and other regulations, and the testimony presented at the Planning Board Public Hearing:

1. Maine DEP Ch. 500 Flooding Standard
   The Planning Board [**finds / does not find**] based upon the Civil Engineering Peer Reviewers recommendation, that extraordinary conditions exist or undue hardship may result from strict compliance with the Technical Manual standard (Section 5.III) which requires that all Level III site plans comply with Maine DEP Chapter 500's Flooding Standard, that substantial justice and the public interest are secured with the proposed variation in this standard, and that variation is consistent with the intent of the ordinance. The Planning Board [**waives/ does not waive**] the Technical Manual standard Section 5.III to allow direct discharge of stormwater runoff into the Fore River.

2. Sidewalk and Curbing Waiver
   The Planning Board [**finds / does not find**] based upon the Department of Public Work's review, that extraordinary conditions exist or undue hardship may result from strict compliance with the Site Plan Standard (Section 14-526 (a) 2.c) which requires that development provide sidewalks and curbing along all frontages, that substantial justice and the public interest are secured with the proposed variation in this standard, and that variation is consistent with the intent of the ordinance. The Planning Board [**waives/ does not waive**] the Technical Manual standard Section 14-526(a) 2.c on the basis of waiver criteria one and three, to not require sidewalk and curbing along the property's Fore River Parkway frontage.

B. SITE PLAN REVIEW

On the basis of the application, plans, reports and other information submitted by the applicant; findings and recommendations contained in the Planning Board Report for the public hearing on February 25, 2020 for application #PL-000820-2019 relevant to the site plan regulations; and the testimony presented at the Planning Board hearing, the Planning Board [**finds/does not find**] that the plan is in conformance with the site plan standards of the land use code, subject to the following conditions of approval:

PRIOR TO APPLYING FOR A BUILDING PERMIT

1. A copy of the DEP SLOD/NRPA permit shall be provided to the City demonstrating authorization to complete this development.
2. The Master Plan document, approved in 2006, shall be updated to include all relevant information for future phases as shown in the updated concept plan.
3. A revised stormwater maintenance agreement shall be provided for review and approval by DPW and Corporation Counsel.

PRIOR TO ISSUANCE OF A BUILDING PERMIT

4. The applicant shall coordinate with METRO on the location of the new bus shelter, and in the event that no new shelter is proposed, a revised site plan showing any adjustments shall be provided.
5. The Transportation Demand Management (TDM) Plan shall be finalized to the satisfaction of Planning staff and shall incorporate feedback as listed in this report.
6. The applicant shall finalize the protective agreement for the proposed pond and associated features to the satisfaction of the City, and then execute and record this agreement.

PRIOR TO ISSUANCE OF A CERTIFICATE OF OCCUPANCY

7. The applicant shall coordinate with METRO and DPW on the exact positioning of the Rectangular Rapid Flashing Beacon (RRFB) and any signage that may be required, and will install the RRFB accordingly.

X. ATTACHMENTS:

PLANNING BOARD MEMORANDUM ATTACHMENTS

1. Staff Review Comments

APPLICANT'S SUBMITTALS

A. Cover Letter
B. Checklist
C. Right, Title & Interest
D. State Permits
E. Project Description
F. Zoning Assessment
G. CZA Compliance
H. Site Plan Standards Compliance
I. Waivers
J. Financial Capacity
K. Technical Capacity
L. Traffic and Parking Information
M. TDM Narratives
N. Stormwater Management Report
O. Response letters with additional information
P. Construction Management Report
Q. Neighborhood Meeting Materials
R. Signage Package
S. Ability to Serve Letters

PLANS

Plan 1. Cover Sheet
Plan 2. General Notes
Plan 3. Existing Conditions Plan
Plan 4. Demolition and Removals
Plan 5. Overall Campus Map
Plan 6. Overall Site Layout Plan
Plan 7. Wayfinding Plan
Plan 8. Expansion Area Plan
Plan 9. Overall Grading and Drainage Plan
Plan 10. Detailed Grading Plan
Plan 11. Overall Utility Plan
Plan 12. Landscape Plan
Plan 13. Landscape Details
Plan 14. Site Details
Plan 15. Storm Drain and Utility Details
Plan 16. Erosion Control Details
Plan 17. Erosion Control Notes
Plan 18. Wet Pond Plan & Sections
Plan 19. Wet Pond Details
Plan 20. Site Sections
Plan 21. Storm Drain Profiles
Plan 22. Utility Profiles
Plan 23. CZA Materials
Plan 24. Master Plan Phases
Plan 25. Master Plan Pedestrian Access Routes
Plan 26. Pond Walking Trail and Planting Plan
Plan 27. Pond Detail Sheet
Plan 28. Overall Site Plan (Architectural)
Plan 29. Pond Trail Concept Plan
Plan 30. Current Conditions Landcover
Plan 31. Post Development Land Cover
Plan 32. Post Development Watershed Map
Plan 33. Water Quality Map

Plan 34. Hospital First Floor Plan (Revised)
Plan 35. Ground and First Floor Facilities Plan
Plan 36. Second and Third Floor Facilities Plan
Plan 37. ASC Level One Facility Plan
Plan 38. ASC Level TWO Facility Plan
Plan 39. Hospital Addition Exterior Elevations
Plan 40. ASC Exterior Elevations

Portland Maine Yes. Google's good here.

Matthew Grooms <mgrooms@portlandmaine.gov>

175 Fore River Parkway - Mercy Hospital comments

Mike Tremblay <mtremblay@portlandmaine.gov> Fri, Feb 21, 2020 at 1:40 PM
To: Matthew Grooms <mgrooms@portlandmaine.gov>

Matt,

The waiver table I'm looking at is from 8/30/2019 so it may be old, but here are my responses:

Waiver 2: Curb and sidewalk -- DPW does not oppose the waiver request to provide curb and sidewalk from the southerly driveway to the north end of the property. The waiver request is supported by two of the five conditions for a sidewalk waiver as outlined in Section 14-506 of the Land Use Code. Criterion 1 states, "*There is no reasonable expectation for pedestrian usage coming from, going to and traversing the site.".* This critereon applies to the section of sidewalk that the Applicant is applying the waiver for. There are no destinations on the east side of Fore River Parkway to the north of the project site, and given that the railroad bridge north of the site does not provide a sidewalk on the east side of the bridge, it is unlikely this will change in the foreseeable future. As such, this criterion is valid. Secondly, Critereon 3 states " *A safe alternative-walking route is reasonably and safely available, for example, by way of a sidewalk on the other side of the street that is lightly traveled.".* The Fore River Parkway Trail is located across Fore River Parkway from the project site. This trail provides regional connectivity for pedestrians and bicyclists. The applicant has agreed to provide safety enhancements to access this trail, and have committed to installing wayfinding signage to direct pedestrians to the designated walking route.

Waiver 3: Bicycle parking -- DPW does not support a waiver on bicycle parking; however, the Applicant appears to have met the minimum requirements for bicycle parking and therefore this waiver is no longer required.

Mike Tremblay, P.E.
Senior Engineer
Engineering Division
Department of Public Works
City of Portland, ME
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P. 207.874.8881 F. 207.874.8852

[Quoted text hidden]

Portland Maine Yes. Google's good here.

Matthew Grooms <mgrooms@portlandmaine.gov>

PL 820-2019 Mercy Hospital Phase 2/175 Fore River Parkway

1 message

Bruce Hyman <bhyman@portlandmaine.gov> Fri, Feb 21, 2020 at 11:34 AM
To: Matthew Grooms <mgrooms@portlandmaine.gov>
Cc: James Rather <jrather@portlandmaine.gov>, Michael Tremblay <mtremblay@portlandmaine.gov>, Tom Errico <thomas.errico@tylin.com>, Helen Donaldson <hcd@portlandmaine.gov>

Good morning, Matt,

The following are my comments related to the Draft Transportation Demand Management Plan (dated 2/20/20) submitted by the applicant:

- The Draft TDM Plan provides a good framework for the consolidated/expanded Mercy Hospital site situated on the Fore River Parkway covering all of the essential Plan elements required.
- Requested changes to the Draft Plan that would significantly strengthen it include:
  - More emphasis on specific incentives for bicycling, walking, bus transit and carpooling above and beyond promotion and encouragement - we will share examples of incentives by other large employers that are having some success
  - More reliance on electronic display and dissemination of TDM opportunities beyond the static bulletin board display(s) mentioned is needed to keep TDM promotion actively in front of employees, staff and visitors - the information on the use of the employee/staff intranet and external website should be expanded and consolidated within the 'Information and Marketing' section
  - Commitment to participation in a Transportation Management Association once one is formed.

I have other, more specific comments/requested changes related to some of the wording and organization of the Draft Plan that I will share with the applicant.

I suggest that satisfactory revisions related to these comments be the basis for a Condition of Approval by the Planning Board.

Please don't hesitate to contact me if you or the applicant have any questions.

Bruce
--
Bruce Hyman
Transportation Program Manager

Department of Planning & Urban Development
389 Congress Street
Portland, Maine 04101
(207) 874-8717 phone

bhyman@portlandmaine.gov
http://www.portlandmaine.gov/1363/Transportation-Division
http://www.portlandmaine.gov
Yes! Transportation's Good Here ....

Portland Maine Yes. Google's good here.

Matthew Grooms <mgrooms@portlandmaine.gov>

Mercy Hospital - DEP Materials

Lauren Swett <lswett@woodardcurran.com> Fri, Feb 21, 2020 at 1:10 PM
To: Matthew Grooms <mgrooms@portlandmaine.gov>

Hi Matt,

Yes, I think a condition would be warranted. Steve notes they are waiting on the receipt of the updated order, so the condition could be as simple as providing a copy of the updated Maine DEP SLOD/NRPA permit.

Steve also note that they are working with Corporation Council on preservation of the pond, I don't know if that has been finalized or requires a condition? Steve was also waiting for a sewer ability to serve from Brad.

I am good with everything else they have provided.

Thanks,

Lauren

From: Matthew Grooms <mgrooms@portlandmaine.gov>
Sent: Friday, February 21, 2020 12:50 PM
To: Lauren Swett <lswett@woodardcurran.com>
Subject: Mercy Hospital - DEP Materials

This message was sent securely using Zix®

[Quoted text hidden]

Notice: Under Maine law, documents - including e-mails - in the possession of public officials or city employees about government business may be classified as public records. There are very few exceptions. As a result, please be advised that what is written in an e-mail could be released to the public and/or the media if requested.

This message was secured by **Zix®**.

Att. A

GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, Maine 04106
207.772.2515

August 23, 2019

Ms. Christine Grimando
Planning and Development Department
City of Portland, Maine
389 Congress Street
Portland, Maine 04101-3509

Subject: Application for Level III Site Plan Application
Northern Light℠ Mercy Hospital – Fore River Campus Consolidation

Dear Christine:

On behalf of **Mercy Hospital dba Northern Light℠ Mercy Hospital** (Applicant), our office is pleased to provide the uploaded submission materials for a Level III Site Plan Application. This submission package is intended to meet the City's Level III Site Plan Submission requirements as outlined in the Level III Site Plan Checklist as well as Section 14-526 of the Code of Ordinances.

PROJECT OVERVIEW

Northern Light℠ Mercy Hospital is proposing to develop their Phase 2 Hospital expansion on the Fore River development site with construction to begin in early 2020, pending City Site Plan approval and building permits from now thru the end of the year. The site is currently in the Mercy Hospital Contract Zone District. The site is identified in the City's Assessors Maps as follows:

Tax Map	Block/Lot
73	A-1 B-2 (MUD FLATS) B-7
74	A-1 A-2 B-3 (MUD FLATS) B-11 B-12
74A	A-1 (MUD FLATS) A-2 (MUD FLATS)
75	A-3 B-4 B-30 (MUD FLATS)
75A	A-1 (MUD FLATS) A-17
76	B-33 B-1 (MUD FLATS) B-2

The current development plan includes the following uses:

- The Phase 2 Hospital expansion wherein all State Street hospital functions are relocated to the Fore River campus. This will include an additional 54,889 SF of Hospital program area over a 20,140 SF building expansion footprint. The hospital expansion will include Emergency Room services, thus a new parking area with 19 spaces designated for emergency room patient and visitors will be provided to the north side of the expansion. Additional parking for up to 8 ambulances will also be provided and designated entries for both patient drop off and ambulance drop off/pick up to the emergency room have been depicted on the site plan. This Hospital expansion was contemplated back in 2006 at the time of the original Phase 1 site plan review and its positioning is in keeping with the plans reviewed and approved at that time.

- The front entry drive past the existing main Hospital entrance will be extended between the existing Hospital, proposed expansion and the existing Medical Office thus connecting the front of the Hospital to the parking lot to the north side of the MOB. This one-way drive will provide access to the expansion and the MOB.

- A 34,987 SF Ambulatory Surgical Center (ASC) will be established within the former borrow pit that will be partially filled. The two-story building will be accessed from a new driveway off the signalized southerly site entrance. Building access will also include staff parking and entry at the rear of the building. The ASC positioning will keep its visibility somewhat muted given the location and higher building height of the existing hospital in the foreground and the much larger new MMC 2,500-space parking garage in the background. The ASC positioning is intended to allow for possible future building development within the center of the property whereby additional Hospital expansion and/or medical office space opportunities can be realized based on the direct proximity to the existing hospital building. Additionally, the ASC is positioned for convenient access off the southerly, signalized site entrance off the Fore River Parkway and also for ease of utility connectivity to the existing utilities that are located along the site's rear perimeter, nearest the railroad tracks.

- Accessory uses, including but not limited to, surface parking facilities, ASC utility services, stormwater management systems, and site amenities are also part of the current proposal. A new parking lot containing 103 parking spaces will be provided on the north end of the ASC site and this parking is expected to replace the displaced parking due to the expansion. An additional parking lot of 73 spaces will be provided on the south side of the ASC and this lot will be designated specifically for ASC use. The total onsite parking available will be 857 spaces, which will exceed the required by code parking requirement of 679 spaces. The expected parking demand for the site upon completion of the Hospital expansion and the ASC is met with the 857 spaces as that provides for a "practical capacity" factor of around 25%. A parking demand study at the Fore River campus completed by Gorrill Palmer in January 2017, determined the parking demand to be about 525 vehicles using the 762 existing spaces. Mercy anticipates the proposed parking will adequately meet proposed demand and this will preclude the need for any further parking expansion or structured parking conditions;

- There will be continued use of public open space along the waterfront at the north and south ends of the Campus and access to the Fore River Trail along the Parkway as well as pedestrian walks throughout the campus.

- Continued use of the south end of the campus for snow storage and/or remote parking.

- Metro Route 1 Congress Street Bus service currently serves the site and this will continue until METRO implements currently planned changes to their service routes. There is an existing bus shelter located on the site that will remain in the interim. We have met with Greg Jordan of Metro and we understand they are currently evaluating route changes and updates that might include two directional routes along the Fore River Parkway. We have also discussed the implementation of new bus stops along the Parkway in front of the site, to replace the current Route – Congress Street circuit that goes through the site. Mercy will continue to work with Metro and City officials on the updates to Metro service for this site over the upcoming months.

CLOSURE

As outlined in the Level III Site Plan submission requirements and checklist, we will upload the following materials:

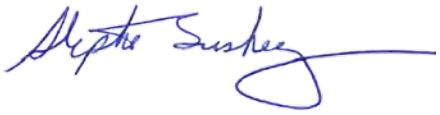
- General Application Documents
    - Project Description
    - Level III Application Checklist
    - Right, Title and Interest
    - Zoning Assessment
    - Existing and/or Proposed Easements
    - Waiver Request and Waiver Table
    - Financial Capacity
    - Technical Capability
- Transportation
    - Transportation Narrative
    - Traffic Assessment
- Environmental and Landscape Features
    - Narrative to Address Standards
- Environmental and Stormwater
    - Narrative to Address Standards
- Public Infrastructure and Safety
    - Narrative to Address Standards
- Site Design
    - Narrative to Address Standards
- Construction Management Plan
- Site Plans and Architectural Plans

On behalf of the Northern Light℠ Mercy Hospital, we look forward to your continued assistance on the project and we look forward to the next available workshop meeting with the Planning Board. As is required, once we complete the Planning Board workshop, the applicant will be conducting a Neighborhood Meeting. We anticipate this meeting will be conducted prior to the Public Hearing. We also note that we will be filing an amendment application with the Maine Department of Environmental Protection and the US Army Corp of Engineers related to the changes in the development design since the last permit issuance in 2013.

If you have any questions regarding the materials being submitted, please contact this office.

Sincerely,

GORRILL-PALMER



Stephen Bushey, PE
Senior Associate
Phone: 207-772-2515 x286
sbushey@gorrillpalmer.com

Attachments

c: Nick Munro, Northern Light℠ Mercy Hospital
Ed Gilman, Northern Light℠ Mercy Hospital
Kristen Damuth, SMRT

U:\3257.04_Mercy Hospital_Expansion_DD_Permits\P Applications\Local\Level III site plan\sub_level3_sp_20190821_final.docx

CITY OF PORTLAND
Planning & Urban Development Department

LEVEL II and LEVEL III SITE PLAN
GENERAL DOCUMENT AND DRAWINGS CHECKLIST
Please submit each document as a separate PDF file
Please confirm by electronically checking the boxes to the left

** PLEASE FILL OUT AND UPLOAD SEPARATELY THE ZONING TABLE AND WAIVER TABLE AS NOTED BELOW **

GENERAL APPLICATION DOCUMENTS	
Yes ☑ NA ☐	**Project Description** • Cover Letter with detailed project description
Yes ☑ NA ☐	**Completed Checklist – Level I: Site Alteration** (this document)
Yes ☑ NA ☐	**Right, Title and Interest** • Deeds, leases, or purchase and sales agreements
Yes ☑ NA ☐	**Evidence of State or Federal Approvals** • Permits or letters of non-jurisdiction, if applicable
Yes ☑ NA ☐	**Zoning Assessment** • Table listing required and proposed uses and dimensional standards Zoning Assessment Table
Yes ☑ NA ☐	**Existing and/or Proposed Easements or Covenants, applicable.** • Evidence of existing easements and any proposed easements
Yes ☑ NA ☐	**Waiver Requests** • Written request for waiver describing request and reason Waiver Table
Yes ☑ NA ☐	**Financial Capability** • Letter or evidence from a financial institution or third party verifying financial capacity to undertake project
Yes ☑ NA ☐	**Technical Capability** • Evidence of technical capability of applicant and consultants – resumes and/or examples of past projects

LEVEL II AND LEVEL III SITE PLAN
STANDARDS AND SUBMISSION CHECKLIST

Provide assessment of compliance with standards and include supplemental documentation, as applicable
Please Submit each document as a separate PDF file

TRANSPORTATION

Yes	NA	
☑	☐	**Transportation Analysis- Traffic Impact (14-526 (a) 1)** • Provisions for pedestrian, bicycle, vehicle, and loading circulation and incremental volume of traffic impacts • Traffic Impact Study (Technical Manual, Section 1) if applicable
☑	☐	**Access and Circulation (14-526 (a) 2 a)** • Access and internal circulation, addressing ADA access • Access and egress impacts on traffic flows • Description and use of drive-up features, if applicable
☑	☐	**Loading and Servicing (14-526 (a) 2 b)** • Loading and servicing needs, route and travel way geometrics for deliveries • Turning templates for delivery vehicles, if applicable
☑	☐	**Sidewalks (14-526 (a) 2 c)** • Sidewalks and condition along street frontages and internal walkways • Engineered details for ADA ramps and public sidewalk details meeting sidewalk materials policy and ADA ramp construction details as applicable (Technical Manual, Section 1)
☑	☐	**Public Transit (14-526 (a) 3), if applicable** • Existing available transit services • Proposed site plan design details, such as easement, pad base, and shelter
☑	☐	**Off-Street Parking: Vehicle & Motorcycle/Scooter) (14-526 (a) 4 a and c)** • Expected parking demand, proposed parking supply, ADA parking, and applicable Zoning Requirements • Address Technical Manual standards (Section 1) for curb cut separation and parking lot layout and locate on site plan
☑	☐	**Bicycle Parking (14-526 (a) 4 b)** • Address bicycle parking requirements and identify locations on-site • Construction details for bike racks (Technical Manual, Section 1)
☑	☐	**Snow Storage (14-526 (a) 4 d)** • Management plan for snow removal and locate snow storage areas on plan
☑	☐	**Traffic Demand Management (TDM) (14-526 (a) 5), if applicable** • Develop TDM with Trip Reduction Targets and Strategies

ENVIRONMENTAL AND LANDSCAPE FEATURES	
Yes ☐ NA ☑	**Preservation of Significant Natural Features (14-526 (b) 1), if applicable** • Trees, plants, habitats listed on State or Federal list of endangered or threatened • High and moderate value waterfowl and wading habitat • Aquifers on Casco Bay Islands • Waterbodies (including wetlands, watercourses, significant vernal pools and floodplains) • Proposed preservation areas and protection measures • Documentation from environmental consultants, determinations from applicable state agencies
Yes ☑ NA ☐	**Landscaping and Landscape Preservation (14-526 (b) 2 a)** • Preservation of trees and preservation within required zoning setbacks (Technical Manual, Section 4) • Protection measures of existing vegetation during construction • Protection measures within Shoreland Zone, if applicable
Yes ☑ NA ☐	**Site Landscaping (14-526 (b) 2 b)** • Screening and buffering of service areas and between non-residential and residential uses • Planting plans with plant schedule and sizes (Technical Manual, Section 4)
Yes ☑ NA ☐	**Parking Lot Landscaping (14-526 (b) 2 b ii), if applicable** • Landscaped islands within parking areas (Technical Manual, Section 4)
Yes ☑ NA ☐	**Street Trees (14-526 (b) 2 b iii)** • Existing Heritage or Feature Trees on site and measures to preserve • Identify street trees on the plan meeting the site plan and Technical Manual standards (Section 4) or identify alternative measures, if applicable
ENVIRONMENTAL AND STORMWATER	
Yes ☑ NA ☐	**Water Quality, Stormwater Management and Erosion Control (14-526 (b)3 a)** • Stormwater report in compliance with Section 5 of Technical Manual and DEP Chapter 500 stormwater for basic, general and flooding standards, as applicable • Erosion control plan and measures • Evidence of compliance with Urban Impaired Stream Standards pursuant to DEP Chapter 500 stormwater, as applicable • Subsurface sanitary sewage disposal and groundwater protection

PUBLIC INFRASTRUCTURE AND SAFETY	
Yes ☑ NA ☐	**Consistency with City Master Plans (14-526 (c) 1)** • Identify consistency with master plans • Proposed easements, rights and improvements to connect or continue off-premises public infrastructure, as applicable
Yes ☑ NA ☐	**Public Safety and Fire Prevention (14-526 (c))** • Address Crime Prevention through Environmental Design (CPTED) (Technical Manual, Section 3) • Emergency vehicle access • Address consistency with public safety standards (Technical Manual, Section 3) • Submit a code summary referring NFPA 1 and all Fire Department standards (Technical Manual, Section 3) – Fire Checklist
Yes ☑ NA ☐	**Availability and Adequacy of Public Utilities (14-526 (c) 3) (Technical Manual, Sections 2 & 9)** • Electrical services, including providing underground services • Identify existing and proposed connections for public utilities and required public utility upgrades • Sewer line connections are required, if there is a main within 200 feet • Proposed solid waste management facilities on-site and management for the site • Written evidence of the ability to serve from utility companies, as applicable
SITE DESIGN	
Yes ☑ NA ☐	**Massing, Ventilations and Wind Impact (14-526 (d) 1)** • Wind and ventilation impacts on adjoining structures and/or adjacent public spaces. Wind study, if applicable • Bulk, location or height impacts on adjoining structures • Identify and locate HVAC equipment and venting away from public spaces and residential properties • Identify screening and manufacturing specifications for noise, if applicable
Yes ☑ NA ☐	**Shadows (14-526 (d) 2), if applicable** • Shadow analysis of impacts on publicly accessible open space (Technical Manual, Section 11)
Yes ☑ NA ☐	**Snow and Ice Loading (14-526 (d) 3)** • Building design to prevent snow and ice from loading or falling onto adjacent properties or public ways
Yes ☑ NA ☐	**View Corridors (14-526 (d) 4), if applicable** • Protection of designated view corridors (Portland Design Manual, Appen. 1)

Yes ☐ NA ☑	**Historic Resources (14-526 (d) 5), if applicable** • Identify developments within Historic Districts or affecting Designated Landmarks • Certificate of Appropriateness or other evidence • Identify Developments within 100 feet of Historic Districts or affecting Designated Landmarks. Advisory HP review may be required • Address preservation and documentation of Archaeological Resources
Yes ☑ NA ☐	**Exterior Lighting (14-526 (d) 6)** • Cut sheets of on-site light fixtures and any architectural or specialty lights (Technical Manual, Section 12) • Engineered details for any lights proposed in street right-of-way (Technical Manual, Section 10)
Yes ☑ NA ☐	**Noise and Vibration (14-526 (d) 7)** • Evidence of noise levels for equipment, such as equipment specifications, to demonstrate consistency with zoning requirements
Yes ☑ NA ☐	**Signage and Wayfinding (14-526 (d) 8), if applicable** • Signage plan showing the location, dimensions, height and setback of all existing and proposed signs. Signs in Historic Districts are reviewed by Historic Preservation staff • Proposed commercial and directional signage on site
Yes ☑ NA ☐	**Zone Related Design Standards (14-526 (d) 5)** • Address Historic Preservation Design Review, if applicable • Address any applicable design review standards by zone • Address submission requirements from Design Manual, page 1, addressing neighborhood context • Description of exterior materials, color, finish, and samples
Construction Management Plan	
Yes ☑ NA ☐	**Construction Management Plan** • Construction Management Document and Plan

LEVEL II AND LEVEL III SITE PLAN
DRAWINGS CHECKLIST

Please upload the following DRAWINGS with the listed details into e-Plan as separate pdfs

RECENT BOUNDARY SURVEY (stamped by Maine Licensed Surveyor)

- [x] Must be in compliance with Technical Manual, Section 13

SITE PLAN(s) (stamped by Maine Licensed Engineer) including:

Existing Conditions

- [x] Approximate location of structures on abutting property
- [x] Topography
- [x] Locate water courses
- [ ] Delineate wetlands
- [x] Zone lines

Proposed Site Plan

- [x] Ground floor area, and grade elevations for all buildings

Access, Circulation, and Parking

- [x] Streets and intersections adjacent to site, any proposed geometric modifications
- [x] Location, dimensions and materials of all existing and proposed driveways, vehicle, bicycle, & pedestrian access ways with corresponding curb lines
- [x] Engineered specifications/ cross-sections for proposed driveways, sidewalks & paved areas
- [x] Location and dimensions of proposed loading areas
- [x] Existing and proposed transit infrastructure with dimensions/ engineering specifications
- [x] Location of vehicle and bicycle parking with dimensions and engineering specifications

Site Considerations

- ☑ Identify snow storage areas
- ☑ Location of fire hydrants
- ☑ Location of solid waste management facilities

UTILITY PLAN including:

- ☑ Existing utilities on site and within public streets
- ☑ Location, sizing and directional flows of all existing and proposed utilities
- ☑ Location and dimensions of off-premises public or publicly accessible infrastructure adjacent to site
- ☑ Electric utility infrastructure

GRADING AND DRAINAGE PLAN including:

- ☑ Existing grades and drainage
- ☑ Proposed grades
- ☑ Proposed stormwater management meeting Technical Manual (Section 5), standards
- ☑ Location and proposed alteration of a water course
- ☑ Preservation or alteration of wetlands

EROSION CONTROL

- ☑ Must be in compliance with Technical Manual, Section 5

LANDSCAPE PLAN including:

- ☑ Existing vegetation to be preserved and preservation measures
- ☑ Proposed landscaping and buffers
- ☑ Planting schedule

RECORDING PLAT, if applicable
☐ If Subdivision, must be in compliance with requirements of Section 14-496 (b)
ARCHITECTURAL PLANS AND RENDERINGS including:
☑ Exterior building elevations, color renderings, illustrations of all sides
☑ Location and dimensions of all existing and proposed HVAC and mechanical equipment, all proposed screening
☑ Provide context drawings, if applicable (Design Manual, page 1)
☑ Floor plans

GENERAL APPLICATION DOCUMENT

TECHNICAL CAPABILITY

The applicant has retained a highly qualified team of professionals to undertake planning, permitting and design tasks on this project. Services will be provided by the following companies and their respective team leaders:

Civil Engineer	Stephen Bushey, P.E. Gorrill-Palmer Consulting Engineers 707 Sable Oaks Drive South Portland, Maine 04106 (207) 772-2515 – Work sbushey@gorrillpalmer.com
Architect	SMRT Architects and Engineers 144 Fore Street Ste A Portland, Maine 04101 (207) 772-3846 Attn: Kristen Damuth, AIA, CSI KDamuth@smrtinc.com
Surveyor	Randy Loubier Owen Haskell, Inc. 390 US Route 1, Unit 10 Falmouth, ME 04105 (207) 774-0424 – Work (207) 774-0511 – Fax rloubier@ownehaskell.com
Traffic Engineer	Randy Dunton, P.E. Gorrill-Palmer Consulting Engineers 707 Sable Oaks Drive South Portland, Maine 04106 (207) 772-2515 – Work rdunton@gorrillpalmer.com
Geotechnical Consultant	Bryan Steinert, P.E. Haley & Aldrich, Inc. 75 Washington Ave, Ste 1A Portland, Maine 04101 (207)482-4600 BSteinert@haleyaldrich.com
Mercy Facilities	Nick Munro – Facility Project Manager Northern Light Healthcare 43 Witing Hill Road Brewer, ME 04412 (207)553-6633 nmunro@northernlight.org

The team of consultants retained has expertise and experience in the design of similar institutional projects. Resumes of key personnel for development team can be provided upon request.

GENERAL APPLICATON DOCUMENT

FINANCIAL CAPACITY

The Applicant has adequate financial resources to undertake this project as evidenced by the approved Certificate of Need notification issued by the Maine Department of Health and Human Services on April 17, 2019, a copy of which is attached. The following excerpt of the CON Unit response from DHHS outlines their findings:

> *"Based on the review of the applicant's financial projections and financial performance indicators, CONU believes the underlying assumptions regarding future performance are reasonable. Since Northern Light Health and the hospital members of the obligated group are jointly and severally obligated on the system's bonded indebtedness, CONU reviewed Eastern main Healthcare Systems (Now Norther Light) 2018 and 2017 consolidated financial statements and believes the sufficient financial resources exist to assist Mercy if financial projections are not realized. Due to Mercy's campaign and the proposed sale of the State Street facility additional debt has been minimized. CONU believes that the project is necessary Operating two campuses is simply not financially sustainable in the long term. Since the ability of the applicant to support the project financially over its useful life is heavily dependent on both inpatient and outpatient volume CONU is including the following condition:*
>
> **Condition:** *The applicant is to report inpatient discharge volume and outpatient encounter volume on an annual basis, within 90 days of its fiscal end, beginning with the time period when the Certificate of need was approved until a full three years have elapsed since the date of project completion."*

The estimated full cost of the project is $74.7 million; the certificate of need applicable capital cost is $63.1 million. Campus consolidation will reduce Mercy's current operating expenses by a net of $1.2 million annually following full implementation.

GENERAL APPLICATION DOCUMENTS

RIGHT, TITLE & INTEREST

Northern Light Mercy Hospital owns the property as evidenced in the accompanying deeds. Mercy currently is entered into a lease agreement with HCRI Fore River Medical Facilities LLC as they own the medical office building. Mercy has also previously transferred approximately 1.48 acres of land to the Maine Department of Transportation for the construction of the Fore River Parkway and the Veterans Memorial Bridge. The purchase deeds held by Mercy Hospital are included at the end of this section.

EASEMENT DEED

The **STATE OF MAINE**, by its Department of Transportation, with offices in Augusta, Maine ("Grantor"), for consideration paid, grants to **MERCY HOSPITAL**, a Maine non-profit corporation with a mailing address of 144 State Street, Portland, Maine 04101-3795 ("Grantee"), its successors and assigns, for the benefit of and appurtenant to certain lots or parcels of land, situated in the City of Portland, County of Cumberland and State of Maine, as described in a deed from Merrill Industries, Inc. to Mercy Hospital dated October 9, 2002 and recorded in the Cumberland County Registry of Deeds in Book 18203, Page 128 and in a deed from Portland Terminal Company to Mercy Hospital dated June 26, 2002 and recorded in said Registry of Deeds in Book 17783, Page 289 (collectively "Grantee's Property"), an easement, in common with the Grantor herein, located in the City of Portland, County of Cumberland and State of Maine, and more particularly bounded and described as follows:

This Easement shall include the perpetual right to flow water through drainage structures, including, but not limited to, storm sewer outlet pipes, catch basins, and outlet ditches ("Drainage Structures") installed or to be installed by Grantor, under or adjacent to State Highway "10" as shown on a plan entitled "Right-of-Way Map, State Highway "10", City of Portland, Federal Aid Project No. TCSP-7589 (200)X, (PIN 007589.20), dated September 2002" as revised on file in the office of the Department of Transportation, (D.O.T. File No. 3-483) to be recorded in the Cumberland County Registry of Deeds ("Right of Way Map"), together with the perpetual right to flow water under and across State Highway "10" and to connect to and use any and all Drainage Structures installed by Grantor, whether located inside or outside the bounds of State Highway "10", for the purpose of flowing water from Grantee's Property located easterly of said State Highway "10" to Grantee's Property located westerly of said State Highway "10", in the locations shown generally on the Right of Way Map as follows:

Type	**Location**	**Direction of Flow**
Storm Sewer Outlet Pipe	Sta. 1+010.4 to Sta. 1+082 (approximately)	Northwesterly

That portion of the Storm Sewer Outlet Pipe located between Station 1+010.4 (approximately) and Station 1+026.2 (approximately) is located on a portion of Grantee's Property and is to be used in common between the Grantor and Grantee.

Storm Sewer Outlet Pipe	Sta. 1+360.5 to Sta. 1+392 (approximately)	Northwesterly
Storm Sewer Outlet Pipe	Sta. 1+528.0 to Sta. 1.534.7 Rt.	Southwesterly

Those portions of the Storm Sewer Outlet Pipe located between Station 1+528.0 and Station 1+534.7 and lying easterly of and westerly of said State Highway "10" are located on a portion of Grantee's Property and are to be used in common between the Grantor and Grantee.

Being a portion of the premises described in the Notice of Layout and Taking dated November 11, 2002 and recorded in the Cumberland County Registry of Deeds in Book 19154, Page 155.

The STATE OF MAINE has caused this instrument to be signed by David A. Cole, Commissioner of the Department of Transportation, thereunto duly authorized, this 5 day of January 2005.

Signed, sealed and delivered
in the presence of

Cheryl C Martin-Hunt

STATE OF MAINE
DEPARTMENT OF TRANSPORTATION

By: David A. Cole
Its Commissioner

STATE OF MAINE
KENNEBEC, SS.

January 5, 2005

Personally appeared the above-named David A. Cole, Commissioner, Department of Transportation, and acknowledged this instrument to be his free act and deed and the free act and deed of the State of Maine.

SEAL

Cheryl C Martin-Hunt

Notary Public
Printed Name:
My commission expires:

CHERYL C. MARTIN-HUNT
Notary Public State of Maine
My commission expires December 5, 2010

Received
Recorded Register of Deeds
Jan 27,2005 09:30:35A
Cumberland County
John B OBrien

[W0208832.14]

DECLARATION OF COVENANTS AND RESTRICTIONS

THIS DECLARATION OF COVENANTS AND RESTRICTIONS is made this 29th day of October, 2007, by Mercy Hospital, a nonprofit corporation having a place of business located in the City of Portland, County of Cumberland, State of Maine (herein referred to as the "Declarant"), pursuant to State of Maine Department of Environmental Protection (hereinafter "DEP") Permit Numbers L-20775-19-A-N and L-20775-TG-B-N, dated June 26, 2002, and recorded in Book 17869, Page 165 at the Cumberland County Registry of Deeds (hereinafter referred to as the "Order"), relating to preservation of land near the Fore River in the City of Portland, State of Maine.

RECITALS

WHEREAS, Declarant holds title to certain real property situated in Portland, Maine pursuant to a deed from Portland Terminal Company dated June 26, 2002, and recorded in Book 17783, Page 289 at the Cumberland County Registry of Deeds, and a deed from Merrill Industries, Inc., dated October 9, 2002 and recorded in Book 18203, Page 128 at said Registry of Deeds (the "Hospital Premises"); and

WHEREAS, Declarant desires to place certain deed covenants, under the terms and conditions herein, over a portion of the Hospital Premises (such portion being hereinafter referred to as the "Covenant Area"), which Covenant Area is described in Exhibit A attached hereto.

WHEREAS, pursuant to the Natural Resources Protection Act, Title 38 M.R.S.A. Section 480-A et seq. and Chapter 310 of regulations promulgated by the DEP (the "Wetland Protection Rules"), Declarant has agreed, in satisfaction of Condition 7 of the Order, to impose certain covenants and restrictions on the Covenant Area as more particularly set forth herein and has agreed that such covenants and agreements may be enforced by the DEP or any successor in interest.

NOW, THEREFORE, Declarant hereby declares that the Covenant Area is and shall forever be held, transferred, sold, conveyed, occupied, and maintained subject to the covenants, conditions, and restrictions set forth in Section 1 below (sometimes referred to as the "Covenants and Restrictions"). The Covenants and Restrictions shall run with the Covenant Area and shall be binding on all parties having any right, title, and interest in and to the Covenant Area, or any portion thereof, and their heirs, personal representatives, successors, and assigns. Any present or future owner or occupant of the Covenant Area or any portion thereof, by the acceptance of a deed of conveyance of all or part of the Covenant Area or an instrument conveying any interest

therein, whether or not the deed or instrument shall so express, shall be deemed to have accepted the Covenant Area subject to the Covenants and Restrictions and shall agree to be bound by, to comply with, and to be subject to each and every one of the Covenants and Restrictions hereinafter set forth.

1. Restrictions on Covenant Area. Unless the Declarant of the Covenant Area, or its successors or assigns, obtains the prior written approval of the DEP (or any successor thereof), and with the exception of normal maintenance activities that can be performed by hand and will disturb minimal amounts of vegetation, the Covenant Area shall remain undeveloped in perpetuity. In furtherance of such restriction, the following specific covenants and restrictions shall apply to the Covenant Area:

a. no snow, soil, loam, peat, sand, gravel, concrete, rock, or other mineral substance, refuse, trash, vehicle bodies or parts, rubbish, debris, junk waste, pollutants, or other fill material will be placed, stored, or dumped on the Covenant Area and the surface waters contained thereon, nor shall the topography of the area be altered or manipulated in any way other than by forces of nature;

b. no trees, grasses, shrubs, vines, or other vegetation shall be cut, destroyed, or sprayed with biocides, except that (i) de minimis flower picking shall be allowed, (ii) pruning will be allowed solely to maintain a clear pathway on any path or trail, and (iii) dead wood that is leaning, fallen, or presents a safety hazard may be removed;

c. no ditches shall be dug in the Covenant Area and, other than by forces of nature, no draining of the Covenant Area shall take place, no pumping or any other removal of water shall occur on the Covenant Area, and no manipulation or alteration of natural water courses or hydrology within the Covenant Area shall be permitted;

d. no building, sign, fence, utility pole, or other temporary or permanent structure will be constructed, placed, or permitted to remain on the Covenant Area;

e. no trucks, cars, dirt bikes, ATVs, bulldozers, backhoes, or other motorized vehicles or mechanical equipment shall be permitted on the Covenant Area; and

Any activity on or use of the Covenant Area inconsistent with the purpose of these Covenants and Restrictions is prohibited. Prior to undertaking any changes in the use of the Covenant Area, the Declarant, its successors and assigns, shall consult with the DEP regarding the proposed changes to determine the effect of such changes on the conservation values of the Covenant Area. The DEP shall have the right to approve such changes in use if such uses do not impair or impede the conservation values of the Covenant Area or the purpose of the Covenants and Restrictions.

2. Enforcement. The DEP may enforce any of the Covenants and Restrictions set forth in Section 1 above. Any future alterations of the Covenant Area must receive the prior approval in writing from the DEP, except as expressly permitted in Section 1 above.

3. Binding Effect. The restrictions set forth herein shall be binding on the Declarant and any future owner of the Covenant Area. If the Covenant Area is at any time owned by more than one owner, each owner shall be bound by the foregoing restrictions but only to the extent that any of the Covenant Area is included within such owner's property.

4. Amendment. Any provision contained in this Declaration may be amended or revoked only by the recording of a written instrument or instruments specifying the amendment or the revocation signed by the owner or owners of the Covenant Area and by the DEP (or any successor thereto).

5. Effective Provisions of Declaration. Each provision of this Declaration, and any agreement, promise, covenant, and undertaking to comply with each provision of this Declaration, shall be deemed a covenant running with the land as a burden and upon the title to the Covenant Area.

6. Severability. Invalidity or unenforceability of any provision of this Declaration in whole or in part shall not affect the validity of enforceability of any other provision or any valid and enforceable part of a provision of this Declaration.

7. Governing Law. This Declaration shall be governed by and interpreted in accordance with the laws of the State of Maine.

MERCY HOSPITAL

Eileen F. Skinner

By: Eileen F. Skinner
Its: President + CEO

STATE OF MAINE
COUNTY OF CUMBERLAND, ss. Oct. 29, 2007.

Personally appeared before me the above-named Eileen F. Skinner, the President + CEO of MERCY HOSPITAL, and acknowledged the foregoing instrument to be ~~his~~/her free act and deed in ~~his~~/her said capacity and the free act and deed of said MERCY HOSPITAL.

Notary Public/Attorney at Law
ROBIN R. POULIN
Notary Public, Maine
My Commission Expires December 3, 2011

SEAL

EXHIBIT A

A certain lot or parcel of land situated northerly of the Blue Star Memorial Highway (Route #1) at the Veteran's Memorial Bridge on the Fore River in the City of Portland, County of Cumberland and State of Maine being bounded and described as follows:

Commencing at a rod marking a point 50.00 feet westerly of and at right angles to the center line of the main track marking a P.C. Station of 23 + 11.35 feet as shown on right of way and track map Portland Terminal Company dated June 30, 1916 revised March 1938 filed in the Portland terminal Company in V1-D over 1-A; said rod being approximately 675' northerly of the northerly right of way line of said Route #1;

Thence N 10° 46' 21" W a distance of 482.85 feet;

Thence S 72° 51' 08" W a distance of 85.07 feet to the Point of Beginning;

Thence "around" the existing pond the following courses and distances:

N 89° 17' 49" W a distance of 116.96 feet;
N 39° 59' 46" W a distance of 95.00 feet;
S 80° 40' 20" W a distance of 21.19 feet;
S 00° 22' 56" W a distance of 95.58 feet;
S 87° 47' 32" W a distance of 102.76 feet;
N 41° 04' 07" W a distance of 120.83 feet;
N 28° 32' 57" W a distance of 70.16 feet;
N 30° 50' 33" E a distance of 133.22 feet;
N 10° 00' 00" W a distance of 106.88 feet;
N 00° 17' 29" W a distance of 84.15 feet;
N 33° 50' 55" E a distance of 123.07 feet;
N 36° 10' 32" E a distance of 122.79 feet;
N 47° 34' 00" E a distance of 79.71 feet;
S 24° 04' 28" E a distance of 53.73 feet;
S 43° 06' 20" W a distance of 30.94 feet;
S 10° 39' 58" W a distance of 27.92 feet;
S 37° 32' 39" W a distance of 89.47 feet;
S 43° 38' 51" E a distance of 131.58 feet;
S 4° 06' 45" W a distance of 40.93 feet;
S 25° 54' 26" E a distance of 85.51 feet;
S 15° 10' 22" E a distance of 207.96 feet;
N 77° 01' 33" E a distance of 42.02 feet;
S 41° 28' 05" E a distance of 27.22 feet;
S 10° 00' 00" E a distance of 27.30 feet;

S 16° 46' 44" W a distance of 64.05 feet to the point of beginning, containing 3.52 acres, more or less.

Reference is made to a plan entitled "Wetland Compensation Area off I-295 Connector, Portland, Maine made for Mercy Hospital," dated September 27, 2007, by Owen Haskell, Inc.

Received
Recorded Register of Deeds
Nov 02,2007 01:40:55P
Cumberland County
Pamela E. Lovley

RECREATIONAL TRAIL EASEMENT

MERCY HOSPITAL, a nonprofit corporation located in the City of Portland, County of Cumberland, and the State of Maine (hereinafter referred to as "Grantor"), GRANTS, as a gift to PORTLAND TRAILS, a Maine nonprofit corporation (hereinafter referred to as "Holder"), in perpetuity, the following described Recreational Trail Easement (hereinafter referred to as "Easement"), over the "Property" as more fully described below.

Recitals

A. Grantor owns a parcel of land located along the Fore River in the City of Portland, State of Maine, as more particularly described in **Exhibit A** attached hereto and made a part hereof (the "Property").

B. In order to comply with the requirements of Paragraph 6 of the Contract Zone Agreement Between City of Portland and Mercy Hospital and Mercy Health System of Maine (hereinafter referred to as the "Contract Zone Agreement"), Grantor has agreed to grant Holder an Easement in perpetuity over the pedestrian paths and bicycle paths on the Property.

C. This Easement is established pursuant to Title 33 Maine Revised Statutes Annotated Section 1581, et. seq.

NOW THEREFORE, Grantor establishes this Easement on, over, and across the Property as follows:

1. Recreational Purpose. This Easement is for the purpose of providing the general public the right to use certain trails on the Property for pedestrian and bicycle uses.

2. Easement. Grantor hereby grants to Holder a perpetual easement in gross, in common with Grantor and others, for pedestrian and bicycle use by the general public of those trails on the Property as particularly depicted on the "Recreational Trail Easement Plan" attached as **Exhibit B** and incorporated herein. Reserving to Grantor the right to make minor modifications to the location of the trails shown on the Recreational Trail Easement Plan, subject to the review and approval of the Holder and provided that Grantor shall be obligated to obtain all necessary permits and approval for such modifications.

3. Signage. Grantor shall install and maintain trail signs directing the general public to the trail location provided for by this Easement. Such signage shall be of a type, number and location approved by Holder.

4. Rules.

(a) With respect to the Easement granted herein, use by the general public shall be limited to daylight hours only and use by the general public shall be limited to recreational activities only.

(b) This Easement does not permit the general public or anyone other than Grantor to use the Easement for commercial, political or any other non-recreational activities on the Property, including, without limitation, soliciting, demonstrating or picketing, even if such activities are conducted simultaneously with, or as part of an otherwise permitted recreational activity and Holder acknowledges and agrees that Grantor may take action to prohibit such activities on the Property without additional consent of Holder.

(c) Grantor reserves the right to establish additional rules from time to time regarding the use of all such trails, which rules are subject to the review and prior written approval of the Holder. Grantor reserves the right to prohibit animals from some or all of the trails subject to this Easement.

(d) Either Grantor or Holder may enforce these rules, but Holder shall have no obligation to enforce these rules. Both Grantor and Holder acknowledge that this Easement is established for public use of the trails, on foot or by bicycle without charge, and Grantor and Holder agree to take no action to prohibit, discourage or charge a fee for public access to and use of the trails during daylight hours, except in compliance with the terms of this Easement.

5. Grantor acknowledges and agrees that it shall be responsible for obtaining all necessary permits or consents from the City of Portland for any amendment to this Easement and for any relocation of the trails shown on the Recreational Trail Easement Plan.

6. Holder, or its duly authorized agents, shall have the right to access the trails shown on the Recreational Trail Easement Plan by foot or by vehicle for the purpose of monitoring or inspecting said trails. The Grantor, its successors and assigns, shall be responsible for any and all costs associated with ownership, control, operation, maintenance, and upkeep of the trails.

7. The parties acknowledge and agree that this Easement is for "recreational activities" as such term is defined in 14 M.R.S.A. § 159-A(1)(B) and that Grantor and Holder shall be entitled to the liability protection set forth in such statute.

8. In the event the Holder shall cease to exist or shall cease to be willing or able to hold this Easement, then Holder shall assign this Easement to either (a) an entity that is a publicly supported, non-profit 501(c) (3) organization with a substantially similar purpose as Holder, which entity must be approved by the City of Portland, Maine or (b) the City of Portland, Maine.

9. Upon a written request from Holder, Grantor shall grant to Holder an additional easement to extend that portion of the trail located in the "North Open Space" on the Recreational Trail

Easement Plan from the "End Of Trail" in a northerly or northwesterly direction (as designated by Holder) to the boundary of the Property. The purpose of such extension will be to connect such trail to another trail located outside of the Property, and such extension of the easement will be subject to all other terms and conditions set forth herein.

10. The failure or delay of the Holder, for any reason whatsoever, to do any action required or contemplated hereunder, or to discover a violation or initiate an action to enforce this Easement shall not constitute a waiver, laches, or estoppel of its rights to do so at a later time.

11. Only Holder and Grantor may bring an action to enforce this grant, and nothing herein should be construed to grant any other individual or entity standing to bring an action hereunder, unless otherwise provided by law.

12. The interpretation and performance of this Easement shall be governed by the laws of the State of Maine. Except with respect to Section 4(b), which shall be liberally construed in favor of Grantor's right to prohibit non-recreational activities on the Property (a) any general rule of construction to the contrary notwithstanding, this Easement shall be liberally construed in favor of the grant to effect the recreational purpose of this Easement; and (b) if any provision in this instrument is found to be ambiguous, an interpretation consistent with the recreational purposes of this Easement shall govern.

IN WITNESS WHEREOF, MERCY HOSPITAL, has caused these presents to be signed and sealed in its corporate name by Eileen F. Skinner, its President, hereunto duly authorized, this 28th day of February 2008.

Signed, sealed, and delivered in
the presence of:

Witness

MERCY HOSPITAL

By: _____

Its: President

Name: Eileen F. Skinner

STATE OF MAINE
COUNTY OF CUMBERLAND, ss. Date: February 28, 2008

Personally appeared the above named Eileen F. Skinner, the President of MERCY HOSPITAL, and acknowledged the foregoing instrument to be her free act and deed in said capacity, and the free act and deed of said corporation.

Before me,

Robin R. Poulin

Notary Public/~~Attorney at Law~~
Type or print name of notary
My commission expires:

ROBIN R. POULIN
Notary Public, Maine
My Commission Expires December 3, 2011

SEAL

EXHIBIT A

PARCEL I

A certain lot or parcel of land with buildings thereon situated on the northerly side of the Blue Star Memorial Highway (Route #1) at the Veteran's Memorial Bridge on the Fore River in the City of Portland, County of Cumberland and State of Maine as shown on a plan entitled "Land in Portland, ME. Portland Terminal Company to Mercy Hospital", Sale: 1: = 100', dated June 29, 2001, as amended to date, by Owen Haskell, Inc., which plan is recorded in the Cumberland County Registry of Deeds at Plan Book 202, Page 431 (the "Conveyancing Plan"), which lot or parcel of land is bounded and described as follows:

Commencing at a rod marking a point 50.00' westerly of and at right angles to the center line of the main track marking a P.C. Station of 23 + 11.35 as shown on right of way and track map Portland Terminal Company dated June 30, 1916 revised March 1938 filed in the Portland Terminal Company in V1-D over 1-A; Said rod being approximately 675' northerly of the northerly right of way line of said Route #1;

Thence northerly along land of Portland Terminal Company and being 50.00' westerly of the centerline of said main track, N 10° 46' 19" W a distance of 482.85' to a rod opposite station 18 + 28.50;

Thence continuing along land of Portland Terminal Company and being 50.00' westerly of the centerline of said main track N 10° 57' 07" W a distance of 290.08' to a rod opposite station 15 + 38.42;

Thence continuing along land of Portland Terminal Company N 9° 29' 00" W a distance of 197.09' to a rod marking the westerly right of way line for the existing spur track and being 33.00' westerly and opposite P.C. Station 2 + 00.64' as shown on said railroad plan;

Thence continuing along land of Portland Terminal Company and being along said right of way line of said spur track along a curve to the left whose radius is 922.37', an arc distance of 185.63' to a rod on the westerly edge of a paved drive, said rod being found on a chord of N 22° 33' 26" W a distance of 185.32' and said rod being the Point of Beginning;

Thence continuing along land of Portland Terminal Company and following the westerly edge of said paved drive S 9° 2' 42" W a distance 110.67' to a rod';

Thence continuing along land of Portland Terminal Company on the following courses:

N 78° 59' 25" W a distance of 42.80' to a rod;

S 10° 55' 38" E a distance of 580.68' to a rod, said rod being 160.00' westerly of and at right angles to the centerline of the main track opposite said Station 18 + 28.50';

S 78° 59' 25" W a distance of 446.63 feet to a tie point;

Continuing S 78° 59' 25" W a distance of 133' ± to the easterly bank of the Fore River and continuing to the approximate low water line a total distance of 1165' ±;

Thence northerly, northwesterly, westerly, northeasterly and southwesterly following the approximate low water line a distance of 2550' ± to the easterly right of way line of Route 295;

Thence N 17° 19' 15" E along said right of way line 760' ±;

Thence N 50° 25' 55" E along said right of way line 176.00 feet;

Thence easterly along said right of way line and along a curve to the left whose radius is 375.00', an arc distance of 7.14' to a point and the southwesterly right of way line for the existing spur track and land of Portland Terminal Company, said point being found on a chord of S 84° 55' 24" E a distance of 7.14';

Thence S 54° 28' 52" E along land of Portland Terminal Company 116.36';

Thence southeasterly along said land and a curve to the left whose radius is 988.44' an arc distance of 283.21 to a tie point, said tie point being located the following courses and distance from the aforementioned tie point:

N 36° 35' 47" W 23.62';
N 36° 20' 10" W 1202.64';
N 41° 38' 20" W 452.20 and said tie point being found on a chord of
S 62° 42' 17" E a distance of 282.24';

Thence continuing southeasterly and easterly along said land and a curve to the left whose radius is 988.37' an arc distance of 247.17' to a point said point being found on a chord of S 78° 04' 38" E a distance of 246.53';

Thence S 85° 15' 29" E along said land 439.84';

Thence continuing southeasterly along said land and a curve whose radius is 922.37', an arc distance of 1102.20' to the Point of Beginning, said point being found on a chord of S 51° 01' 30" E, 1037.78'.

Above courses are grid north.

Meaning and intending to describe that certain parcel of land identified as the "Portland

Terminal Parcel" on the Conveyancing Plan.

PARCEL II

A certain lot or parcel of land with buildings thereon situated on the northerly side of the Blue Star Memorial Highway (Route #1) at the Veteran's Memorial Bridge on the Fore River in the City of Portland, County of Cumberland and State of Maine as shown on a plan entitled "Land in Portland, ME. Portland Terminal Company to Mercy Hospital", Sale: 1: = 100', dated June 29, 2001, as amended, by Owen Haskell, Inc., which plan is recorded in the Cumberland County Registry of Deeds at Plan Book 202, Page 431 (the "Conveyancing Plan"), which lot or parcel of land is bounded and described as follows:

Beginning at a rod marking a point 50.00' westerly of and at right angles to the center line of the main track marking a P.C. Station of 23 + 11.35 as shown on right of way and track map Portland Terminal Company dated June 30, 1916 revised March 1938 filed in the Portland Terminal Company in V1-D over 1-A; Said rod being approximately 675' northerly of the northerly right of way line of said Route #1;

Thence northerly along land of Portland Terminal Company and being 50.00' westerly of the centerline of said main track, N 10° 46' 19" W a distance of 482.85' to a rod opposite station 18 + 28.50;

Thence continuing along land of Portland Terminal Company and being 50.00' westerly of the centerline of said main track N 10° 57' 07" W a distance of 290.08' to a rod opposite station 15 + 38.42;

Thence continuing along land of Portland Terminal Company N 9° 29' 00" W a distance of 197.09' to a rod marking the westerly right of way line for the existing spur track and being 33.00' westerly and opposite P.C. Station 2 + 00.64' as shown on said railroad plan;

Thence continuing along land of Portland Terminal Company and being along said right of way line of said spur track along a curve to the left whose radius is 922.37', an arc distance of 185.63' to a rod on the westerly edge of a paved drive, said rod being found on a chord of N 22° 33' 26" W a distance of 185.32';

Thence continuing along land of Mercy Hospital described in that certain deed given by Portland Terminal Company dated June 26, 2002 and recorded in the Cumberland County Registry of Deeds in Book 17783, Page 289, shown on the Conveyancing Plan as the "Portland Terminal Parcel" and following the westerly edge of said paved drive S 9° 2' 42" W a distance 110.67' to a rod;

Thence continuing along said land of Mercy Hospital on the following courses:

N 78° 59' 25" W a distance of 42.80' to a rod;

S 10° 55' 38" E a distance of 580.68' to a rod, said rod being 160.00' westerly of and at right angles to the centerline of the main track opposite said Station 18 + 28.50';

S 78° 59' 25" W a distance of 446.63 feet to a tie point;

Continuing S 78° 59' 25" W a distance of 133' ± to the easterly bank of the Fore River and continuing to the approximate low water line a total distance of 1165' ±;

Thence along a southerly, easterly, southerly, easterly and westerly line following the approximate low water line a distance of 1800' ± to the northerly right of way line of said Route #1;

Thence by the northerly right of way line of said Route #1 N 71° 56' 20" E a distance of 455' ± to the easterly bank of said Fore River;

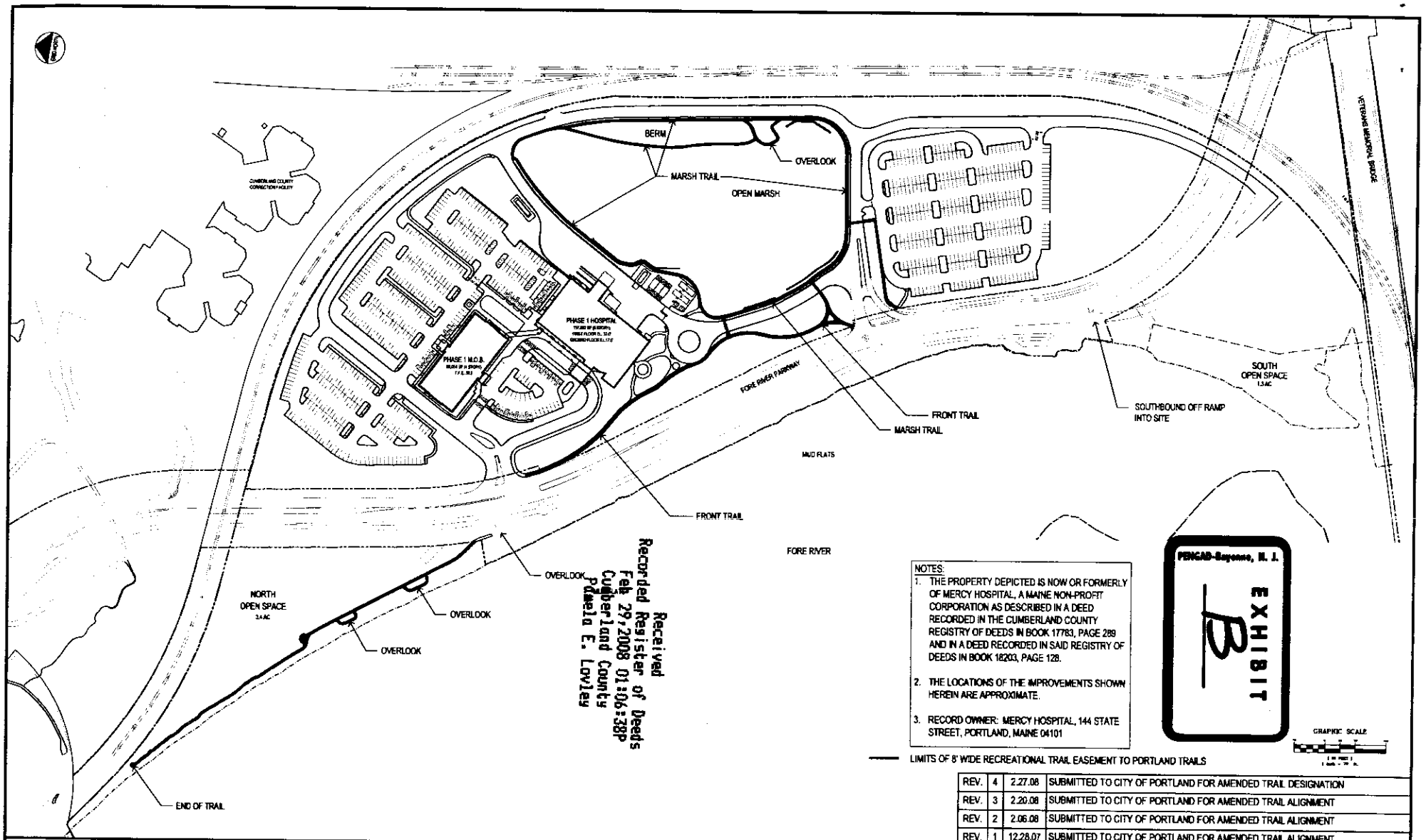
Thence continuing by said northerly right of way line of Route #1 on same course of N 71° 56' 20" E a distance of 125.37' to a tie point, said tie point being located the following courses and distances from the aforementioned tie point: S 9° 02' 28" E 1006.02 and S 16° 59' 00" W 273.21;

Thence continuing by said northerly right of way line of Route #1 on same course of N 71° 56' 20" E a distance of 244.63' to a point being 50.00' northerly of the centerline of said main track and opposite Station 32 + 86.66, at the intersection of a non-tangent curve;

Thence continuing along land of Portland Terminal Company along a curve to the left whose radius is 831.95' an arc of 920.02' whose chord is N 21° 53' 19" E 873.85 to the point of beginning.

Above courses are grid north.

Meaning and intending to describe that certain parcel of land identified as the "Merrill Parcel" on the Conveyancing Plan, and further meaning and intending to describe that certain parcel of land described in the deed of Portland Terminal Company to Merrill Industries, Inc. ("Merrill") dated July 27, 1998 and recorded in the Cumberland County Registry of Deeds at Book 14022, Page 302 (the "Merrill Deed").



Received
Recorded Register of Deeds
Feb 29,2008 01:06:38P
Cumberland County
Pamela E. Lovley

NOTES:
1. THE PROPERTY DEPICTED IS NOW OR FORMERLY OF MERCY HOSPITAL, A MAINE NON-PROFIT CORPORATION AS DESCRIBED IN A DEED RECORDED IN THE CUMBERLAND COUNTY REGISTRY OF DEEDS IN BOOK 17783, PAGE 289 AND IN A DEED RECORDED IN SAID REGISTRY OF DEEDS IN BOOK 18203, PAGE 128.
2. THE LOCATIONS OF THE IMPROVEMENTS SHOWN HEREIN ARE APPROXIMATE.
3. RECORD OWNER: MERCY HOSPITAL, 144 STATE STREET, PORTLAND, MAINE 04101

PENGAD-Bayonne, N. J.
EXHIBIT B

GRAPHIC SCALE

LIMITS OF 8' WIDE RECREATIONAL TRAIL EASEMENT TO PORTLAND TRAILS

REV.	4	2.27.08	SUBMITTED TO CITY OF PORTLAND FOR AMENDED TRAIL DESIGNATION
REV.	3	2.20.08	SUBMITTED TO CITY OF PORTLAND FOR AMENDED TRAIL ALIGNMENT
REV.	2	2.06.08	SUBMITTED TO CITY OF PORTLAND FOR AMENDED TRAIL ALIGNMENT
REV.	1	12.28.07	SUBMITTED TO CITY OF PORTLAND FOR AMENDED TRAIL ALIGNMENT

DeLuca-Hoffman Associates, Inc.
778 MAIN STREET, SUITE 8
SOUTH PORTLAND, ME 04106
207.775.1121
WWW.DELUCAHOFFMAN.COM

DRAWN:	DED	DATE:	11.20.07
DESIGNED:	-	SCALE:	AS NOTED
CHECKED:	SRB	JOB NO.	2149.01
FILE NAME:	2149.01-MP3		

MERCY HOSPITAL
FORE RIVER PROJECT

RECREATIONAL TRAIL EASEMENT PLAN

FIGURE 1

Doc#: 10512 Bk:25855 Pg: 261

FIRST AMENDMENT TO RECREATIONAL TRAIL EASEMENT

THIS FIRST AMENDMENT TO RECREATIONAL TRAIL EASEMENT (this "Amendment") is made and entered into as of this 17th day of September 2008, by and between **MERCY HOSPITAL,** a Maine nonprofit corporation located in the City of Portland, State of Maine ("Mercy"), and **PORTLAND TRAILS**, a Maine nonprofit corporation located in the City of Portland, State of Maine.

RECITALS:

A. Mercy owns certain parcel of land located along the Fore River in the City of Portland, State of Maine, as more particularly described in Exhibit A to the "Recreational Trail Easement" (defined below) (the "Mercy Property").; and

B. In connection with the development of the Mercy Property, Mercy conveyed to Portland Trails certain recreational easements over the Mercy Property, all as more particularly described in the Recreational Trail Easement, dated February 28, 2008 and recorded in the Cumberland County Registry of Deeds in Book 25855, Page 253 (the "Recreational Trail Easement"); and

C. The parties now wish to amend Exhibit B to the Recreational Trail Easement to reflect minor modifications to the locations of the trails.

NOW, THEREFORE, for valuable consideration and the covenants and agreements hereinafter set forth and in furtherance of the parties' understanding, it is agreed as follows:

1. Attached hereto as **EXHIBIT B** is an Amended and Restated Recreational Trail Easement Plan, prepared by Deluca-Hoffman Associates, Inc., dated November 20, 2007 and revised August 28, 2008 (the "Revised Recreational Trail Plan") that reflects the as-built locations of the trails on the Mercy Property. The parties agree that said Revised Recreational Trail Plan hereby replaces and supersedes the Recreational Trail Easement Plan attached to the Recreational Trail Easement as **EXHIBIT B** (the "Original Recreational Trail Plan").

2. Portland Trails hereby RELEASES to Mercy any and all easement rights it has as to the trails shown on the Original Recreational Trail Plan. Mercy hereby GRANTS to Portland Trails easements over the trails shown on the Revised Recreational Trail Plan in accordance with

the terms and conditions set forth in the Recreational Trail Easement as modified by this Amendment.

3. Except as expressly set forth in this Amendment, all other terms and conditions of the Recreational Trail Easement shall remain in full force and effect and are hereby ratified by the parties.

IN WITNESS WHEREOF, the Parties have hereunto set their hands and seals as of the date first set forth above.

WITNESS:

Diane Sanders

MERCY HOSPITAL, a Maine nonprofit corporation

By: Ellen T. Sh

Its:

Name:

Jane Violette

PORTLAND TRAILS, a Maine nonprofit corporation

By: Brent M. Bridges

Its: President

Name: Brent M. Bridges

STATE OF MAINE
COUNTY OF CUMBERLAND, s.s.

On September 18th, 2008, personally appeared the above-named Eileen F. Skinner, President+CEO of Mercy Hospital, and acknowledged the foregoing instrument to be ~~his~~ her free act and deed in ~~his~~ her said capacity and the free act and deed of Mercy Hospital.

Before me,

Notary Public/~~Attorney at Law~~
Name: _____

ROBIN R. POULIN
Notary Public, Maine
My Commission Expires December 3, 2011

SEAL

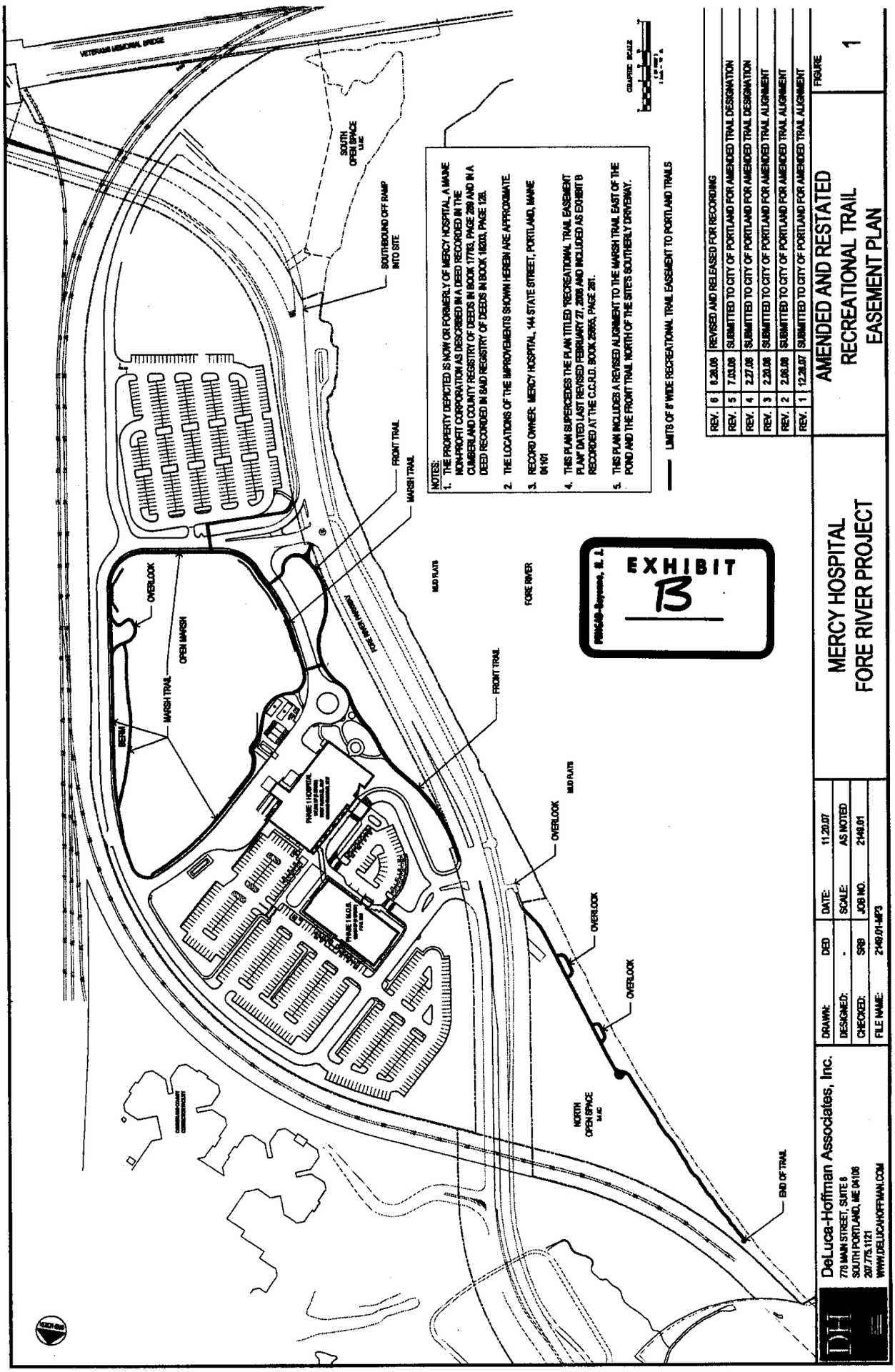
STATE OF MAINE
COUNTY OF CUMBERLAND, s.s.

On September 17, 2008, personally appeared the above-named Brent M Bridges, President of Portland Trails, and acknowledged the foregoing instrument to be his free act and deed in his said capacity and the free act and deed of Portland Trails.

Before me,

Notary Public/Attorney at Law
Name: Debra A. Moriarty

DEBRA A. MORIARTY
Notary Public, Maine
My Commission Expires September 27, 2012



Received
Recorded Register of Deeds
Sep 18,2008 03:52:07P
Cumberland County
Pamela E. Lovles

GENERAL APPLICATON DOCUMENT

PROJECT DESCRIPTION

PROJECT OVERVIEW

Background and Purpose of the Move to the Fore River Campus

Northern Light℠ Mercy Hospital (Mercy) is an acute care, non-profit hospital located in Portland, ME and is licensed for 200 in-patient beds. Mercy has over 1,604 employees, 743 medical staff, and over 125 volunteers. Mercy has served the greater Portland community for over 100 years opening its current 144 State Street Campus in 1943. In the early 2000s, Mercy Hospital's strategic plan identified important objectives that could not be achieved at the 3.5-acre State Street site, given its age, size, location and Portland's Historic District constraints. Four priority objectives of the strategic plan are listed below and represent the purpose for which the Fore River project was conceived and implemented:

- ***Mercy must assure "state of the art" technological infrastructure*** consistent with industry norms and standards of care;
- ***Mercy must assure short-term and long-term excellence*** in program plans and facilities to support them;
- ***Mercy must assure strong physician relationships*** enhanced by improved facilities; and
- ***Mercy must solidify itself as a health care employer of choice*** by providing safe, comfortable, and technologically advanced facilities.

When it became apparent that the State Street facility could not meet important strategic goals, Mercy engaged a technical team to work with the Hospital's management and Board to find a new location. The team developed six criteria for evaluating prospective sites:

- A 50-acre parcel was the goal for siting a new facility with 25 acres being the minimum;
- Easy accessibility from interstate highways and major roadways;
- Easy accessibility to public transportation;
- Convenient to doctor's offices, many of which are located on the Portland peninsula;
- Proximity to Maine Medical Center to avoid duplication of highly specialized equipment; and
- A site where Mercy would be welcomed by the neighborhood and the community at large.

Selection of the Fore River Site

Finding a location that satisfied all criteria was difficult. Three dozen potential locations were identified and reviewed. Of those, only the Fore River site met all six criteria. The City of Portland Planning and Economic Development Department endorsed the Fore River site, as did the Maine Department of Environmental Protection (MDEP) as evidenced by the granting of Permit Approvals L-20775-A-A-N & L-20775-TG-B-N and subsequent amendments.

The Fore River site was formerly owned by Merrill Industries and the Portland Terminal Co. and contained multiple sets of railroad tracks that were used to store railcars. The combined 85.5-acre parcel consisted of 43.5 acres of tidal mudflats and 42 acres of undeveloped land above the mudflats. Four wetland areas totaling over four acres were present in the upland area. Three small linear wetland areas were located within former drainage ditches along old railroad track paths. The fourth and largest wetland was a 3.6-acre former gravel pit that had been excavated to below the groundwater table to provide gravel for the original Veterans Memorial Bridge and for railroad operations. At the time that Mercy acquired the land in 2001, the former gravel pit contained numerous homeless encampments and a common dumping ground for trash and solid waste.

Mercy originally retained a team of hospital planning architects and consultants to develop an initial Master Plan for the Fore River parcel. Numerous development layouts were refined over time as Mercy's understanding of the site's existing conditions and development programming became known. The selected design layout in 2002 reduced the proposed wetland impacts to 0.92 acres, which involved the filling of three former rail line drainage ditches which were considered of low value, however it avoided filling in the former gravel pit. A MDEP Site Location Permit and Natural Resources Permit were issued for the site in 2002. Similarly, the City of Portland approved a Contract Zone Agreement in 2002, whereby allowing the proposed Hospital use; the site's original zoning was Industrial and Hospital, and medical offices are not an allowed use in the City's Industrial zones. During that same period, the Maine Department of Transportation undertook the construction of the Fore River Parkway connection from Congress Street and the Transportation terminal to West Commercial Street. Mercy's willingness to work with State and Local officials and agreement to transfer a portion of their land to allow the road construction was instrumental in the Parkway and Fore River Trail construction in 2004.

In 2005, Mercy submitted a Certificate of Need Application (CON) Application which proposed relocating part of its services to a new Fore River Campus (Phase 1). This CON Application was granted in 2005 and in 2008 Mercy opened a medical office building and a new hospital providing inpatient and outpatient surgical services, diagnostic imaging, laboratory, and obstetrics on the Fore River campus. Phase 1 design plans were developed from 2004 through 2006 following the CON approval. The Portland Planning Board reviewed and approved the Phase 1 Site plan and an overall Master Plan for the site in 2006 and in September 2006 the Phase 1 construction commenced. The Phase 1 program maintained resource impacts to the originally permitted 0.92 acres, thus avoiding any significant impacts to the former gravel pit wetland located in the middle of the site. The Phase 1 program, consisting of the 138,099 SF Hospital and 82,186 Medical Office Building, was completed and opened in September 2008.

Status of the Two-Phase Move to the Fore River Campus

Mercy chose to relocate from their State Street site and move to the Fore River campus in order to meet important strategic obligations and maintain appropriate standards of care that were in jeopardy long-term if the Hospital were to remain at State Street. A two-phase move was planned due to various circumstances. The first phase of the move to the Fore River campus was completed in 2008 with the construction of the Phase 1 hospital facility and the adjoining medical office building (MOB). At the Fore River site, ancillary facilities including surface parking for 762 vehicles, utilities, snow storage, and a maintenance building were also constructed. The Phase 2 planning effort has also continued since that time. In Mercy's 2005 Certificate of Need (CON), the Master Facility Plan anticipated future consolidation

of inpatient and ambulatory services on the Fore River Campus. Northern Light℠ Mercy Hospital Leadership have determined that the time is right to proceed with the phase two-development proposal.

In the eleven-year period that the Hospital has been maintaining both the State Street campus and the Fore River campus, Mercy has become acutely aware of the operational and financial problems of maintaining two interdependent campuses. In 2013 Mercy, joined EMHS (now Northern Light Health) and embarked upon a strategic repositioning initiative to achieve operational and financial efficiencies. The recently approved CON Application[1] (Phase 2), proposes to relocate all hospital services at State Street to the Fore River Campus.

The location of the Phase 2 hospital expansion has not changed from previous permitting. The current Phase 2 hospital build-out is projected to incorporate 54,889 SF of hospital space along with approximately 34,987 SF for an Ambulatory Surgical Center (ASC) to be separate from the hospital.

The useable portion of the original 42-acre Fore River property has shrunk over time. The Fore River Parkway and the final grading of the Phase 1 property have constricted expansion opportunities toward the river on the west. Construction of the new Veterans Memorial Bridge has further constrained the south end of the site. All major utility entries, hospital gas, and emergency generators are optimally located immediately south of the Phase 1 hospital, to service the intended Phase 2 expansion, but they restrict development in the southwest portion of the site. The Mercy Team has determined that there is approximately less than 20 acres of developable land remaining at the Mercy Fore River site, as shown on Figure 1 following this section.

In 2013, Mercy approached the Maine Department of Environmental Protection and the US Army Corps of Engineers with a long-term plan for the Hospital needs on the Campus. This involved the expansion of building(s) and parking facilities that encompass filling of the former gravel pit entirely. Based on the long-term plans and supporting evidence, both the MDEP and the USACOE approved Mercy's development plans. Both agencies accepted as compensation for the impacts to the basin resource, Mercy's participation in the In-Lieu Fee Compensation program[2]. Mercy has provided a contribution of $834,156 to the State to satisfy the NRPA condition of approval, thus establishing their standing to move ahead with filling the former gravel pit.

PURPOSE AND NEED

The fundamental reasons for the campus consolidation are:

- Improved access to the full range of healthcare delivery services on one campus;
- Improved Clinical and administrative Staff efficiencies;
- Improved patient experience in single patient rooms and ambulatory services;
- Reduction in annual operating costs will be achieved; and
- Continue high quality service delivery in one efficient modern facility.

[1] See https://www.maine.gov/dhhs/dlc/c_o_n/2019/index.shtml
[2] See https://www.maine.gov/dep/land/nrpa/ILF_and_NRCP/index.html

To achieve these objectives Mercy's current project is to construct a Phase 2 Hospital build-out with 54,889 SF of expanded hospital space and approximately 34,987 SF for an Ambulatory Surgical Center (ASC). The hospital expansion will be directly connected to the existing Phase 1 Fore River Hospital, while maximizing site safety and allowing for a future Phase 3 expansion that would be in close proximity to the ASC. The ASC will be positioned within the former gravel pit area so that it provides relatively close proximity to the Hospital while also maintaining its own parking and stand-alone features, given its outpatient services programing.

DEVELOPMENT PROPOSAL

Mercy Hospital is proposing to develop their Phase 2 Hospital expansion on the Fore River development site with construction to begin in early 2020, pending City Site plan approval and building permits. The current development plan includes the following uses:

- The Phase 2 Hospital expansion wherein all State Street hospital functions are relocated to the Fore River Campus. This will include an additional 54,889 SF of Hospital program area over a 20,140 SF building expansion footprint. The expansion area will occur on the north end of the existing hospital over an area currently used for surface parking containing 105 parking spaces for staff only. The hospital expansion will include Emergency Room services, thus a new parking area with 19 spaces designated for emergency room patient and visitors will be provided to the north side of the expansion. Additional parking for up to 8 ambulances will also be provided and designated entries for both patient drop off and ambulance drop off/pick up to the emergency room have been depicted on the site plan. The four level expansion will be partially screened by the existing hospital and Medical office locations for views from the parkway. SMRT Architects is responsible for the building expansion design and ASC design and they have prepared floor plans, building elevations and various renderings depicting the proposed architecture for these buildings.

- The front entry drive past the existing main Hospital entrance will be extended between the existing Hospital, proposed expansion and the existing Medical office thus connecting the front of the Hospital to the parking lot to the north side of the MOB. This one-way drive will provide access to the expansion and the MOB.

- A 34,987 SF Ambulatory Surgical Center (ASC) will be established within the former gravel pit area that will be partially filled. The two-story building will be accessed from a new driveway off the southerly site entrance and the building access will include a staff entry at the rear of the building. The ASC positioning will keep its visibility somewhat muted given the location and higher building height of the existing hospital in the foreground and the much larger new MMC 2,500 space parking garage in the background.

- Accessory uses, including but not limited to, surface parking facilities, ASC utility services, stormwater management systems, and site amenities are also part of the current proposal. A new parking lot containing 103 parking spaces will be provided on the north end of the ASC site and this parking is expected to replace the displaced parking due to the expansion. An additional parking lot of 73 spaces will be provided on the south side of the ASC and this lot will be designated specifically for ASC use. The total onsite parking available will be 857 spaces, which will exceed the required by code parking requirement of 679 spaces. The expected parking demand for the site upon completion of the Hospital expansion and the ASC is met with the 857 spaces as that provides for a "practical capacity"

factor of around 25%. A parking demand study at the Fore River campus completed by Gorrill Palmer in January 2017, determined the parking demand to be about 525 vehicles using the 762 existing spaces. Mercy anticipates the proposed parking will adequately meet proposed demand and this will preclude the need for any further parking expansion or structured parking conditions.

- There will be continued use of public open space along the waterfront at the north and south ends of the campus and access to the Fore River Trail along the Parkway as well as pedestrian walks throughout the campus; and

- Continued use of the south end of the campus for snow storage and/or remote parking.

- Metro Bus service currently serves the site and this will remain a critical access condition into the future.

All of the above facilities will be developed primarily to support the main use of the site as a hospital campus, although it is anticipated that some use of support facilities by others in the neighboring community may occur.

Two separate access drives will continue to provide access to the Hospital campus off the Fore River Parkway. These access locations remain fixed due to geometric and sight line constraints along the Fore River Parkway. These fixed locations also contribute to the planning and layout challenges for the site. Access off County Way is limited to emergency vehicles only, as it requires crossing of Pan Am Railway's tracks.

The Phase 2 project's proposed stormwater management systems will provide water quality treatment measures to treat the new structure area developed as part of the Phase 2 expansion. The intent is to meet the current MDEP Chapter 500 Standards and City of Portland Standards including treatment of at least 95% of new structure area and 80% of the Phase 2 developed area. Stormwater quantity control is not required since the site will be discharging to tidal waters. The primary mechanism for water quality treatment will be a wet pond that will be constructed. This wet pond will benefit from existing infrastructure including an outfall that ultimately discharges to the Fore River.

Additional landscaping including perimeter tree plantings will continue to be provided for buffering and aesthetic benefits. The existing site design includes substantial open space necessary to satisfy local requirements associated with the Contract Zone Agreement negotiated between Mercy Hospital and the City of Portland.

EXISTING CONDITIONS

The Mercy Campus currently contains the 137,832 SF Phase 1 Hospital and an approximately 82,186 SF medical office building both of which are located north of the former gravel pit wetland located in the middle of the site. Site access is from two primary driveways. The northerly, unsignalized driveway allows left and right turn entering off the Fore River Parkway, but only right turn exiting onto the Parkway. The southerly signalized driveway allows entering and exiting movements in each direction. The south end of the site currently contains a surface parking lot for 310 vehicles. A small maintenance building remains at the site's south end also. A snow storage area at the far south end of the site will remain.

The site's parking is spread out over five surface parking lots. The northerly lots contain over 452 spaces used by the medical office building staff and visitors as well as by the Phase 1 Hospital patients, visitors and some staff. The southerly parking lot is used by Phase 1 Hospital staff as well as for remote parking for State Street Hospital staff. Mercy currently runs a shuttle service between the parking lot and the State Street facility. Drainage systems within these parking lots capture and convey stormwater runoff to the Fore River.

Mercy maintains the entire site and those areas not covered by building or parking are well landscaped and managed with manicured lawn and planting beds. A generous number of trees and shrubs compliment the site's appearance.

Gorrill Palmer conducted a parking evaluation in the fall 2018 and concluded that the existing onsite parking exceeds the parking demand encountered on the site. There are an existing 762 spaces on the property and the peak existing demand was determined to be approximately 525 spaces (69% of total). An update to the parking demand analysis is underway and will be provided for review once complete.

Gorrill Palmer also conducted a driveway analysis to verify whether the existing driveways will operate safely and with an acceptable level of service. They concluded that there are no high accident locations in the vicinity of the site and that the site driveways will operate at acceptable levels off service. An updated analysis will be provided for City review upon completion.

UTILITIES

The Hospital Campus will continue to be served by public water, sewer, natural gas, and nearby communication, cable, and electric utilities. Onsite water service consists of a 12" water main. A 42" sanitary sewer interceptor borders the site along its easterly border. The Hospital will continue to manage its wastewater flow stream in a similar fashion to the existing facilities at both Fore River and State Street. Communications, cable, and electric utilities are located on the project site.

CONSTRUCTION SCHEDULE

The Phase 2 project is currently under design with a targeted construction start date for March 2020 and construction completion in early 2022.

The project will be phased beginning with the placement of fill in the borrow pit to create temporary parking and construction staging facilities. The temporary facilities will allow subsequent construction of the main Phase 2 Hospital expansion followed by the ASC. The Hospital expansion effort involves a coordinated effort that maintains ongoing Hospital functions and service throughout the Phase 2 duration. A Construction Management Plan has been prepared by Consigli and is appended to the Construction Management Plan section of this application.

Att. G

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

PATRICIA W. AHO
COMMISSIONER

March 2013

Mercy Hospital
144 State Street
Portland, Maine 04101
ATTN: Bill Connolly

RE: Site Location of Development Act and Natural Resources Protect Act Applications
Portland, DEP #L-20775-19-T-A/L-20775-TG-U-N

Dear Mr. Connolly:

Enclosed is a signed copy of your Department of Environmental Protection land use permit. Please note that the permit includes a description of your project, findings of fact that relate to the approval criteria the Department used in evaluating your project, and conditions that are based on those findings and the particulars of your project. Please take several moments to read your permit carefully, paying particular attention to the conditions of the approval. The Department reviews every application thoroughly and strives to formulate reasonable conditions of approval within the context of the Department's environmental laws. Also attached are some materials that describe the Department's appeal procedures for your information.

If you have any questions about the permit please contact me at (207) 615-6426 or at christine.woodruff@maine.gov.

Sincerely,

Chris Woodruff

Christine Woodruff, Project Manager
Division of Land Resource Regulation
Bureau of Land & Water Quality

pc: File

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826
RAY BLDG., HOSPITAL ST

BANGOR
106 HOGAN ROAD
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769-2094
(207) 764-0477 FAX: (207) 764-3143

WEB SITE: WWW.MAINE.GOV/DEP

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION
AUGUSTA, ME 04333

DEPARTMENT ORDER

IN THE MATTER OF

MERCY HOSPITAL	) SITE LOCATION OF DEVELOPMENT ACT
Portland, Cumberland County	) NATURAL RESOURCES PROTECTION ACT
PHASE II RELOCATION PROJECT	) TIER 3 WETLAND ALTERATION
L-20775-19-T-A (approval)	) WATER QUALITY CERTIFICATION
L-20775-TG-U-N (approval)	) FINDINGS OF FACT AND ORDER

Pursuant to the provisions of 38 M.R.S.A. Sections 481 et seq. and 480-A et seq., 38 M.R.S.A. Sections 480-A et seq. and Section 401 of the Federal Water Pollution Control Act, the Department of Environmental Protection has considered the application of MERCY HOSPITAL with the supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

1. PROJECT DESCRIPTION:

A. History of Project: In Department Order #L-20775-19-A-N/L-20775-TG-B-N, dated June 26, 2002, the Department approved the development of a new Mercy Hospital Campus on 85.5 acres off Congress Street, adjacent to the Fore River in Portland. In Department Orders #L-20775-19-C-T, #L-20775-19-D-M, and #L-20775-TG-E-M, the Department approved the partial transfer and modification of the original Orders by the Maine Department of Transportation for the construction of a connector road, the Fore River Parkway, across the property. Approximately three acres of land was transferred to the Maine Department of Transportation for the construction of the new Veteran's Bridge to South Portland. Subsequent Department Orders approved several minor modifications.

B. Summary: The applicant proposes to construct Phase II of the Mercy Hospital relocation project that consists of a 116,980-square foot hospital building expansion, a 15,000-square foot medical office building, a detached 40,000-square foot medical office building, a 51,800-square foot parking garage, a 33,800-square foot parking garage, an elevated parking deck and associated on-site traffic circulation renovations. The project includes utility service relocations and new stormwater management systems. The two existing site entrances will remain the same. The project is shown on a set of plans, the

first of which is titled "Site Development Plans for Mercy Hospital Fore River Hospital Relocation Project Amended Master Plan / Phase II Expansion," prepared by DeLuca-Hoffman Associates, and dated May 2012, with a last revision date of October 23, 2012. The project is located on the remaining approximately 33 acres of the parcel on the east side of the Fore River Parkway in the City of Portland.

The applicant is also seeking approval under the Natural Resources Protection Act to fill a 3.49-acre freshwater wetland.

C. Current Use of Site: The portion of the site that is east of the Fore River Parkway is completely developed except for the central portion of the site that is occupied by a pond and wetlands. The existing development includes a hospital building, a medical office building, a maintenance building, parking, utilities, and access roads.

2. FINANCIAL CAPACITY:

The total cost of the project is estimated to be $5,378,880.00. The applicant submitted a letter from Eastern Maine Healthcare System, dated February 21, 2013, stating that Eastern Maine Healthcare System and Mercy Health System of Maine executed an affiliation agreement on January 14, 2013, pursuant to which Eastern Maine Healthcare System will become the sole corporate member of Mercy Health System of Maine. Pursuant to terms of the affiliation agreement and subject to the regulatory approval and closure of the transaction, as well as other contractual restrictions, Eastern Maine Healthcare System has committed to spending $115 million in support of Mercy Health System of Maine. This financial support includes expanding the Fore River campus of Mercy Hospital to consolidate Mercy Hospital's State Street facility onto the Fore River campus. Prior to the start of construction, the applicant must submit evidence that it has been granted a line of credit or a loan by a financial institution authorized to do business in this State or evidence of any other form of financial assurance determined by Department Rules, Chapter 373(1), to be adequate to the Bureau of Land and Water Quality (BLWQ) for review and approval as a condition of compliance.

The Department finds that the applicant has demonstrated adequate financial capacity to comply with Department standards provided that the applicant submits evidence of financial capacity to the BLWQ for review and approval prior to the start of construction.

3. TECHNICAL ABILITY:

The applicant provided resume information for key consultants involved with the project and a list of projects successfully constructed by the applicant and the consultants. The applicant retained the services of DeLuca-Hoffman Associates, a professional engineering firm, to provide site design and engineering of the project. Haley and Aldrich provided geotechnical engineering, Normandeau Associates was the wetland consultant, Hoffman Engineering provided environmental engineering, Owen Haskell

provided land surveying services, SMRT provided architectural services and Tewhey Associates was the project manager.

The Department finds that the applicant has demonstrated adequate technical ability to comply with Department standards.

4. NOISE:

The proposed project is primarily the expansion of an existing hospital campus. A hospital is classified as a development producing a minor noise impact. The Department finds that no regulated sources of noise have been identified.

5. SCENIC CHARACTER:

The Mercy Hospital Fore River Campus is located between the Fore River Parkway and an active railroad line. The Cumberland County Jail is across the railroad tracks to the north, commercial development on Saint John Street is across the railroad tracks to the east, the Veterans' Memorial Bridge is to the south and a mud flat and Interstate Route 295 is across the Fore River Parkway to the west. The areas of the proposed project that are not to be covered with structures, parking areas or vehicle circulation facilities will be landscaped and maintained consistent with the current landscaping features including providing landscaped strips within parking lots. The project will be in keeping with the existing buildings, grounds and surrounding scenic character.

Based on the project's location and design, the Department finds that the proposed project will not have an unreasonable adverse effect on the scenic character of the surrounding area.

6. WILDLIFE AND FISHERIES:

The Maine Department of Inland Fisheries and Wildlife (MDIFW) reviewed Phase 1 of the Mercy Hospital project at the Fore River site in 2002 and stated that it found no records of any Essential or Significant Wildlife Habitats, or other wildlife habitats of special concern associated with this site. But MDIFW noted that the wetlands on the site, particularly the pond, was used by several species of waterfowl and wading birds and recommended that impacts to the birds be minimized by maximizing the retention of the existing buffer around the pond and maintaining or elevating the water level of the pond. The 2002 project was constructed to eliminate direct impact to the pond by directing stormwater runoff to other locations and placing a buffer around the pond. Subsequent monitoring of the site since 2006 has documented use by waterfowl (mallards, black ducks), wading birds (green heron, great blue heron), a variety of passerine species (red-winged blackbird, mocking birds, common yellow throat, song sparrow), gulls and painted turtles. Fish have been observed in the pond and mammal signs include grey fox, chipmunks and woodchucks.

As part of the review for the currently proposed expansion project that includes filling of the pond and wetland used by the above noted wildlife, MDIFW visited the site to determine if additional buffering could be added on land owned by Mercy Hospital adjacent to the Fore River on the northwest portion of the site to compensate for the loss of habitat in the pond area. Due to several issues on the land adjacent to the Fore River, it was determined that a buffer that would provide roosting habitat along the Fore River was not feasible. The loss of wetlands as a result of the proposed Phase II will be compensated for through a contribution into the In-Lieu Fee (ILF) program of the Maine Natural Resource Conservation Fund (MNRCF), discussed further in Finding 13. It was determined that the loss of wildlife habitat from the wetland impacts could be compensated for by emphasizing on the ILF Project Data Worksheet that the habitat losses include waterfowl habitat so that the funds could be used towards replacement of the habitat. It was also determined that the resident turtle population in the pond should be relocated. The applicant has developed a Turtle Trapping and Removal plan that followed the recommendations made by MDIFW. The applicant must implement the relocation plan prior to the start of construction and release the turtles to Capisic Pond Park in Portland and/or Evergreen Cemetery on Stevens Avenue in Portland, or to another location with prior approval from MDIFW.

The Department finds that the applicant has made adequate provision for the protection of wildlife and fisheries provided the wildlife habitats are noted on the In Lieu Fee (ILF) Project Data Worksheet and that prior to the start of construction, the Turtle Trapping and Removal plan is implemented as recommended by MDIFW.

7. SOILS:

There are several locations on the site that have lead-contaminated ash from the former railroad operations that have been covered with clean soil or bituminous pavement to prevent direct exposure. The proposed project was reviewed by an Oil and Hazardous Materials Specialist in the Bureau of Remediation and Waste Management (BRWM) in regards to the existing Voluntary Response Action Plan for the site. BRWM concluded that they have no issues with the planned expansion provided that the appropriate precautions are followed during the project to insure that the contaminated ash is handled, placed on site and/or disposed as appropriate and that the necessary cover systems are in place once the project is completed. The current deed restrictions on the property that were placed during Phase 1 work are consistent with and adequate as future restrictions for the property, and will continue to be subject to the operation and maintenance program with annual inspections.

The applicant has previously submitted a geotechnical report based on the soils found at the project site which was previously reviewed by the Division of Environmental Assessment (DEA).

The Department finds that, based on the comments from the BRWM and DEA's previous review, the soils on the project site present no limitations to the proposed project that cannot be overcome through standard engineering practices.

8. STORMWATER MANAGEMENT:

The proposed project includes approximately 4.12 acres of new impervious area for a total of 19.80 acres of impervious area, and 4.89 acres of new developed area for a total of approximately 29.03 acres of developed area. It lies within the watershed of the tidal waters of the Fore River. The applicant submitted a stormwater management plan based on the Basic, General, and Flooding standards contained in Department Rules, Chapter 500. The proposed stormwater management system consists of an underdrained soil filter, an underdrained bioretention cell, an underdrained subsurface sand filter, and proprietary filters (Filterra ® and StormFilter®).

A. Basic Standards:

(1) Erosion and Sedimentation Control: The applicant submitted an Erosion and Sedimentation Control Plan that is based on the performance standards contained in Appendix A of Chapter 500 and the Best Management Practices (BMPs) outlined in the Maine Erosion and Sediment Control BMPs, which were developed by the Department. This plan and plan sheets containing erosion control details were reviewed by, and revised in response to the comments of, the Division of Land Resource Regulation (DLRR) of the BLWQ.

Erosion control details will be included on the final construction plans and the erosion control narrative will be included in the project specifications to be provided to the construction contractor.

(2) Inspection and Maintenance: The applicant submitted a maintenance plan that addresses both short and long-term maintenance requirements. This plan was reviewed by, and revised in response to the comments of, DLRR. The maintenance plan is based on the standards contained in Appendix B of Chapter 500. The applicant will be responsible for the maintenance of all common facilities including the stormwater management system.

Prior to occupancy of the new buildings, the applicant must submit a copy of an executed long-term maintenance contract (minimum of 5 years and renewable) for the on-going maintenance of the Filterra®, the underdrained subsurface sand filter, and the StormFilter® to the BLWQ. Storm sewer grit and sediment materials removed from any parts of the stormwater management system, including conveyance structures, during maintenance activities must be disposed of in compliance with the Maine Solid Waste Management Rules.

(3) Housekeeping: The proposed project will comply with the performance standards outlined in Appendix C of Chapter 500.

Based on DLRR's review of the erosion and sedimentation control plan and the maintenance plan, the Department finds that the proposed project meets the Basic Standards contained in Chapter 500(4)(A).

B. General Standards:

The applicant's stormwater management plan includes general treatment measures that will mitigate for the increased frequency and duration of channel erosive flows due to runoff from smaller storms, provide for effective treatment of pollutants in stormwater, and mitigate potential temperature impacts. This mitigation is being achieved by using Best Management Practices (BMPs) that will control runoff from 95% of the impervious area and 96% of the developed area.

The stormwater management system proposed by the applicant was reviewed by, and revised in response to comments from, DLRR. After a final review, DLRR commented that the proposed stormwater management system is designed in accordance with the General Standards contained in Chapter 500(4)(B) and recommended that the applicant retain the design engineer, or another qualified engineer, to oversee the construction of the stormwater management structures according to the details and notes specified on the approved plans. Within thirty days of completion of each stormwater management structure, the applicant must submit a log of inspection reports detailing the items inspected, photos taken, and the dates of each inspection to the BLWQ for review.

Based on the stormwater system's design and DLRR's review, the Department finds that the applicant has made adequate provision to ensure that the proposed project will meet the General Standards contained in Chapter 500(4)(B).

C. Flooding Standard:

The applicant is not proposing a formal stormwater management system to detain stormwater from 24-hour storms of 2-, 10-, and 25-year frequency. Instead, since the project site is located adjacent to a tidal section of the Fore River, the applicant requested a waiver from the flooding standard pursuant to Department Rules, Chapter 500(4)(E)(2)(a). DLRR reviewed the request for a waiver of the flooding standard and recommended that the waiver be granted.

The Department finds that the proposed project will meet the Chapter 500 standards for management of stormwater discharges and discharges to coastal wetlands.

9. WATER SUPPLY:

When completed, the proposed expanded project is anticipated to use 63,919 gallons of water per day. Water will be supplied by the Portland Water District. The applicant submitted a letter from the Portland Water District, dated January 2, 2013, indicating that it will be capable of servicing this project.

The Department finds that the applicant has made adequate provision for securing and maintaining a sufficient and healthful water supply.

10. WASTEWATER DISPOSAL:

When completed, the proposed project is anticipated to discharge up to 63,919 gallons of wastewater per day to the Portland Water District's East End wastewater treatment facility. This project was reviewed and approved by the Division of Water Quality Management (DWQM) of the BLWQ, which commented that the East End wastewater treatment facility has the capacity to treat these flows but has some non-compliance issues that are being addressed by the Portland Water District and scrutinized by the Department.

Based on DWQM's comments, the Department finds that the applicant has made adequate provision for wastewater disposal at a facility that has the capacity to ensure satisfactory treatment.

11. SOLID WASTE:

All municipal solid wastes from the proposed project will be disposed of at Ecomaine, which is currently in substantial compliance with the Maine Solid Waste Management Rules. All wood waste generated from site clearing, such as stumps and grubbings, will be ground and used on site. Any treated wood and mixed construction and demolition debris will be transported to Juniper Ridge Landfill in Old Town or Waste Management in Norridgewock. Untreated wood waste from construction will be sent to KTE Biofuels in Lewiston or to the City of Portland Riverside Recycling Facility. Any petroleum-contaminated soils will be transported to CPRC Group in Scarborough. Biomedical waste will be disposed of at Stericycle in Massachusetts. Any chemical waste will be sent to Clean Harbors Waste Disposal Services. Scrap metal will be sent to One Steel located in Arundel and Oakland, or to Schnitzer Steel in Portland. Any coal ash encountered will be handled in accordance with the Voluntary Response Action Plan. The BRWM reviewed this section of the application and found these facilities are in substantial compliance with the Maine Solid Waste Management Rules.

Based on the above information, the Department finds that the applicant has made adequate provision for solid waste disposal.

12. FLOODING:

The project is adjacent to tidal mudflats of the Fore River. The one hundred year flood elevation of the Fore River and Atlantic Ocean is elevation 10.0 (NGVD 29). The pond and the surrounding wetlands in the old excavated gravel pit portion of the site are below elevation 10.0 and could possibly flood from backflow from the Fore River through the storm drain system. After the pond and surrounding wetlands are filled for the proposed project, all the elevations of the site east of the Fore River Parkway will be above the one hundred year flood elevation. This loss of flood plain area in the Fore River watershed is unlikely to cause an increase in the flood elevation of the Fore River and the surrounding areas because the amount of flood plain area loss from the proposed project is very small in comparison to the flood plain area of the Fore River and surrounding tidal areas.

The Department finds that the proposed project is unlikely to cause or increase flooding or cause an unreasonable flood hazard to any structure.

13. WETLAND IMPACTS:

The applicant proposes to alter 151,924 square feet (3.49 acres) of wetlands to construct the proposed project. The types of wetland proposed to be impacted are 63,446 square feet of open water, 51,236 square feet of emergent/open water wetland, 17,298 square feet of forested wetland, 10,895 square feet of shrub/emergent wetland, 6,458 square feet of shrub wetland, and 2,591 square feet of emergent wetland. These wetlands are the existing pond and the surrounding wetlands in the central part of the site that were originally created from gravel extraction below the groundwater table. The pond is considered artificial and is not considered a wetland of special significance. The purpose and need of the wetland impact is to consolidate the operations of the hospital from the existing two campuses, one on State Street and one on the Fore River Parkway, to a single hospital campus on the Fore River Parkway site, which will allow Mercy Hospital to increase the capacity of the hospital for outpatient care and to provide a facility that meets current hospital standards.

In Department Order #L-20775-19-A-N/L-20775-TG-B-N, dated June 26, 2002, the Department approved 39,835 square feet (0.91 acre) of mostly scrub shrub wetland impact for the initial development of the site by the applicant. The cumulative wetland impact for the existing project plus the proposed project is 191,301 square feet (4.40 acres).

The Wetland Protection Rules interpret and elaborate on the NRPA criteria for obtaining a permit. The rules guide the Department in its determination of whether a project's impacts would be unreasonable. A proposed project would generally be found to be unreasonable if it would cause a loss in wetland area, functions and values and there is a practicable alternative to the project that would be less damaging to the environment. Each application for a Natural Resources Protection Act permit that involves a freshwater

wetland alteration must provide an analysis of alternatives in order to demonstrate that a practicable alternative does not exist.

A. Avoidance. No activity may be permitted if there is a practicable alternative to the project that would be less damaging to the environment. The applicant submitted an alternative analysis for the proposed project completed by Normandeau Associates and dated July 2012.

The applicant evaluated using single and dual campus alternatives to bring the hospital up to appropriate standards of care, safety, efficiency, convenience, and cost effectiveness. The applicant examined moving all operations back to the State Street campus; however the existing facility on State Street has the deficiencies of an aging facility including: an internal power distribution system that is antiquated, at-load capacity and in need of replacement; piping systems that need replacement; the two primary chillers of the heating, ventilating and air conditioning system need replacement; and the lack of space for parking is a major issue that includes high costs and inconvenience for patients and employees. Therefore, moving back to a single campus on State Street is not a feasible alternative because it will not meet the project purpose based on the expense and the inability to create a state-of-the-art healthcare facility.

The applicant evaluated moving all operation to a third site. A search was conducted for alternative sites in 2001 and 2002 that found no other local site was feasible or appropriate. The relocation of all operations to a third location is considered not practicable because it would not meet the project purpose of having a facility in Portland and the $90 million invested in the Fore River location could not be recouped which would jeopardize the long-term sustainability of the hospital.

The applicant evaluated maintaining a duel campus, but has found that two campuses perpetuates unfavorable conditions that would render the hospital unsustainable in the long term because of safety issues, operational difficulties, inconvenience, the expenses of duplicated services, bussing between facilities and renovating the State Street facility, and does not meet the project purpose of having a cost-effective, safe, and state-of-the-art healthcare facility.

The applicant evaluated consolidating operations onto the Fore River Campus with the proposed expansion. This would result in a state-of-the-art facility that would be best for healthcare delivery logistics, staff and patient access, reduction in operating costs, increases in staff efficiency, eliminating the need for duplicated services, and could lead to higher employee retention rates. This alternative meets the project purpose, is practicable in terms of cost effectiveness, and provides a state-of-the-art facility.

The applicant evaluated five alternative site layouts for the expanded Fore River campus, which included layouts that partially or completely filled the central wetland. Alternative ONS-3 shown in the project application avoided impacts to the wetland but did not

address current and anticipated future changes in the U.S. healthcare delivery system, including large increases in the amount of outpatient and ambulatory services provided by hospital campuses which would create a need for increased hospital size and more adjacent parking. Therefore, alternative ONS-3 was rejected.

Alternatives ONS-4 thru ONS-7 represented site layouts that minimize impacts to the central wetland, however they result in an unacceptable facility design that significantly limits the hospital's clinical operations. These unacceptable facility designs include congested and unsafe traffic circulation conditions where the Ambulatory Care Center and Emergency Department entrances are immediately adjacent to one another and other traffic circulation problems that result in confusion and congestion problems for incoming patients and visitors. These designs do not provide parking structures that are located in the critically essential location immediately adjacent to the ambulatory care center. These alternatives would also encroach on the wetland. One of the primary functions and values of the wetland is wildlife habitat, and it was recognized that direct encroachment on the wetland, shading of the wetland, and human activities associated with the building in closer proximity to the wetland would likely have a detrimental effect on this wetland function and value. Although these alternatives would have less direct wetland impact than the proposed project, these alternatives were deemed impracticable for the delivery of patient care services and would likely have detrimental effect on the wetland's wildlife functions and values.

Alternative ONS-8 is the basis of the proposed project. This alternative fills the entire central wetland and raises the grades of the site up such that the emergency department entrance and the building expansion entrance are at the same elevation as the entrance of the Phase 1 hospital. This feature is an important design element to the hospital because it reduces patient and visitor navigation issues inside the building. This alternative meets the current standards for hospital design with appropriate adjacencies and colocation of key services; allows physician and staff efficiency because it has inpatient and outpatient services at one facility; it provides parking for both patients and staff adjacent to the hospital; and, provides enough floor space to meet current program objectives. It is the connectedness of the existing and proposed facility and the future expansion potential that makes this alternative the preferred alternative and the applicant stated that this is the only practicable alternative of meeting the project purpose of a state-of-the-art facility.

B. Minimal Alteration. The amount of freshwater wetland to be altered must be kept to the minimum amount necessary for meeting the overall purpose of the project. The applicant examined alternative site layouts for the project and the only site layout that met the overall purpose of the project proposes to fill 3.49 acres of wetland. Other alternative site layouts that had less direct impact to the wetland were reviewed, but they did not meet the project purpose and need and the wetland alterations, although smaller, would most likely compromise the higher functions and values of the wetland. Given the chosen alternative described in Finding 13 A, the amount of alteration cannot be further minimized.

C. Compensation. Compensation is required to achieve the goal of no net loss of wetland functions and values because the project alters greater than 15,000 square feet of freshwater wetland, which is the threshold over which compensation is generally required. The applicant conducted a wetland mitigation site search and concluded that on-site mitigation was not possible due to space constraints. Although off-site parcels represented viable options for wetland compensation, none of the parcels meet the objectives of compensating for the lost wetland acreage and functions and values within the watershed. The applicant proposes to mitigate for the lost wetland functions and values by making a payment to the In-Lieu Fee (ILF) program of the Maine Natural Resource Conservation Fund (MNRCF).

The wetland that is proposed to be filled was originally formed as a gravel extraction area that was excavated below the groundwater table. This wetland was used as a wetland preservation area to partially compensate for the 0.91 acre of wetland losses approved in Department Order #L-20775-19-A-N/L-20775-TG-B-N. As part of the wetland compensation package for that permit and to enhance the wildlife habitat at the site, the pond and surrounding wetland was enhanced by the removal of solid wastes (such as trash, white goods, tires, metal, etc.), the water quality of the pond was protected by designing the stormwater management system such that only limited amounts of stormwater were directed to the wetland, and a narrow buffer around the wetland was maintained. The remaining wetland compensation for the 0.91 acre of impact from the initial project was 0.21 acre wetland creation in swales on the west side of the Fore River Parkway. The 0.21 acre of wetlands created as compensation for the initial project will not be affected by the proposed project.

The wetland proposed to be impacted is classified as a palustrine (freshwater) system with the following cover type classes: emergent (PEM1), open water (PUB3/4), forested (PFO1), and shrub wetland (PSS1). The pond is fed by a groundwater discharge that appears to flow year-round; therefore, groundwater recharge/discharge is considered a principle function of the wetland. Small fish have been observed in the pond in the past; this population is likely the remnant from birds or the previous hydrological connections to the Fore River and is supported by the groundwater flows; hence, fish and shellfish habitat is a principle function of the wetland. Sediment/toxicant retention is expected to be one of the principle functions of the wetland because any toxicants and sediments flowing into the wetland from the surrounding uplands would become trapped in the organic rich substrate observed in many areas around the pond. Nutrient removal/retention/transformation is expected to be another principle function of the wetland based on the observation of the density and type of vegetation thriving in the wetland and the presence of organic deposits in the wetland. Floodflow alteration is not a principle function of the wetland. Production export is not considered a principal function either. The wetland does provide food for wildlife. The wetland provides habitat for small fish, invertebrates and amphibian populations, which provides a forage base for secondary and tertiary consumers. Reptiles (turtles) have been observed basking

around the pond. Piscivorous birds, including herons, were observed foraging in and along the pond habitat. Migratory waterfowl, including mallard ducks and black ducks, were observed using the wetland. Although the wetland provides food for the wildlife utilizing the wetland, it does not provide nutrients that are transported out of the wetland. Wildlife habitat is considered to be a principle function of the wetland because of the variety of resident and migratory species present. As noted above, the pond has populations of invertebrates, fish and amphibians that provide a forage base for higher trophic level consumers. The wetlands and adjacent forested upland also support small mammals such as voles, shrews, field mice, and potentially larger mammals such as fox and woodchucks. Uniqueness/heritage value is believed to be present because the central wetland is somewhat unique as the surrounding land is developed and freshwater wetlands are rare on the Portland peninsula.

The wetland compensation required in Department Order #L-20775-19-A-N/L-20775-TG-B-N for 0.70 acre of wetland impacts will be eliminated by the proposed project, plus an additional 3.49 acres of wetland impact requires compensation, therefore the total amount of wetland impact requiring compensation for the project is 4.19 acres. The applicant proposes to make a contribution into the ILF program of the MNRCF in the amount of $834,156.00. Prior to the start of construction, a cashier's check or bank draft, payable to "Treasurer, State of Maine", with the permit number noted on the check, must be mailed to: ME DEP, Attn: ILF Program Administrator, State House Station 17, Augusta, ME 04333.

The Department finds that the applicant has avoided and minimized wetland impacts to the greatest extent practicable, and that the proposed project represents the least environmentally damaging alternative that meets the overall purpose of the project provided that prior to project construction, the applicant submits the ILF payment as described above.

14. AIR QUALITY:

The applicant has obtained an air emissions license from the Bureau of Air Quality, #A-912-71-A-N, for Phase I of the project. The applicant must amend its air emissions license from the Bureau of Air Quality prior to using any new equipment that requires an air emissions license.

15. ALL OTHER:

All other Findings of Fact, Conclusions and Conditions remain as approved in Department Order #L-20775-19-A-N and #L-20775-TG-B-N, and subsequent orders.

BASED on the above findings of fact, and subject to the conditions listed below, the Department makes the following conclusions pursuant to 38 M.R.S.A. Sections 480-A et seq. and Section 401 of the Federal Water Pollution Control Act:

A. The proposed activity will not unreasonably interfere with existing scenic, aesthetic, recreational, or navigational uses.

B. The proposed activity will not cause unreasonable erosion of soil or sediment.

C. The proposed activity will not unreasonably inhibit the natural transfer of soil from the terrestrial to the marine or freshwater environment.

D. The proposed activity will not unreasonably harm any significant wildlife habitat, freshwater wetland plant habitat, threatened or endangered plant habitat, aquatic habitat, travel corridor, freshwater, estuarine, or marine fisheries or other aquatic life provided that the applicant makes a contribution to the In-Lieu Fee (ILF) program, the wildlife habitat losses are noted on the In Lieu Fee (ILF) Project Data Worksheet as described in Findings 6 and 13, and the Turtle Trapping and Removal plan is implemented prior to construction as described in Finding 6.

E. The proposed activity will not unreasonably interfere with the natural flow of any surface or subsurface waters.

F. The proposed activity will not violate any state water quality law including those governing the classifications of the State's waters.

G. The proposed activity will not unreasonably cause or increase the flooding of the alteration area or adjacent properties.

H. The proposed activity is not on or adjacent to a sand dune.

I. The proposed activity is not on an outstanding river segment as noted in 38 M.R.S.A. Section 480-P.

BASED on the above findings of fact, and subject to the conditions listed below, the Department makes the following conclusions pursuant to 38 M.R.S.A. Sections 481 et seq.:

A. The applicant has provided adequate evidence of financial capacity and technical ability to develop the project in a manner consistent with state environmental standards provided that the applicant submits evidence of financial capacity to the BLWQ for review and approval prior to the start of construction as described in Finding 2.

B. The applicant has made adequate provision for fitting the development harmoniously into the existing natural environment and the development will not adversely affect existing uses, scenic character, air quality, water quality or other natural resources in the municipality or in neighboring municipalities.

C. The proposed development will be built on soil types which are suitable to the nature of the undertaking and will not cause unreasonable erosion of soil or sediment nor inhibit the natural transfer of soil.

D. The proposed development meets the standards for storm water management in Section 420-D and the standard for erosion and sedimentation control in Section 420-C provided that the applicant retains the design engineer, or another qualified engineer, to oversee the construction of the stormwater management structures; submits a log of inspection reports to the BLWQ for review; submits a copy of an executed long-term maintenance contract for the on-going maintenance of the Filterra®, the underdrained subsurface sand filter, and the StormFilter®; and, disposes of materials removed from the stormwater management systems in compliance with the Maine Solid Waste Management Rules as described in Finding 8.

E. The proposed development will not pose an unreasonable risk that a discharge to a significant groundwater aquifer will occur.

F. The applicant has made adequate provision of utilities, including water supplies, sewerage facilities and solid waste disposal required for the development and the development will not have an unreasonable adverse effect on the existing or proposed utilities in the municipality or area served by those services.

G. The activity will not unreasonably cause or increase the flooding of the alteration area or adjacent properties nor create an unreasonable flood hazard to any structure.

THEREFORE, the Department APPROVES the application of MERCY HOSPITAL to construct Phase II of the Mercy Hospital Relocation project as described above, SUBJECT TO THE FOLLOWING CONDITIONS and all applicable standards and regulations:

1. The Standard Conditions of Approval, a copy attached.

2. In addition to any specific erosion control measures described in this or previous orders, the applicant shall take all necessary actions to ensure that its activities or those of its agents do not result in noticeable erosion of soils or fugitive dust emissions on the site during the construction and operation of the project covered by this approval.

3. Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This

License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

4. The applicant or other responsible party shall, within three months of the expiration of each five-year interval from the date of this Order, submit a report certifying that the items listed in Department Rules, Chapter 500, Appendix B(4) have been completed in accordance with the approved plans.

5. Prior to the start of construction, the applicant must submit evidence that it has been granted a line of credit or a loan by a financial institution authorized to do business in this State or evidence of any other form of financial assurance determined by Department Rules, Chapter 373(1), to be adequate to the BLWQ for review and approval.

6. Prior to occupancy of the new buildings, the applicant shall submit a copy of an executed long-term maintenance contract (minimum of 5 years and renewable) to the BLWQ for the on-going maintenance of the Filterra®, the underdrained subsurface sand filter, and the StormFilter®.

7. Storm sewer grit and sediment materials removed from any parts of the stormwater management system, including conveyance structures, during maintenance activities shall be disposed of in compliance with the Maine Solid Waste Management Rules.

8. The applicant shall retain the design engineer, or another qualified engineer, to oversee the construction of the stormwater management structures according to the details and notes specified on the approved plans. Within thirty days of completion of each stormwater management structure, the applicant shall submit a log of inspection reports detailing the items inspected, photos taken, and the dates of each inspection to the BLWQ for review.

9. Prior to the start of construction, the applicant shall mail or deliver a cashier's check or bank draft in the amount of $834,156.00, payable to "Treasurer, State of Maine", with the permit number noted on the check, to: ME DEP, Attn: ILF Program Administrator, State House Station 17, Augusta, ME 04333.

10. Prior to the start of construction, the applicant shall implement the Turtle Trapping and Removal plan.

11. All other Findings of Fact, Conclusions and Conditions remain as approved in Department Order #L-20775-19-A-N and #L-20775-TG-B-N, and subsequent orders, and are incorporated herein.

THIS APPROVAL DOES NOT CONSTITUTE OR SUBSTITUTE FOR ANY OTHER REQUIRED STATE, FEDERAL OR LOCAL APPROVALS NOR DOES IT VERIFY COMPLIANCE WITH ANY APPLICABLE SHORELAND ZONING ORDINANCES.

DONE AND DATED IN AUGUSTA, MAINE, THIS 22 DAY OF March, 2013.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Michael Kuhns for
Patricia W. Aho, Commissioner

Filed
MAR 22 2013
State of Maine
Board of Environmental Protection

PLEASE NOTE THE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES...

CGW/L20775TA&UN/ATS#74936&74937

Department of Environmental Protection

SITE LOCATION OF DEVELOPMENT (SITE)
STANDARD CONDITIONS

A. **Approval of Variations from Plans.** The granting of this approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. Any variation from these plans, proposals, and supporting documents is subject to review and approval prior to implementation. Further subdivision of proposed lots by the applicant or future owners is specifically prohibited without prior approval of the Board, and the applicant shall include deed restrictions to that effect.

B. **Compliance with All Applicable Laws.** The applicant shall secure and comply with all applicable federal, state, and local licenses, permits, authorizations, conditions, agreements, and orders prior to or during construction and operation, as appropriate.

C. **Compliance with All Terms and Conditions of Approval.** The applicant shall submit all reports and information requested by the Board or the Department demonstrating that the applicant has complied or will comply with all preconstruction terms and conditions of this approval. All preconstruction terms and conditions must be met before construction begins.

D. **Advertising.** Advertising relating to matters included in this application shall refer to this approval only if it notes that the approval has been granted WITH CONDITIONS, and indicates where copies of those conditions may be obtained.

E. **Transfer of Development.** Unless otherwise provided in this approval, the applicant shall not sell, lease, assign or otherwise transfer the development or any portion thereof without prior written approval of the Board where the purpose or consequence of the transfer is to transfer any of the obligations of the developer as incorporated in this approval. Such approval shall be granted only if the applicant or transferee demonstrates to the Board that the transferee has the technical capacity and financial ability to comply with conditions of this approval and the proposals and plans contained in the application and supporting documents submitted by the applicant.

F. **Time frame for approvals.** If the construction or operation of the activity is not begun within four years, this approval shall lapse and the applicant shall reapply to the Board for a new approval. The applicant may not begin construction or operation of the development until a new approval is granted. A reapplication for approval may include information submitted in the initial application by reference. This approval, if construction is begun within the four-year time frame, is valid for seven years. If construction is not completed within the seven-year time frame, the applicant must reapply for, and receive, approval prior to continuing construction.

G. **Approval Included in Contract Bids.** A copy of this approval must be included in or attached to all contract bid specifications for the development.

H. **Approval Shown to Contractors.** Work done by a contractor pursuant to this approval shall not begin before the contractor has been shown by the developer a copy of this approval.

Natural Resource Protection Act (NRPA)
Standard Conditions

THE FOLLOWING STANDARD CONDITIONS SHALL APPLY TO ALL PERMITS GRANTED UNDER THE NATURAL RESOURCE PROTECTION ACT, TITLE 38, M.R.S.A. SECTION 480-A ET.SEQ. UNLESS OTHERWISE SPECIFICALLY STATED IN THE PERMIT.

A. Approval of Variations From Plans. The granting of this permit is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. Any variation from these plans, proposals, and supporting documents is subject to review and approval prior to implementation.

B. Compliance With All Applicable Laws. The applicant shall secure and comply with all applicable federal, state, and local licenses, permits, authorizations, conditions, agreements, and orders prior to or during construction and operation, as appropriate.

C. Erosion Control. The applicant shall take all necessary measures to ensure that his activities or those of his agents do not result in measurable erosion of soils on the site during the construction and operation of the project covered by this Approval.

D. Compliance With Conditions. Should the project be found, at any time, not to be in compliance with any of the Conditions of this Approval, or should the applicant construct or operate this development in any way other the specified in the Application or Supporting Documents, as modified by the Conditions of this Approval, then the terms of this Approval shall be considered to have been violated.

E. Time frame for approvals. If construction or operation of the activity is not begun within four years, this permit shall lapse and the applicant shall reapply to the Board for a new permit. The applicant may not begin construction or operation of the activity until a new permit is granted. Reapplications for permits may include information submitted in the initial application by reference. This approval, if construction is begun within the four-year time frame, is valid for seven years. If construction is not completed within the seven-year time frame, the applicant must reapply for, and receive, approval prior to continuing construction.

F. No Construction Equipment Below High Water. No construction equipment used in the undertaking of an approved activity is allowed below the mean high water line unless otherwise specified by this permit.

G. Permit Included In Contract Bids. A copy of this permit must be included in or attached to all contract bid specifications for the approved activity.

H. Permit Shown To Contractor. Work done by a contractor pursuant to this permit shall not begin before the contractor has been shown by the applicant a copy of this permit.

STORMWATER STANDARD CONDITIONS

STRICT CONFORMANCE WITH THE STANDARD AND SPECIAL CONDITIONS OF THIS APPROVAL IS NECESSARY FOR THE PROJECT TO MEET THE STATUTORY CRITERIA FOR APPROVAL

Standard conditions of approval. Unless otherwise specifically stated in the approval, a department approval is subject to the following standard conditions pursuant to Chapter 500 Stormwater Management Law.

(1) Approval of variations from plans. The granting of this approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. Any variation from these plans, proposals, and supporting documents must be reviewed and approved by the department prior to implementation. Any variation undertaken without approval of the department is in violation of 38 M.R.S.A. §420-D(8) and is subject to penalties under 38 M.R.S.A. §349.

(2) Compliance with all terms and conditions of approval. The applicant shall submit all reports and information requested by the department demonstrating that the applicant has complied or will comply with all terms and conditions of this approval. All preconstruction terms and conditions must be met before construction begins.

(3) Advertising. Advertising relating to matters included in this application may not refer to this approval unless it notes that the approval has been granted WITH CONDITIONS, and indicates where copies of those conditions may be obtained.

(4) Transfer of project. Unless otherwise provided in this approval, the applicant may not sell, lease, assign, or otherwise transfer the project or any portion thereof without written approval by the department where the purpose or consequence of the transfer is to transfer any of the obligations of the developer as incorporated in this approval. Such approval may only be granted if the applicant or transferee demonstrates to the department that the transferee agrees to comply with conditions of this approval and the proposals and plans contained in the application and supporting documents submitted by the applicant. Approval of a transfer of the permit must be applied for no later than two weeks after any transfer of property subject to the license.

(5) Time frame for approvals. If the construction or operation of the activity is not begun within four years, this approval shall lapse and the applicant shall reapply to the department for a new approval. The applicant may not begin construction or operation of the project until a new approval is granted. A reapplication for approval may include information submitted in the initial application by reference. This approval, if construction is begun within the four-year time frame, is valid for seven years. If construction is not completed within the seven-year time frame, the applicant must reapply for, and receive, approval prior to continuing construction.

(6) Certification. Contracts must specify that "all work is to comply with the conditions of the Stormwater Permit." Work done by a contractor or subcontractor pursuant to this approval may not begin before the contractor and any subcontractors have been shown a copy of this

approval with the conditions by the developer, and the owner and each contractor and subcontractor has certified, on a form provided by the department, that the approval and conditions have been received and read, and that the work will be carried out in accordance with the approval and conditions. Completed certification forms must be forwarded to the department.

(7) Maintenance. The components of the stormwater management system must be adequately maintained to ensure that the system operates as designed, and as approved by the department.

(8) Recertification requirement. Within three months of the expiration of each five-year interval from the date of issuance of the permit, the permittee shall certify the following to the department.

(a) All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.

(b) All aspects of the stormwater control system have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the facilities.

(c) The erosion and stormwater maintenance plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the department, and the maintenance log is being maintained.

(9) Severability. The invalidity or unenforceability of any provision, or part thereof, of this permit shall not affect the remainder of the provision or any other provisions. This permit shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

November 16, 2005 (revised December 27, 2011)

DEP INFORMATION SHEET

Appealing a Department Licensing Decision

Dated: March 2012 **Contact: (207) 287-2811**

SUMMARY

There are two methods available to an aggrieved person seeking to appeal a licensing decision made by the Department of Environmental Protection's ("DEP") Commissioner: (1) in an administrative process before the Board of Environmental Protection ("Board"); or (2) in a judicial process before Maine's Superior Court. An aggrieved person seeking review of a licensing decision over which the Board had original jurisdiction may seek judicial review in Maine's Superior Court.

A judicial appeal of final action by the Commissioner or the Board regarding an application for an expedited wind energy development (35-A M.R.S.A. § 3451(4)) or a general permit for an offshore wind energy demonstration project (38 M.R.S.A. § 480-HH(1)) or a general permit for a tidal energy demonstration project (38 M.R.S.A. § 636-A) must be taken to the Supreme Judicial Court sitting as the Law Court.

This INFORMATION SHEET, in conjunction with a review of the statutory and regulatory provisions referred to herein, can help a person to understand his or her rights and obligations in filing an administrative or judicial appeal.

I. ADMINISTRATIVE APPEALS TO THE BOARD

LEGAL REFERENCES

The laws concerning the DEP's *Organization and Powers*, 38 M.R.S.A. §§ 341-D(4) & 346, the *Maine Administrative Procedure Act*, 5 M.R.S.A. § 11001, and the DEP's *Rules Concerning the Processing of Applications and Other Administrative Matters* ("Chapter 2"), 06-096 CMR 2 (April 1, 2003).

HOW LONG YOU HAVE TO SUBMIT AN APPEAL TO THE BOARD

The Board must receive a written appeal within 30 days of the date on which the Commissioner's decision was filed with the Board. Appeals filed after 30 calendar days of the date on which the Commissioner's decision was filed with the Board will be rejected.

HOW TO SUBMIT AN APPEAL TO THE BOARD

Signed original appeal documents must be sent to: Chair, Board of Environmental Protection, c/o Department of Environmental Protection, 17 State House Station, Augusta, ME 04333-0017; faxes are acceptable for purposes of meeting the deadline when followed by the Board's receipt of mailed original documents within five (5) working days. Receipt on a particular day must be by 5:00 PM at DEP's offices in Augusta; materials received after 5:00 PM are not considered received until the following day. The person appealing a licensing decision must also send the DEP's Commissioner a copy of the appeal documents and if the person appealing is not the applicant in the license proceeding at issue the applicant must also be sent a copy of the appeal documents. All of the information listed in the next section must be submitted at the time the appeal is filed. Only the extraordinary circumstances described at the end of that section will justify evidence not in the DEP's record at the time of decision being added to the record for consideration by the Board as part of an appeal.

WHAT YOUR APPEAL PAPERWORK MUST CONTAIN

Appeal materials must contain the following information at the time submitted:

1. *Aggrieved Status.* The appeal must explain how the person filing the appeal has standing to maintain an appeal. This requires an explanation of how the person filing the appeal may suffer a particularized injury as a result of the Commissioner's decision.
2. *The findings, conclusions or conditions objected to or believed to be in error.* Specific references and facts regarding the appellant's issues with the decision must be provided in the notice of appeal.
3. *The basis of the objections or challenge.* If possible, specific regulations, statutes or other facts should be referenced. This may include citing omissions of relevant requirements, and errors believed to have been made in interpretations, conclusions, and relevant requirements.
4. *The remedy sought.* This can range from reversal of the Commissioner's decision on the license or permit to changes in specific permit conditions.
5. *All the matters to be contested.* The Board will limit its consideration to those arguments specifically raised in the written notice of appeal.
6. *Request for hearing.* The Board will hear presentations on appeals at its regularly scheduled meetings, unless a public hearing on the appeal is requested and granted. A request for public hearing on an appeal must be filed as part of the notice of appeal.
7. *New or additional evidence to be offered.* The Board may allow new or additional evidence, referred to as supplemental evidence, to be considered by the Board in an appeal only when the evidence is relevant and material and that the person seeking to add information to the record can show due diligence in bringing the evidence to the DEP's attention at the earliest possible time in the licensing process or that the evidence itself is newly discovered and could not have been presented earlier in the process. Specific requirements for additional evidence are found in Chapter 2.

Other Considerations in Appealing a Decision to the Board

1. *Be familiar with all relevant material in the DEP record.* A license application file is public information, subject to any applicable statutory exceptions, made easily accessible by DEP. Upon request, the DEP will make the material available during normal working hours, provide space to review the file, and provide opportunity for photocopying materials. There is a charge for copies or copying services.
2. *Be familiar with the regulations and laws under which the application was processed, and the procedural rules governing your appeal.* DEP staff will provide this information on request and answer questions regarding applicable requirements.
3. *The filing of an appeal does not operate as a stay to any decision.* If a license has been granted and it has been appealed the license normally remains in effect pending the processing of the appeal. A license holder may proceed with a project pending the outcome of an appeal but the license holder runs the risk of the decision being reversed or modified as a result of the appeal.

What to Expect Once You File a Timely Appeal with the Board

The Board will formally acknowledge receipt of an appeal, including the name of the DEP project manager assigned to the specific appeal. The notice of appeal, any materials accepted by the Board Chair as supplementary evidence, and any materials submitted in response to the appeal will be sent to Board members with a recommendation from DEP staff. Persons filing appeals and interested persons are notified in advance of the date set for Board consideration of an appeal or request for public hearing. With or without holding a public hearing, the Board may affirm, amend, or reverse a Commissioner decision or remand the matter to the Commissioner for further proceedings. The Board will notify the appellant, a license holder, and interested persons of its decision.

II. JUDICIAL APPEALS

Maine law generally allows aggrieved persons to appeal final Commissioner or Board licensing decisions to Maine's Superior Court, see 38 M.R.S.A. § 346(1); 06-096 CMR 2; 5 M.R.S.A. § 11001; & M.R. Civ. P 80C. A party's appeal must be filed with the Superior Court within 30 days of receipt of notice of the Board's or the Commissioner's decision. For any other person, an appeal must be filed within 40 days of the date the decision was rendered. Failure to file a timely appeal will result in the Board's or the Commissioner's decision becoming final.

An appeal to court of a license decision regarding an expedited wind energy development, a general permit for an offshore wind energy demonstration project, or a general permit for a tidal energy demonstration project may only be taken directly to the Maine Supreme Judicial Court. See 38 M.R.S.A. § 346(4).

Maine's Administrative Procedure Act, DEP statutes governing a particular matter, and the Maine Rules of Civil Procedure must be consulted for the substantive and procedural details applicable to judicial appeals.

ADDITIONAL INFORMATION

If you have questions or need additional information on the appeal process, for administrative appeals contact the Board's Executive Analyst at (207) 287-2452 or for judicial appeals contact the court clerk's office in which your appeal will be filed.

Note: The DEP provides this INFORMATION SHEET for general guidance only; it is not intended for use as a legal reference. Maine law governs an appellant's rights.

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017

DEPARTMENT ORDER

IN THE MATTER OF

MERCY HOSPITAL	) SITE LOCATION OF DEVELOPMENT ACT
Portland, Cumberland County	) NATURAL RESOURCES PROTECTION ACT
HOSPITAL RELOCATION	) WATER QUALITY CERTIFICATION
L-20775-19-W-B (approval)	) MINOR AMENDMENT
L-20775-TG-X-M (approval)	) FINDINGS OF FACT AND ORDER

Pursuant to the provisions of 38 M.R.S. §§ 481–489-E, §§ 480-A–480-JJ, and Section 401 of the Federal Water Pollution Control Act (33 U. S. C. § 1341), and Chapters 310, 371-376, 500, and 501 of Department rules, the Department of Environmental Protection has considered the application of MERCY HOSPITAL with the supportive data and other related materials on file and FINDS THE FOLLOWING FACTS:

1. PROJECT DESCRIPTION:

A. History: In Department Order #L-20775-19-A-N/L-20775-TG-B-N, dated June 26, 2002, the Department approved the development of a new Mercy Hospital Campus on 85.5 acres off Congress Street, adjacent to the Fore River in Portland. In Department Orders #L-20775-19-C-T, #L-20775-19-D-M, and #L-20775-TG-E-M, the Department approved the partial transfer and modification of the original Orders by the Maine Department of Transportation (MDOT) for the construction of a connector road, the Fore River Parkway, across the property. Approximately three acres of land were transferred to MDOT for the construction of the new Veteran's Bridge to South Portland. Subsequent Department Orders approved several minor modifications. In Department Order #L-20775-19-T-A/L-20775-TG-U-N, dated March 22, 2013, the Department approved the construction of Phase II of the Mercy Hospital relocation project that consists of a 116,980 square-foot hospital building expansion, a 15,000 square-foot medical office building, a detached 40,000 square-foot medical office building, a 33,800 square-foot parking garage, a 51,800 square-foot parking garage, an elevated parking deck, associated on-site traffic circulation and utility renovations, and new stormwater management structures. The Department also approved the placement of 3.49 acres of fill in a freshwater wetland under the Natural Resources Protection Act.

B. Summary: The applicant is proposing to extend start of construction for Department Order #L-20775-19-T-A/L-20775-TG-U-N an additional four years and stormwater structure amendments to meet current stormwater standards. Start of construction has been delayed due to extenuating circumstances. The Department's Chapter 2 Rule Concerning the Processing of Applications and Other Administrative Matters requires that renewal applications to extend the expiration date for projects that have not commenced construction be subject to the procedural and substantive requirements in effect at the time of acceptance of the renewal application. Therefore, in order to extend the permits, the applicant is also proposing to amend the stormwater

management plan portion of Department Order #L-20775-19-T-A to meet current standards. No change in the amount of impervious or developed area is proposed as part of these amendments. The project is shown on a set of plans, the first of which is titled "Site Development Plans for Mercy Hospital Relocation Project Amended Master Plan/Phase II Expansion", prepared by DeLuca-Hoffman Associates, and dated May 2012. Proposed changes to the stormwater management plan are shown on sheet numbers C-4.0, C-4.1, C-4.2, C-4.4, C-4.5, and C-7.4 of this plan set, with a most recent revision date on any of the sheets of October 19, 2017.

2. STORMWATER MANAGEMENT:

The applicant submitted an amended stormwater management plan to meet current Chapter 500 Department Rules. Changes to the plan include the replacement of Tree Box Filters which are no longer approved by the Department. The applicant proposes to replace the Tree Box Filters with one four-foot by eight-foot and two six-foot by 10-foot Filterra Bioretention Systems. Additionally, the applicant proposes to redesign and enlarge the sand filter originally approved to meet the current maximum storage depth standard of 18 inches. The applicant further proposes to redesign the two grassed underdrained soil filters originally approved to meet the current maximum surface area standard of 3,000 square feet. No changes to the amount of impervious or developed area are proposed.

A. Basic Standards:

No changes to this section of Department Order #L-20775-19-T-A are proposed.

B. General Standard:

The applicant's stormwater management plan includes general treatment measures that will mitigate for the increased frequency and duration of channel erosive flows due to runoff from smaller storms, provide for effective treatment of pollutants in stormwater, and mitigate potential thermal impacts. The applicant is proposing to amend the stormwater management plan to meet current General Standards requirements in Chapter 500. The amended plan replaces the previously approved Tree Box Filters with Filterra Bioretention treatment units, redesign of the sand filter to meet the maximum storage depth of 18 inches, and redesign of the grassed underdrained soil filters to meet the maximum allowable 3,000 square feet of surface area. The applicant submitted calculations demonstrating that the revised plans will treat stormwater runoff from 95% of the total impervious area and 96% of the total developed area.

The proposed amendments to the stormwater management system were reviewed by the Bureau of Land Resources (BLR). After final review, BLR commented that the amended stormwater management systems are designed in accordance with the Chapter 500 General Standard provided that the applicant's design engineer, or other qualified engineer, oversee the construction of the stormwater management structures to ensure that they are installed according to the details and notes specified on the approved plans

and provided that prior to the start of construction, the applicant submits a five-year binding inspection and maintenance contract for the Filterra Bioretention Systems to the BLR for review and approval. These contracts must be renewed before expiration. Within 30 days of completion of the entire stormwater management system or if the project takes more than one year to complete, at least once per year, the applicant must submit a log of inspection reports detailing the items inspected, photos taken, and the dates of each inspection to the BLR for review.

Based on the stormwater system's design and BLR's review, the Department finds that the applicant has made adequate provision to ensure that the proposed project will meet the General Standards contained in Chapter 500(4)(C) provided that construction of the stormwater structures is overseen and documented as described above and that the applicant submits a five-year binding inspection and maintenance contract for the Filterra Bioretention Systems to the BLR prior to the start of construction.

C. Flooding Standard:

No changes to this section of Department Order #L-20775-19-T-A are proposed.

3. WETLAND IMPACTS:

No changes to Department Order #L-20775-TG-U-N are proposed.

4. ALL OTHER:

All other findings of fact, conclusions, and conditions remain as approved in Department Order #L-20775-19-A-N/L-20775-TG-B-N, and subsequent Orders.

BASED on the above findings of fact, and subject to the conditions listed below, the Department makes the following conclusions pursuant to 38 M.R.S. §§ 480-A–480-JJ and Section 401 of the Federal Water Pollution Control Act:

A. The proposed activity will not unreasonably interfere with existing scenic, aesthetic, recreational, or navigational uses.

B. The proposed activity will not cause unreasonable erosion of soil or sediment.

C. The proposed activity will not unreasonably inhibit the natural transfer of soil from the terrestrial to the marine or freshwater environment.

D. The proposed activity will not unreasonably harm any significant wildlife habitat, freshwater wetland plant habitat, threatened or endangered plant habitat, aquatic habitat, travel corridor, freshwater, estuarine, or marine fisheries or other aquatic life.

E. The proposed activity will not unreasonably interfere with the natural flow of any surface or subsurface waters.

F. The proposed activity will not violate any state water quality law including those governing the classifications of the State's waters.

G. The proposed activity will not unreasonably cause or increase the flooding of the alteration area or adjacent properties.

H. The proposed activity is not on or adjacent to a sand dune.

I. The proposed activity is not on an outstanding river segment as noted in 38 M.R.S. Section 480-P.

BASED on the above findings of fact, and subject to the conditions listed below, the Department makes the following conclusions pursuant to 38 M.R.S. §§ 481–489-E:

A. The applicant has provided adequate evidence of financial capacity and technical ability to develop the project in a manner consistent with state environmental standards.

B. The applicant has made adequate provision for fitting the development harmoniously into the existing natural environment and the development will not adversely affect existing uses, scenic character, air quality, water quality or other natural resources in the municipality or in neighboring municipalities.

C. The proposed development will be built on soil types which are suitable to the nature of the undertaking and will not cause unreasonable erosion of soil or sediment nor inhibit the natural transfer of soil.

D. The proposed development meets the standards for storm water management in Section 420-D and the standard for erosion and sedimentation control in Section 420-C provided that construction of the stormwater structures is overseen and documented as described in Finding 2, provided that prior to the start of construction the applicant submits a five-year binding inspection and maintenance contract for the Filterra Bioretention Systems to the BLR for review and approval, and provided that the contract is renewed prior to expiration.

E. The proposed development will not pose an unreasonable risk that a discharge to a significant groundwater aquifer will occur.

F. The applicant has made adequate provision of utilities, including water supplies, sewerage facilities and solid waste disposal required for the development and the development will not have an unreasonable adverse effect on the existing or proposed utilities in the municipality or area served by those services.

G. The activity will not unreasonably cause or increase the flooding of the alteration area or adjacent properties nor create an unreasonable flood hazard to any structure.

THEREFORE, the Department APPROVES the application of MERCY HOSPITAL for a permit extension and stormwater structure amendments SUBJECT TO THE FOLLOWING CONDITIONS and all applicable standards and regulations:

1. The Standard Conditions of Approval, a copy attached.

2. In addition to any specific erosion control measures described in this or previous orders, the applicant shall take all necessary actions to ensure that its activities or those of its agents do not result in noticeable erosion of soils or fugitive dust emissions on the site during the construction and operation of the project covered by this approval.

3. Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

4. The applicant shall retain the services of a professional engineer to inspect and document the installation of the Filterra Bioretention Systems according to the details and notes specified on the approved plans. Within 30 days of completion of the stormwater management system or if the project takes more than one year to complete at least once per year, the applicant shall submit a log of inspection reports detailing the items inspected, photographs taken, and dates of each inspection to the BLR for review.

5. Prior to the start of construction, the applicant shall submit a five-year binding inspection and maintenance contract for the Filterra Bioretention Systems to the BLR for review and approval, and that contract shall be renewed before expiration.

6. All other Findings of Fact, Conclusions, and Conditions remain as approved in Department Order #L-20775-19-A-N/L-20775-TG-B-N, and subsequent Orders, and are incorporated herein.

THIS APPROVAL DOES NOT CONSTITUTE OR SUBSTITUTE FOR ANY OTHER REQUIRED STATE, FEDERAL OR LOCAL APPROVALS NOR DOES IT VERIFY COMPLIANCE WITH ANY APPLICABLE SHORELAND ZONING ORDINANCES.

DONE AND DATED IN AUGUSTA, MAINE, THIS 27TH DAY OF NOVEMBER, 2017.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: _____
For: Paul Mercer, Commissioner

Filed
NOV 27 2017
State of Maine
Board of Environmental Protection

PLEASE NOTE THE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES.

JM/L20775WBXM/ATS#81564, 82225

DEP SITE LOCATION OF DEVELOPMENT (SITE) STANDARD CONDITIONS

STRICT CONFORMANCE WITH THE STANDARD AND SPECIAL CONDITIONS OF THIS APPROVAL IS NECESSARY FOR THE PROJECT TO MEET THE STATUTORY CRITERIA FOR APPROVAL.

A. Approval of Variations from Plans. The granting of this approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. Any variation from these plans, proposals, and supporting documents is subject to review and approval prior to implementation. Further subdivision of proposed lots by the applicant or future owners is specifically prohibited without prior approval of the Board, and the applicant shall include deed restrictions to that effect.

B. Compliance with All Applicable Laws. The applicant shall secure and comply with all applicable federal, state, and local licenses, permits, authorizations, conditions, agreements, and orders prior to or during construction and operation, as appropriate.

C. Compliance with All Terms and Conditions of Approval. The applicant shall submit all reports and information requested by the Board or the Department demonstrating that the applicant has complied or will comply with all preconstruction terms and conditions of this approval. All preconstruction terms and conditions must be met before construction begins.

D. Advertising. Advertising relating to matters included in this application shall refer to this approval only if it notes that the approval has been granted WITH CONDITIONS, and indicates where copies of those conditions may be obtained.

E. Transfer of Development. Unless otherwise provided in this approval, the applicant shall not sell, lease, assign or otherwise transfer the development or any portion thereof without prior written approval of the Board where the purpose or consequence of the transfer is to transfer any of the obligations of the developer as incorporated in this approval. Such approval shall be granted only if the applicant or transferee demonstrates to the Board that the transferee has the technical capacity and financial ability to comply with conditions of this approval and the proposals and plans contained in the application and supporting documents submitted by the applicant.

F. Time frame for approvals. If the construction or operation of the activity is not begun within four years, this approval shall lapse and the applicant shall reapply to the Board for a new approval. The applicant may not begin construction or operation of the development until a new approval is granted. A reapplication for approval may include information submitted in the initial application by reference. This approval, if construction is begun within the four-year time frame, is valid for seven years. If construction is not completed within the seven-year time frame, the applicant must reapply for, and receive, approval prior to continuing construction.

G. Approval Included in Contract Bids. A copy of this approval must be included in or attached to all contract bid specifications for the development.

H. Approval Shown to Contractors. Work done by a contractor pursuant to this approval shall not begin before the contractor has been shown by the developer a copy of this approval.

Natural Resource Protection Act (NRPA)
Standard Conditions

THE FOLLOWING STANDARD CONDITIONS SHALL APPLY TO ALL PERMITS GRANTED UNDER THE NATURAL RESOURCE PROTECTION ACT, TITLE 38, M.R.S.A. SECTION 480-A ET.SEQ. UNLESS OTHERWISE SPECIFICALLY STATED IN THE PERMIT.

A. Approval of Variations From Plans. The granting of this permit is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. Any variation from these plans, proposals, and supporting documents is subject to review and approval prior to implementation.

B. Compliance With All Applicable Laws. The applicant shall secure and comply with all applicable federal, state, and local licenses, permits, authorizations, conditions, agreements, and orders prior to or during construction and operation, as appropriate.

C. Erosion Control. The applicant shall take all necessary measures to ensure that his activities or those of his agents do not result in measurable erosion of soils on the site during the construction and operation of the project covered by this Approval.

D. Compliance With Conditions. Should the project be found, at any time, not to be in compliance with any of the Conditions of this Approval, or should the applicant construct or operate this development in any way other the specified in the Application or Supporting Documents, as modified by the Conditions of this Approval, then the terms of this Approval shall be considered to have been violated.

E. Time frame for approvals. If construction or operation of the activity is not begun within four years, this permit shall lapse and the applicant shall reapply to the Board for a new permit. The applicant may not begin construction or operation of the activity until a new permit is granted. Reapplications for permits may include information submitted in the initial application by reference. This approval, if construction is begun within the four-year time frame, is valid for seven years. If construction is not completed within the seven-year time frame, the applicant must reapply for, and receive, approval prior to continuing construction.

F. No Construction Equipment Below High Water. No construction equipment used in the undertaking of an approved activity is allowed below the mean high water line unless otherwise specified by this permit.

G. Permit Included In Contract Bids. A copy of this permit must be included in or attached to all contract bid specifications for the approved activity.

H. Permit Shown To Contractor. Work done by a contractor pursuant to this permit shall not begin before the contractor has been shown by the applicant a copy of this permit.

DEP INFORMATION SHEET

Appealing a Department Licensing Decision

Dated: March 2012 **Contact: (207) 287-2811**

SUMMARY

There are two methods available to an aggrieved person seeking to appeal a licensing decision made by the Department of Environmental Protection's ("DEP") Commissioner: (1) in an administrative process before the Board of Environmental Protection ("Board"); or (2) in a judicial process before Maine's Superior Court. An aggrieved person seeking review of a licensing decision over which the Board had original jurisdiction may seek judicial review in Maine's Superior Court.

A judicial appeal of final action by the Commissioner or the Board regarding an application for an expedited wind energy development (35-A M.R.S.A. § 3451(4)) or a general permit for an offshore wind energy demonstration project (38 M.R.S.A. § 480-HH(1)) or a general permit for a tidal energy demonstration project (38 M.R.S.A. § 636-A) must be taken to the Supreme Judicial Court sitting as the Law Court.

This INFORMATION SHEET, in conjunction with a review of the statutory and regulatory provisions referred to herein, can help a person to understand his or her rights and obligations in filing an administrative or judicial appeal.

I. ADMINISTRATIVE APPEALS TO THE BOARD

LEGAL REFERENCES

The laws concerning the DEP's *Organization and Powers*, 38 M.R.S.A. §§ 341-D(4) & 346, the *Maine Administrative Procedure Act*, 5 M.R.S.A. § 11001, and the DEP's *Rules Concerning the Processing of Applications and Other Administrative Matters* ("Chapter 2"), 06-096 CMR 2 (April 1, 2003).

HOW LONG YOU HAVE TO SUBMIT AN APPEAL TO THE BOARD

The Board must receive a written appeal within 30 days of the date on which the Commissioner's decision was filed with the Board. Appeals filed after 30 calendar days of the date on which the Commissioner's decision was filed with the Board will be rejected.

HOW TO SUBMIT AN APPEAL TO THE BOARD

Signed original appeal documents must be sent to: Chair, Board of Environmental Protection, c/o Department of Environmental Protection, 17 State House Station, Augusta, ME 04333-0017; faxes are acceptable for purposes of meeting the deadline when followed by the Board's receipt of mailed original documents within five (5) working days. Receipt on a particular day must be by 5:00 PM at DEP's offices in Augusta; materials received after 5:00 PM are not considered received until the following day. The person appealing a licensing decision must also send the DEP's Commissioner a copy of the appeal documents and if the person appealing is not the applicant in the license proceeding at issue the applicant must also be sent a copy of the appeal documents. All of the information listed in the next section must be submitted at the time the appeal is filed. Only the extraordinary circumstances described at the end of that section will justify evidence not in the DEP's record at the time of decision being added to the record for consideration by the Board as part of an appeal.

WHAT YOUR APPEAL PAPERWORK MUST CONTAIN

Appeal materials must contain the following information at the time submitted:

1. *Aggrieved Status*. The appeal must explain how the person filing the appeal has standing to maintain an appeal. This requires an explanation of how the person filing the appeal may suffer a particularized injury as a result of the Commissioner's decision.
2. *The findings, conclusions or conditions objected to or believed to be in error.* Specific references and facts regarding the appellant's issues with the decision must be provided in the notice of appeal.
3. *The basis of the objections or challenge.* If possible, specific regulations, statutes or other facts should be referenced. This may include citing omissions of relevant requirements, and errors believed to have been made in interpretations, conclusions, and relevant requirements.
4. *The remedy sought.* This can range from reversal of the Commissioner's decision on the license or permit to changes in specific permit conditions.
5. *All the matters to be contested*. The Board will limit its consideration to those arguments specifically raised in the written notice of appeal.
6. *Request for hearing.* The Board will hear presentations on appeals at its regularly scheduled meetings, unless a public hearing on the appeal is requested and granted. A request for public hearing on an appeal must be filed as part of the notice of appeal.
7. *New or additional evidence to be offered.* The Board may allow new or additional evidence, referred to as supplemental evidence, to be considered by the Board in an appeal only when the evidence is relevant and material and that the person seeking to add information to the record can show due diligence in bringing the evidence to the DEP's attention at the earliest possible time in the licensing process or that the evidence itself is newly discovered and could not have been presented earlier in the process. Specific requirements for additional evidence are found in Chapter 2.

OTHER CONSIDERATIONS IN APPEALING A DECISION TO THE BOARD

1. *Be familiar with all relevant material in the DEP record.* A license application file is public information, subject to any applicable statutory exceptions, made easily accessible by DEP. Upon request, the DEP will make the material available during normal working hours, provide space to review the file, and provide opportunity for photocopying materials. There is a charge for copies or copying services.
2. *Be familiar with the regulations and laws under which the application was processed, and the procedural rules governing your appeal.* DEP staff will provide this information on request and answer questions regarding applicable requirements.
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Maine's Administrative Procedure Act, DEP statutes governing a particular matter, and the Maine Rules of Civil Procedure must be consulted for the substantive and procedural details applicable to judicial appeals.

ADDITIONAL INFORMATION

If you have questions or need additional information on the appeal process, for administrative appeals contact the Board's Executive Analyst at (207) 287-2452 or for judicial appeals contact the court clerk's office in which your appeal will be filed.

Note: The DEP provides this INFORMATION SHEET for general guidance only; it is not intended for use as a legal reference. Maine law governs an appellant's rights.

Att. I

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

Regulatory Division
CENAE-R-51
Permit Number: NAE-2012-00084

Robert F. Nutter
Mercy Hospital
144 State Street
Portland, Maine 04101

Dear Mr. Nutter:

Attached are two copies of a Department of the Army permit authorizing your project. **Please sign both copies of the permit and return one signed copy to this office at the address above.** A fee of $100.00 is required. Please enclose a check made payable to "FAO New England District", and return it with the signed permit copy. Please ensure your address and social security number, or tax identification number for businesses, are on the check. The authorized work cannot start until we receive a complete, signed copy of the permit.

You are required to complete and return the attached forms to this office:

1. Preliminary Jurisdictional Determination Form to be submitted along with your signed copy of the permit.
2. Work Start Notification Form at least two weeks before the anticipated work start date.
3. Compliance Certification Form within one month following the completion of the authorized work.

This permit is a limited authorization containing a specific set of conditions. Please read the permit thoroughly to familiarize yourself with those conditions, **including any conditions contained on the attached state water quality certification.** If a contractor does the work for you, both you and the contractor are responsible for ensuring that the work is done in compliance with the permit's terms and conditions, as any violations could result in civil or criminal penalties.

Our verification of this project's wetland delineation under the Corps of Engineers Wetlands Delineation Manual, and its applicable supplement, is valid for a period of five years from the date of this letter unless new information warrants revision of the determination before the expiration date.

A combined Notification of Administrative Appeal Options and Process (NAP) and Request for Appeal (RFA) form, and flow chart explaining the appeals process and your options, are attached to this letter. If you desire to appeal this proffered permit, you must submit a completed RFA form along with any supporting or clarifying information to Michael G.

Engineers; North Atlantic Fort Hamilton Military Community, Bldg. 301; General Lee Avenue; Brooklyn, NY 11252-6700. Contact info: (347) 370-4663 or michael.g.vissichelli@usace.army.mil.

In order for an RFA to be accepted by the Corps, the Corps must determine that it is complete, that it meets the criteria for appeal under 33 CFR 331.5, and that it has been received by the Division Office within 60 days of the date of the NAP.

You may not appeal conditions contained in the State water quality certification under this program as they are automatically included in the federal permit. Also note that the Department of the Army permit process does not supersede any other agency's jurisdiction.

We continually strive to improve our customer service. In order for us to better serve you, we would appreciate your completing our Customer Service Survey located at http://per2.nwp.usace.army.mil/survey.html

If you have any questions regarding this correspondence, please contact Jay Clement at 207-623-8367 at our Manchester, Maine Project Office.

Sincerely,

Frank J. Del Giudice
Chief, Permits and Enforcement Branch
Regulatory Division

Attachments
Copy Furnished:
Tewey & Associates
P.O. Box 238
Gorham, Maine 04038

DEPARTMENT OF THE ARMY PERMIT

Permittee Mercy Hospital, 144 State Street, Portland, Maine 04101

Permit No. NAE-2012-00084

Issuing Office New England District

NOTE: The term "you" and its derivatives, as used in this permit, means the permittee or any future transferee. The term "this office" refers to the appropriate district or division office of the Corps of Engineers having jurisdiction over the permitted activity or the appropriate official of that office acting under the authority of the commanding officer.

You are authorized to perform work in accordance with the terms and conditions specified below.

Project Description:

Fill approximately 3.49 acres of freshwater wetland in order to expand an existing hospital complex. The expansion will include the addition of 250,000 square feet of space to house the Emergency Department, an expanded Acute Care Center, hospital support services, and medical office space. The expansion will allow the applicant to consolidate the two separate facilities into one single campus.

This work is shown on the attached plans entitled, "MERCY AT THE FORE MASTER PLAN", on seven sheets, and dated "March 2001" and "07.10.12".

Project Location:

In freshwater wetlands adjacent to the Fore River at Portland, Maine

Permit Conditions:

General Conditions:

1. The time limit for completing the work authorized ends on December 31, 2017. If you find that you need more time to complete the authorized activity, submit your request for a time extension to this office for consideration at least one month before the above date is reached.

2. You must maintain the activity authorized by this permit in good condition and in conformance with the terms and conditions of this permit. You are not relieved of this requirement if you abandon the permitted activity, although you may make a good faith transfer to a third party in compliance with General Condition 4 below. Should you wish to cease to maintain the authorized activity or should you desire to abandon it without a good faith transfer, you must obtain a modification of this permit from this office, which may require restoration of the area.

3. If you discover any previously unknown historic or archeological remains while accomplishing the activity authorized by this permit, you must immediately notify this office of what you have found. We will initiate the Federal and state coordination required to determine if the remains warrant a recovery effort or if the site is eligible for listing in the National Register of Historic Places.

4. If you sell the property associated with this permit, you must obtain the signature of the new owner in the space provided and forward a copy of the permit to this office to validate the transfer of this authorization.

5. If a conditioned water quality certification has been issued for your project, you must comply with the conditions specified in the certification as special conditions to this permit. For your convenience, a copy of the certification is attached if it contains such conditions.

6. You must allow representatives from this office to inspect the authorized activity at any time deemed necessary to ensure that it is being or has been accomplished in accordance with the terms and conditions of your permit.

Special Conditions:

1. The permittee shall ensure that a copy of this permit is at the work site (and the project office) authorized by this permit whenever work is being performed, and that all personnel with operational control of the site ensure that all appropriate personnel performing work are fully aware of its terms and conditions. The entire permit shall be made a part of any and all contracts and sub-contracts for work that affects areas of Corps jurisdiction at the site of the work authorized by this permit. This shall be achieved by including the entire permit in the specifications for work. The term "entire permit" means this permit (including its drawings, plans, appendices and other attachments) and also includes permit modifications.

(Special conditions continued on Page 4)

Further Information:

1. Congressional Authorities: You have been authorized to undertake the activity described above pursuant to:

( ) Section 10 of the Rivers and Harbors Act of 1899 (33 U.S.C. 403).

X Section 404 of the Clean Water Act (33 U.S.C. 1344).

( ) Section 103 of the Marine Protection, Research and Sanctuaries Act of 1972 (33 U.S.C. 1413).

2. Limits of this authorization.

a. This permit does not obviate the need to obtain other Federal, state, or local authorizations required by law.

b. This permit does not grant any property rights or exclusive privileges.

c. This permit does not authorize any injury to the property or rights of others.

d. This permit does not authorize interference with any existing or proposed Federal project.

3. Limits of Federal Liability. In issuing this permit, the Federal Government does not assume any liability for the following:

a. Damages to the permitted project or uses thereof as a result of other permitted or unpermitted activities or from natural causes.

b. Damages to the permitted project or uses thereof as a result of current or future activities undertaken by or on behalf of the United States in the public interest.

c. Damages to persons, property, or to other permitted or unpermitted activities or structures caused by the activity authorized by this permit.

d. Design or construction deficiencies associated with the permitted work.

e. Damage claims associated with any future modification, suspension, or revocation of this permit.

4. Reliance on Applicant's Data: The determination of this office that issuance of this permit is not contrary to the public interest was made in reliance on the information you provided.

5. Reevaluation of Permit Decision. This office may reevaluate its decision on this permit at any time the circumstances warrant. Circumstances that could require a reevaluation include, but are not limited to, the following:

a. You fail to comply with the terms and conditions of this permit.

b. The information provided by you in support of your permit application proves to have been false, incomplete, or inaccurate (See 4 above).

c. Significant new information surfaces which this office did not consider in reaching the original public interest decision.

Such a reevaluation may result in a determination that it is appropriate to use the suspension, modification, and revocation procedures contained in 33 CFR 325.7 or enforcement procedures such as those contained in 33 CFR 326.4 and 326.5. The referenced enforcement procedures provide for the issuance of an administrative order requiring you to comply with the terms and conditions of your permit and for the initiation of legal action where appropriate. You will be required to pay for any corrective measures ordered by this office, and if you fail to comply with such directive, this office may in certain situations (such as those specified in 33 CFR 209.170) accomplish the corrective measures by contract or otherwise and bill you for the cost.

6. Extensions. General condition 1 establishes a time limit for the completion of the activity authorized by this permit. Unless there are circumstances requiring either a prompt completion of the authorized activity or a reevaluation of the public interest decision, the Corps will normally give favorable consideration to a request for an extension of this time limit.

Your signature below, as permittee, indicates that you accept and agree to comply with the terms and conditions of this permit.

_____ _____

(PERMITTEE) *(DATE)*

This permit becomes effective when the Federal official, designated to act for the Secretary of the Army, has signed below.

for Jack Del Green 4-10-2013

(DISTRICT ENGINEER) *(DATE)*

Chief, Permits & Enforcement Branch
Regulatory Division
For District Engineer

When the structures or work authorized by this permit are still in existence at the time the property is transferred, the terms and conditions of this permit will continue to be binding on the new owner(s) of the property. To validate the transfer of this permit and the associated liabilities associated with compliance with its terms and conditions, have the transferee sign and date below.

_____ _____

(TRANSFEREE) *(DATE)*

☆U.S. GOVERNMENT PRINTING OFFICE: 1986 — 717-425

(Special conditions continued from Page 2)

If the permit is issued after the construction specifications, but before receipt of bids or quotes, the entire permit shall be included as an addendum to the specifications. If the permit is issued after receipt of bids or quotes, the entire permit shall be included in the contract or sub-contract. Although the permittee may assign various aspects of the work to different contractors or sub-contractors, all contractors and sub-contractors shall be obligated by contract to comply with all environmental protection provisions contained within the entire permit, and no contract or sub-contract shall require or allow unauthorized work in areas of Corps jurisdiction.

2. The permittee shall complete and return the enclosed Compliance Certification Form within one month following the completion of the authorized work.

3. Adequate sedimentation and erosion control devices, such as geo-textile silt fences or other devices capable of filtering the fines involved, shall be installed and properly maintained to minimize impacts during construction. These devices must be removed upon completion of work and stabilization of disturbed areas. The sediment collected by these devices must also be removed and placed upland, in a manner that will prevent its later erosion and transport to a waterway or wetland.

4. Except where stated otherwise, reports, drawings, correspondence and any other submittals required by this permit shall be marked with the words "Permit No. NAE-2012-00084" and shall be addressed to "Inspection Section, CENAE-R, U.S. Army Corps of Engineers, 696 Virginia Road, Concord, MA 01742-2751." Documents which are not marked and addressed in this manner may not reach their intended destination and do not comply with the requirements of this permit.

5. Mitigation shall consist of payment of $834,156.00 to the Natural Resource Mitigation Fund. The completed ILF Project Data Worksheet which must be mailed with a cashier's check or bank draft, made out to "Treasurer, State of Maine", with the permit number noted on the check. The check and worksheet should be mailed to: ME DEP, Attn: ILF Program Administrator, State House Station 17, Augusta, ME 04333. No project construction may begin until the permittee provides the Corps with a copy of the check, with the permit number noted on the check. The ILF amount is only valid for a period of one year from the date on the authorization letter. After that time, the project would need to be reevaluated and a new amount determined.

6. The introduction, spread, or the increased risk of invasion of non-native invasive plant or animal species on the project site, into new or disturbed areas, or areas adjacent to the project site caused by the site work is prohibited. Prior to being on the construction site,

Special Conditions Continued on Page 5

the contractor shall thoroughly inspect and remove seeds, plant material, soil, mud, insects, and other invertebrates on all equipment, including construction mats, to be used on the project site to prohibit introduction of invasive organisms. At a minimum, the following shall be inspected and cleaned on terrestrial vehicles where applicable:

- ***Rubber Tired Vehicles*** **- Crevices in upper surface and panels, tires, rims, and fender wells, spare tire mounting area, bumpers, front and rear quarter panels, around and behind grills, bottom of radiator vent openings, brake mechanisms, transmission, stabilizer bar, shock absorbers, front and rear axles, beds, suspension units, exhaust systems, light casings, and mirrors.**

- ***Tracked Land Vehicles*** **- Crevices in upper surface and panels, top of axles and tensioners, support rollers, between rubber or gridded areas, beneath fenders, hatches, under casings, and grills.**

- ***Interiors of All Vehicles*** **- Beneath seats, beneath floor mats, upholstery, beneath foot pedals, inside folds of gear shift cover.**

IN-LIEU-FEE (ILF) PROJECT DATA WORKSHEET

DEP Invoice # _____

[Note: Will be filled in by ILF Administrator at DEP]

Project name: Mercy Hospital Expansion

Applicant (s): Mercy Hospital

DEP Permit #: L-20775-TG-U-N; L-20775-19-T-A

Corps Permit #: NAE-2012-00084

ILF Contribution Amount $834,156.00

[Note: Please attach a copy of the check]

Project address: 192 Fore River Parkway; Portland, Maine

Biophysical region: Gulf of Maine Coastal Lowland Subsection

Size of total impact subject to compensation: 191,759 s.f. (4.41 acres)

Resources Impacted: Refer to attached table

DEP Project manager: Woodruff

Corps Project manager: Clement

Corps ILF Processing Procedure:

Within 3 days of final permit approval the Corps project manager MUST send via e-mail to the ILF Administrator at DEP with the following attachments:

1. **A Microsoft word version of this completed ILF project worksheet including the resource impact table. Please make sure that you double check the information to make sure that the worksheet is accurate and reflects the actual impacts that are stated in the permit and the correct biophysical region.**

   [Note: The DEP Invoice # section of the worksheet should be left blank and will be filled in by the ILF Program Administrator.]

2. **A copy of a location map for the project site. The map MUST be made in GIS and saved as a pdf and MUST include a call out box to physically locate the project site and enough reference information so that project site can be geo-located on the MNRCP GIS data layer.**

3. **A pdf copy of the Corps permit for the project.**

Corps permitees MUST be instructed to send all required ILF payments to the attention of the ILF Administrator Maine Department of Environmental Protection, State House Station 17, Augusta, Maine 04333. All checks must have the ILF program routing # 014.06A.1776.14 on the memo line.

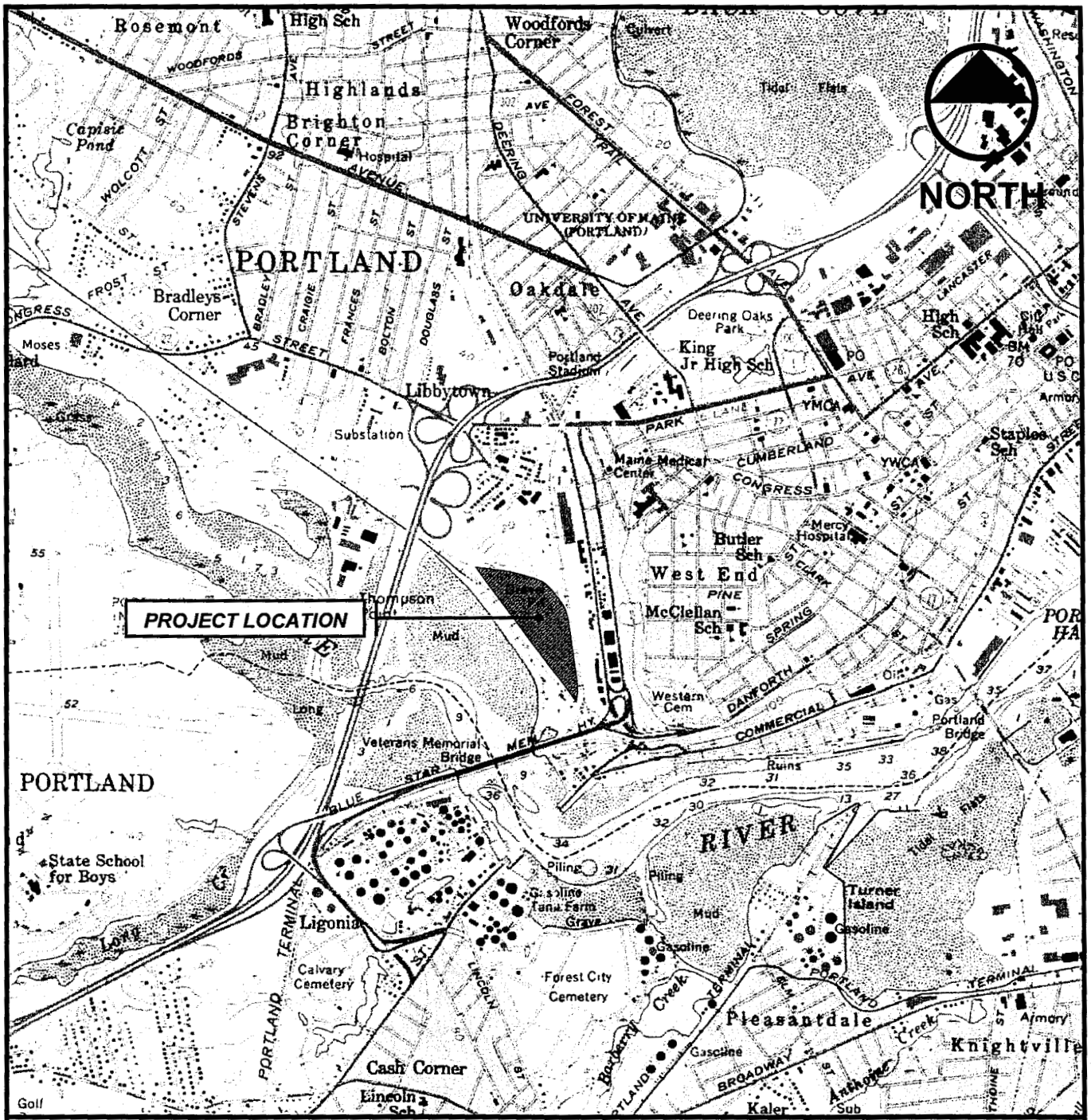
Resource(s) Impacted:

Resource Type: (Wetlands by NWI Type (PFO, PSS, M1, M2, E1, E2, etc), significant vernal pool (SVP), shorebird feeding & staging habitat (Shorebird), inland waterfowl & wading bird habitat (IWWH), tidal waterfowl & wading habitat (TWWH), and river, stream, or brook (RSB).

Wetland Functions & Values: Groundwater recharge/discharge (GWR); floodflow alterations(FF); fish & shellfish habitat (FSH); sediment toxicant retention (STR); nutrient removal (NR); production export (PE); sediment/shoreline stabilization (SS); wildlife habitat (WH); recreation (R); education/scientific value (ESV); uniqueness/heritage (UH); and visual quality/aesthetics (VQ).

Types of impacts: may include filling, dredging, vegetation conversion (e.g. forested to shrub/scrub), others.

Resource type (list all that apply)	**Functions (for wetland impacts)** (list all that apply, by resource type)	**Type of Impact** (by resource type)	**Sq Feet Impacted** (by resource type)
PUB3/4	WH, R, FSH	Filling	63,446
PFO1	GWR, NR, STR, WH, R	Filling	17,298
PSS1	GWR, NR, STR, WH, R	Filling	6,458
PEM1	GWR, NR, STR, WH, R	Filling	2,591
PSS1/PEM1	GWR, NR, STR, WH, R	Filling	10,895
PEM1/PUB3/4	WH, IWWH, SS, NR, STR	Filling	51,236
PEM1/PUB3/4	WH, IWWH, SS, NR, STR	Filling	39,835*
	*Previously authorized/mitigated. Included because its mitigation will be compromised as a result of the current proposal.		
		Total square feet impacted	191,759 s.f.



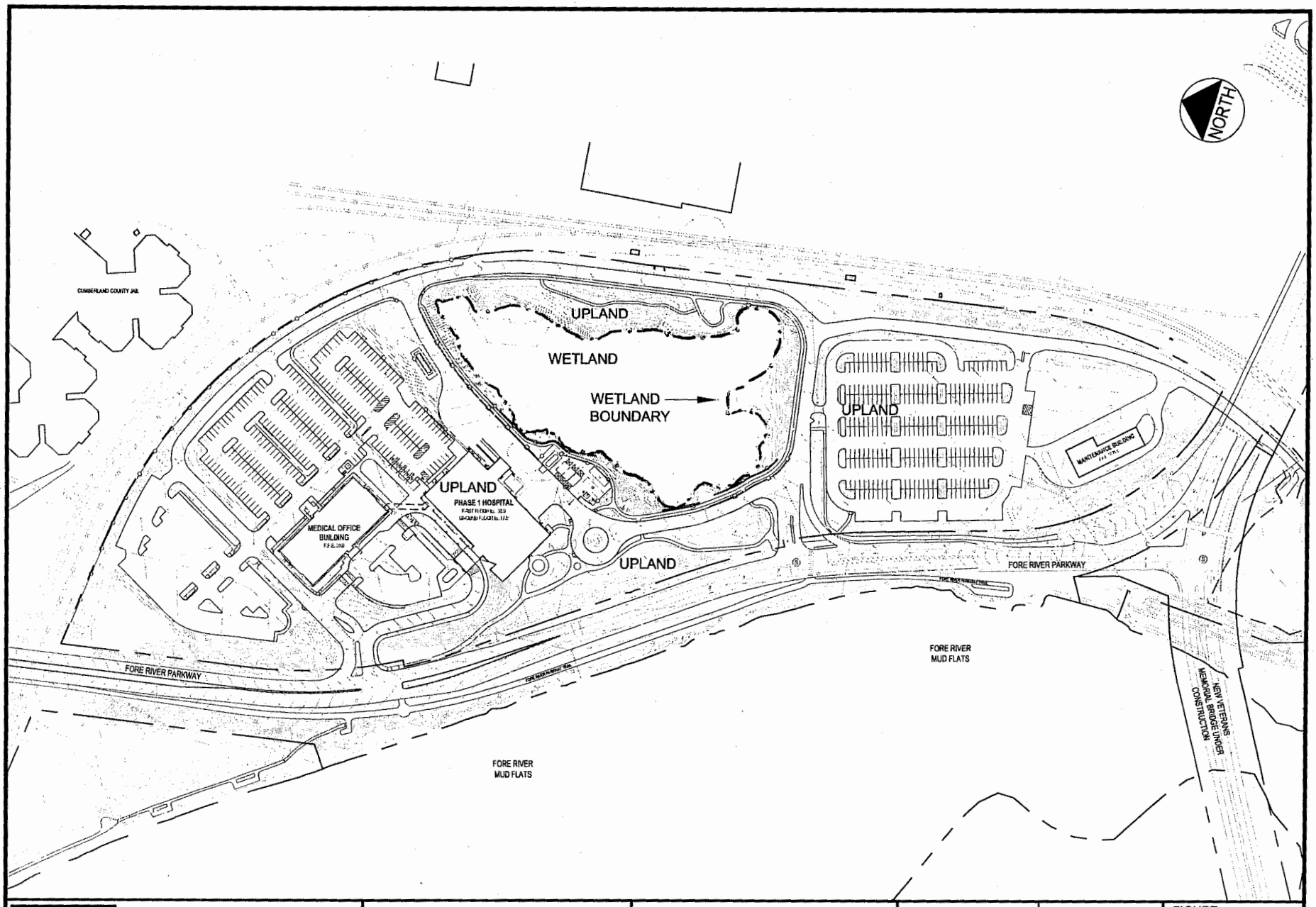
USGS TOPOGRAPHIC MAP

Mercy Health System of Maine – Portland, Maine

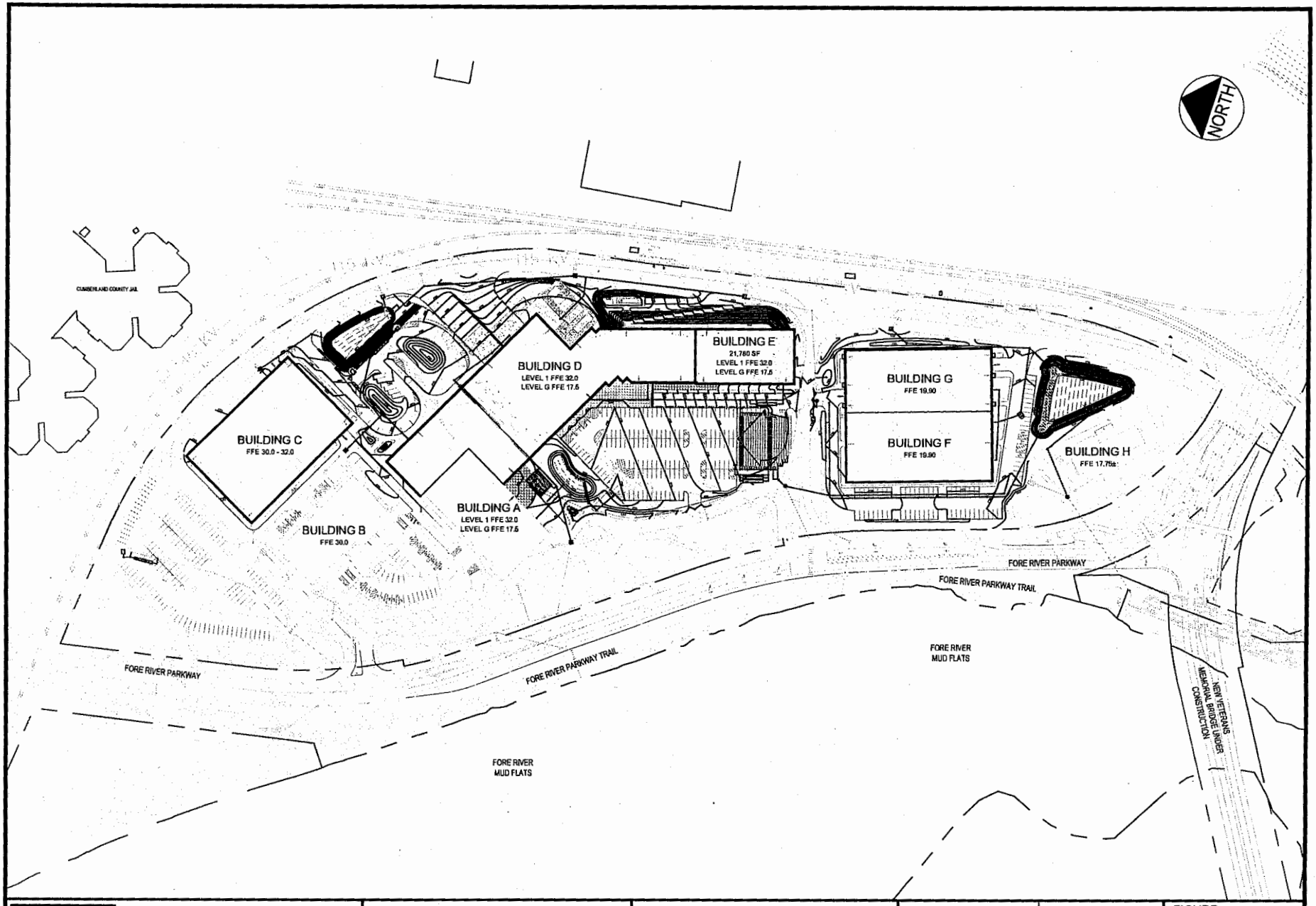
SOURCE: TOPOSCOUT; Coastal Maine CD-ROM, USGS Portland West Quadrangle, 7.5 Minute Series (Topographic)

DeLUCA-HOFFMAN ASSOCIATES, INC.
CONSULTING ENGINEERS
778 MAIN STREET, SUITE 8
SOUTH PORTLAND, MAINE 04106
TEL. 207-775-1121
FAX 207-879-0896

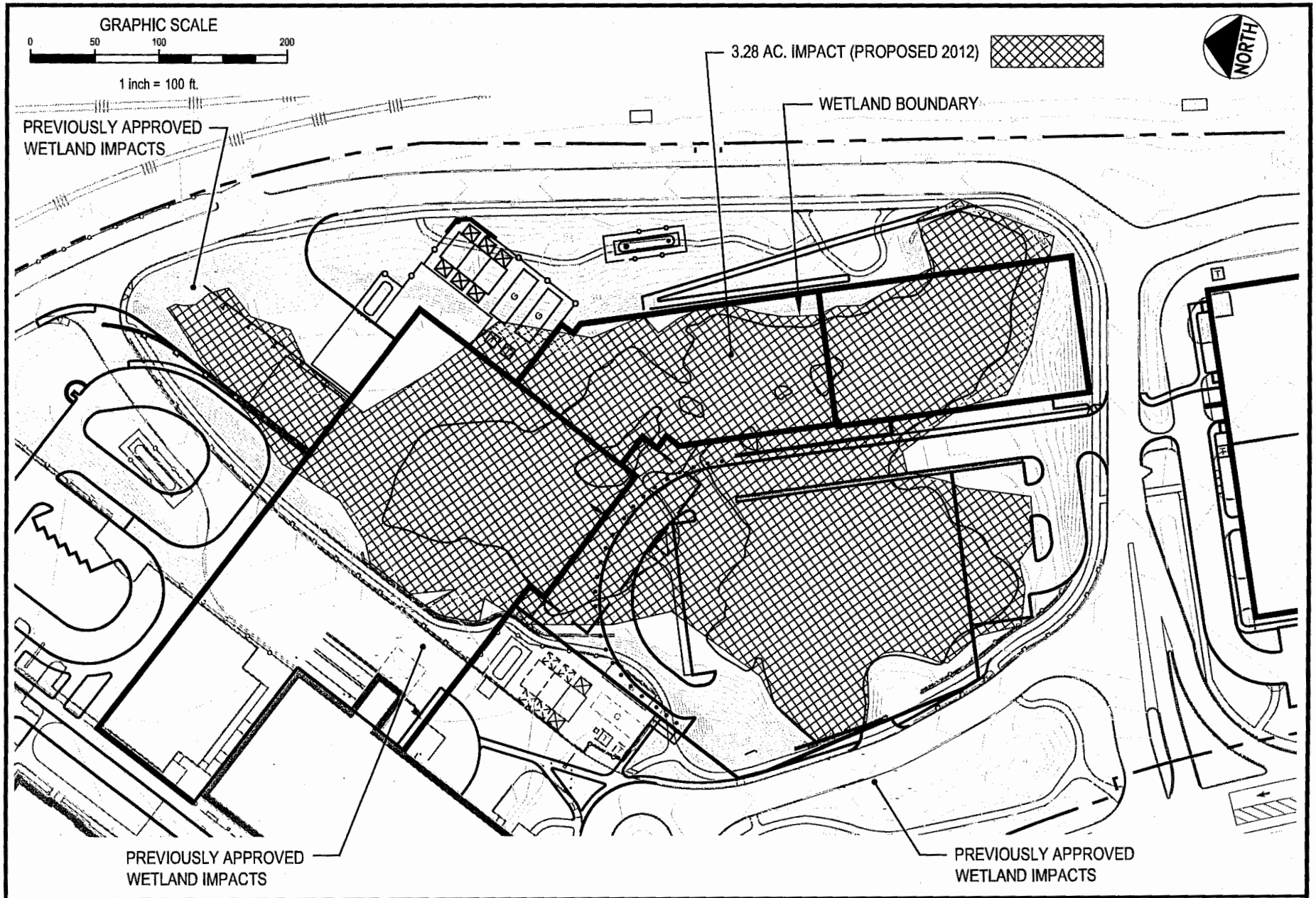
DESIGNED	SRB	DATE	MARCH 2001	FIGURE
DRAWN	JDL	SCALE	1" = 2000'+-	2
CHECKED	SRB	JOB NO.	2149	



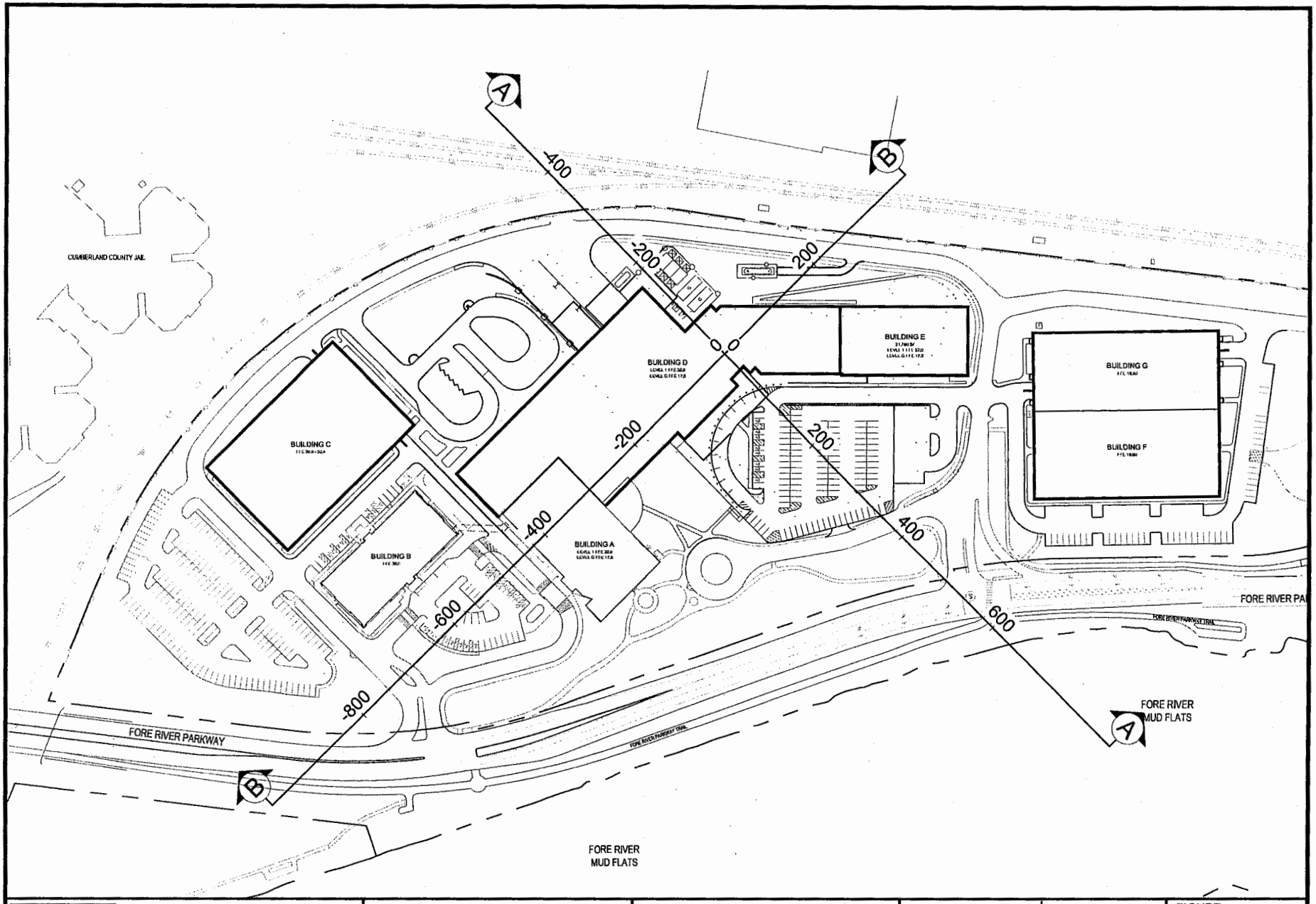
DH	DeLuca-Hoffman Associates, Inc. 778 MAIN STREET, SUITE 8 SOUTH PORTLAND, ME 04106 207.775.1121 WWW.DELUCAHOFFMAN.COM	MERCY AT THE FORE MASTER PLAN	EXISTING CONDITIONS	DRAWN: DED | DATE: 07.10.12 DESIGNED: BEK | SCALE: 1" = 250' CHECKED: SRB | JOB NO. 2149.08 FILE NAME: 2149.08-GRADING	FIGURE 2



DH	DeLuca-Hoffman Associates, Inc. 778 MAIN STREET, SUITE 8 SOUTH PORTLAND, ME 04106 207.775.1121 WWW.DELUCAHOFFMAN.COM	MERCY AT THE FORE MASTER PLAN	PROPOSED CONDITIONS	DRAWN: DED DESIGNED: BEK CHECKED: SRB FILE NAME: 2149.08-GRADING	DATE: 07.10.12 SCALE: 1" = 250' JOB NO. 2149.08	FIGURE 3

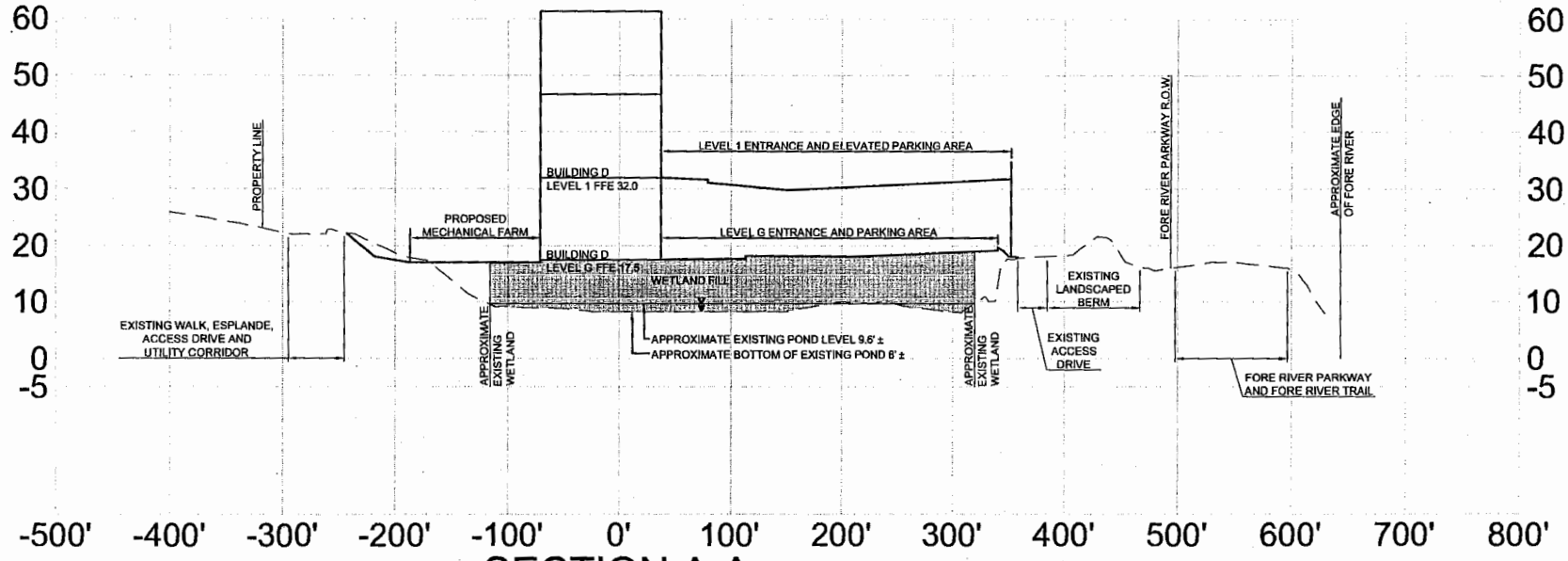


DH DeLuca-Hoffman Associates, Inc. 778 MAIN STREET, SUITE 8 SOUTH PORTLAND, ME 04106 207.775.1121 WWW.DELUCAHOFFMAN.COM	MERCY AT THE FORE MASTER PLAN	100 SCALE FIGURE OF WETLAND FILL AREA	DRAWN: DED DESIGNED: BEK CHECKED: SRB FILE NAME: 2149.08-FIG 9	DATE: 07.10.12 SCALE: 1" = 100' JOB NO. 2149.08	FIGURE 4



DH	DeLuca-Hoffman Associates, Inc. 778 MAIN STREET, SUITE 8 SOUTH PORTLAND, ME 04106 207.775.1121 WWW.DELUCAHOFFMAN.COM	MERCY AT THE FORE MASTER PLAN	SITE SECTION KEY MAP

DRAWN:	DED	DATE:	07.10.12	FIGURE
DESIGNED:	BEK	SCALE:	1" = 200'	5A
CHECKED:	SRB	JOB NO.	2149.08	
FILE NAME:	2149.08-GRADING			



SECTION A-A

SCALE: HORZ 1" = 50'
VERT 1" = 10'

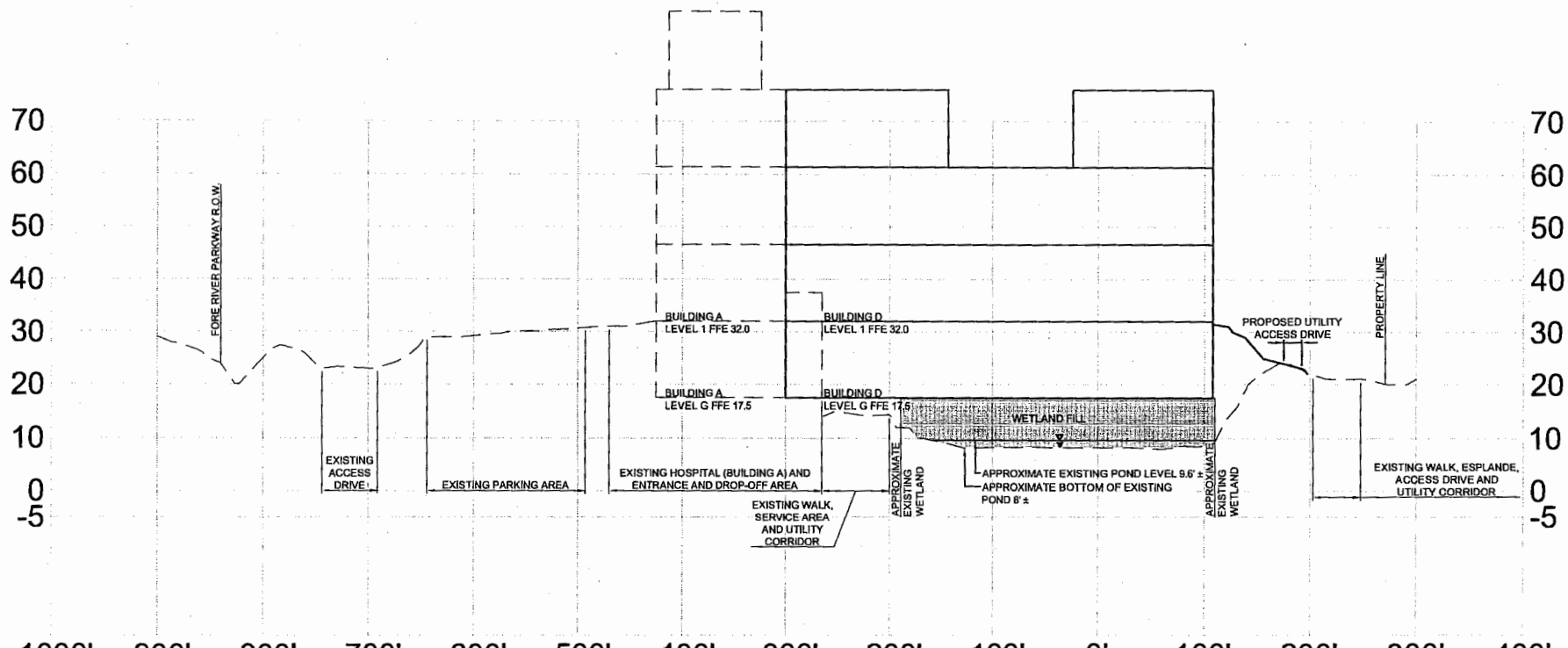
DeLuca-Hoffman Associates, Inc.
778 MAIN STREET, SUITE 8
SOUTH PORTLAND, ME 04106
207.775.1121
WWW.DELUCAHOFFMAN.COM

MERCY AT THE FORE
MASTER PLAN

SITE SECTION A-A

DRAWN:	DED	DATE: 07.10.12	
DESIGNED:	BEK	SCALE: AS NOTED	
CHECKED:	SRB	JOB NO. 2149.08	
FILE NAME:	2149.08-GRADING		

FIGURE
5B



SECTION B-B

SCALE: HORZ 1" = 50'
VERT 1" = 10'

DeLuca-Hoffman Associates, Inc.
778 MAIN STREET, SUITE 8
SOUTH PORTLAND, ME 04106
207.775.1121
WWW.DELUCAHOFFMAN.COM

MERCY AT THE FORE
MASTER PLAN

SITE SECTION B-B

DRAWN: DED	DATE: 07.10.12	FIGURE
DESIGNED: BEK	SCALE: AS NOTED	5C
CHECKED: SRB	JOB NO. 2149.08	
FILE NAME: 2149.08-GRADING		

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION

PAUL R. LEPAGE
GOVERNOR

PATRICIA W. AHO
COMMISSIONER

March 2013

Mercy Hospital
144 State Street
Portland, Maine 04101
ATTN: Bill Connolly

RE: Site Location of Development Act and Natural Resources Protect Act Applications
Portland, DEP #L-20775-19-T-A/L-20775-TG-U-N

Dear Mr. Connolly:

Enclosed is a signed copy of your Department of Environmental Protection land use permit. Please note that the permit includes a description of your project, findings of fact that relate to the approval criteria the Department used in evaluating your project, and conditions that are based on those findings and the particulars of your project. Please take several moments to read your permit carefully, paying particular attention to the conditions of the approval. The Department reviews every application thoroughly and strives to formulate reasonable conditions of approval within the context of the Department's environmental laws. Also attached are some materials that describe the Department's appeal procedures for your information.

If you have any questions about the permit please contact me at (207) 615-6426 or at christine.woodruff@maine.gov.

Sincerely,

Chris Woodruff

Christine Woodruff, Project Manager
Division of Land Resource Regulation
Bureau of Land & Water Quality

pc: File

AUGUSTA
17 STATE HOUSE STATION
AUGUSTA, MAINE 04333-0017
(207) 287-7688 FAX: (207) 287-7826
RAY BLDG., HOSPITAL ST

BANGOR
106 HOGAN ROAD
BANGOR, MAINE 04401
(207) 941-4570 FAX: (207) 941-4584

PORTLAND
312 CANCO ROAD
PORTLAND, MAINE 04103
(207) 822-6300 FAX: (207) 822-6303

PRESQUE ISLE
1235 CENTRAL DRIVE, SKYWAY PARK
PRESQUE ISLE, MAINE 04769-2094
(207) 764-0477 FAX: (207) 764-3143

WEB SITE: WWW.MAINE.GOV/DEP

STATE OF MAINE
DEPARTMENT OF ENVIRONMENTAL PROTECTION
17 STATE HOUSE STATION
AUGUSTA, ME 04333

DEPARTMENT ORDER

IN THE MATTER OF

MERCY HOSPITAL	) SITE LOCATION OF DEVELOPMENT ACT
Portland, Cumberland County	) NATURAL RESOURCES PROTECTION ACT
PHASE II RELOCATION PROJECT	) TIER 3 WETLAND ALTERATION
L-20775-19-T-A (approval)	) WATER QUALITY CERTIFICATION
L-20775-TG-U-N (approval)	) FINDINGS OF FACT AND ORDER

Pursuant to the provisions of 38 M.R.S.A. Sections 481 et seq. and 480-A et seq., 38 M.R.S.A. Sections 480-A et seq. and Section 401 of the Federal Water Pollution Control Act, the Department of Environmental Protection has considered the application of MERCY HOSPITAL with the supportive data, agency review comments, and other related materials on file and FINDS THE FOLLOWING FACTS:

1. PROJECT DESCRIPTION:

A. History of Project: In Department Order #L-20775-19-A-N/L-20775-TG-B-N, dated June 26, 2002, the Department approved the development of a new Mercy Hospital Campus on 85.5 acres off Congress Street, adjacent to the Fore River in Portland. In Department Orders #L-20775-19-C-T, #L-20775-19-D-M, and #L-20775-TG-E-M, the Department approved the partial transfer and modification of the original Orders by the Maine Department of Transportation for the construction of a connector road, the Fore River Parkway, across the property. Approximately three acres of land was transferred to the Maine Department of Transportation for the construction of the new Veteran's Bridge to South Portland. Subsequent Department Orders approved several minor modifications.

B. Summary: The applicant proposes to construct Phase II of the Mercy Hospital relocation project that consists of a 116,980-square foot hospital building expansion, a 15,000-square foot medical office building, a detached 40,000-square foot medical office building, a 51,800-square foot parking garage, a 33,800-square foot parking garage, an elevated parking deck and associated on-site traffic circulation renovations. The project includes utility service relocations and new stormwater management systems. The two existing site entrances will remain the same. The project is shown on a set of plans, the

first of which is titled "Site Development Plans for Mercy Hospital Fore River Hospital Relocation Project Amended Master Plan / Phase II Expansion," prepared by DeLuca-Hoffman Associates, and dated May 2012, with a last revision date of October 23, 2012. The project is located on the remaining approximately 33 acres of the parcel on the east side of the Fore River Parkway in the City of Portland.

The applicant is also seeking approval under the Natural Resources Protection Act to fill a 3.49-acre freshwater wetland.

C. Current Use of Site: The portion of the site that is east of the Fore River Parkway is completely developed except for the central portion of the site that is occupied by a pond and wetlands. The existing development includes a hospital building, a medical office building, a maintenance building, parking, utilities, and access roads.

2. FINANCIAL CAPACITY:

The total cost of the project is estimated to be $5,378,880.00. The applicant submitted a letter from Eastern Maine Healthcare System, dated February 21, 2013, stating that Eastern Maine Healthcare System and Mercy Health System of Maine executed an affiliation agreement on January 14, 2013, pursuant to which Eastern Maine Healthcare System will become the sole corporate member of Mercy Health System of Maine. Pursuant to terms of the affiliation agreement and subject to the regulatory approval and closure of the transaction, as well as other contractual restrictions, Eastern Maine Healthcare System has committed to spending $115 million in support of Mercy Health System of Maine. This financial support includes expanding the Fore River campus of Mercy Hospital to consolidate Mercy Hospital's State Street facility onto the Fore River campus. Prior to the start of construction, the applicant must submit evidence that it has been granted a line of credit or a loan by a financial institution authorized to do business in this State or evidence of any other form of financial assurance determined by Department Rules, Chapter 373(1), to be adequate to the Bureau of Land and Water Quality (BLWQ) for review and approval as a condition of compliance.

The Department finds that the applicant has demonstrated adequate financial capacity to comply with Department standards provided that the applicant submits evidence of financial capacity to the BLWQ for review and approval prior to the start of construction.

3. TECHNICAL ABILITY:

The applicant provided resume information for key consultants involved with the project and a list of projects successfully constructed by the applicant and the consultants. The applicant retained the services of DeLuca-Hoffman Associates, a professional engineering firm, to provide site design and engineering of the project. Haley and Aldrich provided geotechnical engineering, Normandeau Associates was the wetland consultant, Hoffman Engineering provided environmental engineering, Owen Haskell

provided land surveying services, SMRT provided architectural services and Tewhey Associates was the project manager.

The Department finds that the applicant has demonstrated adequate technical ability to comply with Department standards.

4. NOISE:

The proposed project is primarily the expansion of an existing hospital campus. A hospital is classified as a development producing a minor noise impact. The Department finds that no regulated sources of noise have been identified.

5. SCENIC CHARACTER:

The Mercy Hospital Fore River Campus is located between the Fore River Parkway and an active railroad line. The Cumberland County Jail is across the railroad tracks to the north, commercial development on Saint John Street is across the railroad tracks to the east, the Veterans' Memorial Bridge is to the south and a mud flat and Interstate Route 295 is across the Fore River Parkway to the west. The areas of the proposed project that are not to be covered with structures, parking areas or vehicle circulation facilities will be landscaped and maintained consistent with the current landscaping features including providing landscaped strips within parking lots. The project will be in keeping with the existing buildings, grounds and surrounding scenic character.

Based on the project's location and design, the Department finds that the proposed project will not have an unreasonable adverse effect on the scenic character of the surrounding area.

6. WILDLIFE AND FISHERIES:

The Maine Department of Inland Fisheries and Wildlife (MDIFW) reviewed Phase 1 of the Mercy Hospital project at the Fore River site in 2002 and stated that it found no records of any Essential or Significant Wildlife Habitats, or other wildlife habitats of special concern associated with this site. But MDIFW noted that the wetlands on the site, particularly the pond, was used by several species of waterfowl and wading birds and recommended that impacts to the birds be minimized by maximizing the retention of the existing buffer around the pond and maintaining or elevating the water level of the pond. The 2002 project was constructed to eliminate direct impact to the pond by directing stormwater runoff to other locations and placing a buffer around the pond. Subsequent monitoring of the site since 2006 has documented use by waterfowl (mallards, black ducks), wading birds (green heron, great blue heron), a variety of passerine species (red-winged blackbird, mocking birds, common yellow throat, song sparrow), gulls and painted turtles. Fish have been observed in the pond and mammal signs include grey fox, chipmunks and woodchucks.

As part of the review for the currently proposed expansion project that includes filling of the pond and wetland used by the above noted wildlife, MDIFW visited the site to determine if additional buffering could be added on land owned by Mercy Hospital adjacent to the Fore River on the northwest portion of the site to compensate for the loss of habitat in the pond area. Due to several issues on the land adjacent to the Fore River, it was determined that a buffer that would provide roosting habitat along the Fore River was not feasible. The loss of wetlands as a result of the proposed Phase II will be compensated for through a contribution into the In-Lieu Fee (ILF) program of the Maine Natural Resource Conservation Fund (MNRCF), discussed further in Finding 13. It was determined that the loss of wildlife habitat from the wetland impacts could be compensated for by emphasizing on the ILF Project Data Worksheet that the habitat losses include waterfowl habitat so that the funds could be used towards replacement of the habitat. It was also determined that the resident turtle population in the pond should be relocated. The applicant has developed a Turtle Trapping and Removal plan that followed the recommendations made by MDIFW. The applicant must implement the relocation plan prior to the start of construction and release the turtles to Capisic Pond Park in Portland and/or Evergreen Cemetery on Stevens Avenue in Portland, or to another location with prior approval from MDIFW.

The Department finds that the applicant has made adequate provision for the protection of wildlife and fisheries provided the wildlife habitats are noted on the In Lieu Fee (ILF) Project Data Worksheet and that prior to the start of construction, the Turtle Trapping and Removal plan is implemented as recommended by MDIFW.

7. SOILS:

There are several locations on the site that have lead-contaminated ash from the former railroad operations that have been covered with clean soil or bituminous pavement to prevent direct exposure. The proposed project was reviewed by an Oil and Hazardous Materials Specialist in the Bureau of Remediation and Waste Management (BRWM) in regards to the existing Voluntary Response Action Plan for the site. BRWM concluded that they have no issues with the planned expansion provided that the appropriate precautions are followed during the project to insure that the contaminated ash is handled, placed on site and/or disposed as appropriate and that the necessary cover systems are in place once the project is completed. The current deed restrictions on the property that were placed during Phase I work are consistent with and adequate as future restrictions for the property, and will continue to be subject to the operation and maintenance program with annual inspections.

The applicant has previously submitted a geotechnical report based on the soils found at the project site which was previously reviewed by the Division of Environmental Assessment (DEA).

The Department finds that, based on the comments from the BRWM and DEA's previous review, the soils on the project site present no limitations to the proposed project that cannot be overcome through standard engineering practices.

8. STORMWATER MANAGEMENT:

The proposed project includes approximately 4.12 acres of new impervious area for a total of 19.80 acres of impervious area, and 4.89 acres of new developed area for a total of approximately 29.03 acres of developed area. It lies within the watershed of the tidal waters of the Fore River. The applicant submitted a stormwater management plan based on the Basic, General, and Flooding standards contained in Department Rules, Chapter 500. The proposed stormwater management system consists of an underdrained soil filter, an underdrained bioretention cell, an underdrained subsurface sand filter, and proprietary filters (Filterra ® and StormFilter®).

A. Basic Standards:

(1) Erosion and Sedimentation Control: The applicant submitted an Erosion and Sedimentation Control Plan that is based on the performance standards contained in Appendix A of Chapter 500 and the Best Management Practices (BMPs) outlined in the Maine Erosion and Sediment Control BMPs, which were developed by the Department. This plan and plan sheets containing erosion control details were reviewed by, and revised in response to the comments of, the Division of Land Resource Regulation (DLRR) of the BLWQ.

Erosion control details will be included on the final construction plans and the erosion control narrative will be included in the project specifications to be provided to the construction contractor.

(2) Inspection and Maintenance: The applicant submitted a maintenance plan that addresses both short and long-term maintenance requirements. This plan was reviewed by, and revised in response to the comments of, DLRR. The maintenance plan is based on the standards contained in Appendix B of Chapter 500. The applicant will be responsible for the maintenance of all common facilities including the stormwater management system.

Prior to occupancy of the new buildings, the applicant must submit a copy of an executed long-term maintenance contract (minimum of 5 years and renewable) for the on-going maintenance of the Filterra®, the underdrained subsurface sand filter, and the StormFilter® to the BLWQ. Storm sewer grit and sediment materials removed from any parts of the stormwater management system, including conveyance structures, during maintenance activities must be disposed of in compliance with the Maine Solid Waste Management Rules.

(3) Housekeeping: The proposed project will comply with the performance standards outlined in Appendix C of Chapter 500.

Based on DLRR's review of the erosion and sedimentation control plan and the maintenance plan, the Department finds that the proposed project meets the Basic Standards contained in Chapter 500(4)(A).

B. General Standards:

The applicant's stormwater management plan includes general treatment measures that will mitigate for the increased frequency and duration of channel erosive flows due to runoff from smaller storms, provide for effective treatment of pollutants in stormwater, and mitigate potential temperature impacts. This mitigation is being achieved by using Best Management Practices (BMPs) that will control runoff from 95% of the impervious area and 96% of the developed area.

The stormwater management system proposed by the applicant was reviewed by, and revised in response to comments from, DLRR. After a final review, DLRR commented that the proposed stormwater management system is designed in accordance with the General Standards contained in Chapter 500(4)(B) and recommended that the applicant retain the design engineer, or another qualified engineer, to oversee the construction of the stormwater management structures according to the details and notes specified on the approved plans. Within thirty days of completion of each stormwater management structure, the applicant must submit a log of inspection reports detailing the items inspected, photos taken, and the dates of each inspection to the BLWQ for review.

Based on the stormwater system's design and DLRR's review, the Department finds that the applicant has made adequate provision to ensure that the proposed project will meet the General Standards contained in Chapter 500(4)(B).

C. Flooding Standard:

The applicant is not proposing a formal stormwater management system to detain stormwater from 24-hour storms of 2-, 10-, and 25-year frequency. Instead, since the project site is located adjacent to a tidal section of the Fore River, the applicant requested a waiver from the flooding standard pursuant to Department Rules, Chapter 500(4)(E)(2)(a). DLRR reviewed the request for a waiver of the flooding standard and recommended that the waiver be granted.

The Department finds that the proposed project will meet the Chapter 500 standards for management of stormwater discharges and discharges to coastal wetlands.

9. WATER SUPPLY:

When completed, the proposed expanded project is anticipated to use 63,919 gallons of water per day. Water will be supplied by the Portland Water District. The applicant submitted a letter from the Portland Water District, dated January 2, 2013, indicating that it will be capable of servicing this project.

The Department finds that the applicant has made adequate provision for securing and maintaining a sufficient and healthful water supply.

10. WASTEWATER DISPOSAL:

When completed, the proposed project is anticipated to discharge up to 63,919 gallons of wastewater per day to the Portland Water District's East End wastewater treatment facility. This project was reviewed and approved by the Division of Water Quality Management (DWQM) of the BLWQ, which commented that the East End wastewater treatment facility has the capacity to treat these flows but has some non-compliance issues that are being addressed by the Portland Water District and scrutinized by the Department.

Based on DWQM's comments, the Department finds that the applicant has made adequate provision for wastewater disposal at a facility that has the capacity to ensure satisfactory treatment.

11. SOLID WASTE:

All municipal solid wastes from the proposed project will be disposed of at Ecomaine, which is currently in substantial compliance with the Maine Solid Waste Management Rules. All wood waste generated from site clearing, such as stumps and grubbings, will be ground and used on site. Any treated wood and mixed construction and demolition debris will be transported to Juniper Ridge Landfill in Old Town or Waste Management in Norridgewock. Untreated wood waste from construction will be sent to KTE Biofuels in Lewiston or to the City of Portland Riverside Recycling Facility. Any petroleum-contaminated soils will be transported to CPRC Group in Scarborough. Biomedical waste will be disposed of at Stericycle in Massachusetts. Any chemical waste will be sent to Clean Harbors Waste Disposal Services. Scrap metal will be sent to One Steel located in Arundel and Oakland, or to Schnitzer Steel in Portland. Any coal ash encountered will be handled in accordance with the Voluntary Response Action Plan. The BRWM reviewed this section of the application and found these facilities are in substantial compliance with the Maine Solid Waste Management Rules.

Based on the above information, the Department finds that the applicant has made adequate provision for solid waste disposal.

12. FLOODING:

The project is adjacent to tidal mudflats of the Fore River. The one hundred year flood elevation of the Fore River and Atlantic Ocean is elevation 10.0 (NGVD 29). The pond and the surrounding wetlands in the old excavated gravel pit portion of the site are below elevation 10.0 and could possibly flood from backflow from the Fore River through the storm drain system. After the pond and surrounding wetlands are filled for the proposed project, all the elevations of the site east of the Fore River Parkway will be above the one hundred year flood elevation. This loss of flood plain area in the Fore River watershed is unlikely to cause an increase in the flood elevation of the Fore River and the surrounding areas because the amount of flood plain area loss from the proposed project is very small in comparison to the flood plain area of the Fore River and surrounding tidal areas.

The Department finds that the proposed project is unlikely to cause or increase flooding or cause an unreasonable flood hazard to any structure.

13. WETLAND IMPACTS:

The applicant proposes to alter 151,924 square feet (3.49 acres) of wetlands to construct the proposed project. The types of wetland proposed to be impacted are 63,446 square feet of open water, 51,236 square feet of emergent/open water wetland, 17,298 square feet of forested wetland, 10,895 square feet of shrub/emergent wetland, 6,458 square feet of shrub wetland, and 2,591 square feet of emergent wetland. These wetlands are the existing pond and the surrounding wetlands in the central part of the site that were originally created from gravel extraction below the groundwater table. The pond is considered artificial and is not considered a wetland of special significance. The purpose and need of the wetland impact is to consolidate the operations of the hospital from the existing two campuses, one on State Street and one on the Fore River Parkway, to a single hospital campus on the Fore River Parkway site, which will allow Mercy Hospital to increase the capacity of the hospital for outpatient care and to provide a facility that meets current hospital standards.

In Department Order #L-20775-19-A-N/L-20775-TG-B-N, dated June 26, 2002, the Department approved 39,835 square feet (0.91 acre) of mostly scrub shrub wetland impact for the initial development of the site by the applicant. The cumulative wetland impact for the existing project plus the proposed project is 191,301 square feet (4.40 acres).

The Wetland Protection Rules interpret and elaborate on the NRPA criteria for obtaining a permit. The rules guide the Department in its determination of whether a project's impacts would be unreasonable. A proposed project would generally be found to be unreasonable if it would cause a loss in wetland area, functions and values and there is a practicable alternative to the project that would be less damaging to the environment. Each application for a Natural Resources Protection Act permit that involves a freshwater

wetland alteration must provide an analysis of alternatives in order to demonstrate that a practicable alternative does not exist.

A. Avoidance. No activity may be permitted if there is a practicable alternative to the project that would be less damaging to the environment. The applicant submitted an alternative analysis for the proposed project completed by Normandeau Associates and dated July 2012.

The applicant evaluated using single and dual campus alternatives to bring the hospital up to appropriate standards of care, safety, efficiency, convenience, and cost effectiveness. The applicant examined moving all operations back to the State Street campus; however the existing facility on State Street has the deficiencies of an aging facility including: an internal power distribution system that is antiquated, at-load capacity and in need of replacement; piping systems that need replacement; the two primary chillers of the heating, ventilating and air conditioning system need replacement; and the lack of space for parking is a major issue that includes high costs and inconvenience for patients and employees. Therefore, moving back to a single campus on State Street is not a feasible alternative because it will not meet the project purpose based on the expense and the inability to create a state-of-the-art healthcare facility.

The applicant evaluated moving all operation to a third site. A search was conducted for alternative sites in 2001 and 2002 that found no other local site was feasible or appropriate. The relocation of all operations to a third location is considered not practicable because it would not meet the project purpose of having a facility in Portland and the $90 million invested in the Fore River location could not be recouped which would jeopardize the long-term sustainability of the hospital.

The applicant evaluated maintaining a duel campus, but has found that two campuses perpetuates unfavorable conditions that would render the hospital unsustainable in the long term because of safety issues, operational difficulties, inconvenience, the expenses of duplicated services, bussing between facilities and renovating the State Street facility, and does not meet the project purpose of having a cost-effective, safe, and state-of-the-art healthcare facility.

The applicant evaluated consolidating operations onto the Fore River Campus with the proposed expansion. This would result in a state-of-the-art facility that would be best for healthcare delivery logistics, staff and patient access, reduction in operating costs, increases in staff efficiency, eliminating the need for duplicated services, and could lead to higher employee retention rates. This alternative meets the project purpose, is practicable in terms of cost effectiveness, and provides a state-of-the-art facility.

The applicant evaluated five alternative site layouts for the expanded Fore River campus, which included layouts that partially or completely filled the central wetland. Alternative ONS-3 shown in the project application avoided impacts to the wetland but did not

address current and anticipated future changes in the U.S. healthcare delivery system, including large increases in the amount of outpatient and ambulatory services provided by hospital campuses which would create a need for increased hospital size and more adjacent parking. Therefore, alternative ONS-3 was rejected.

Alternatives ONS-4 thru ONS-7 represented site layouts that minimize impacts to the central wetland, however they result in an unacceptable facility design that significantly limits the hospital's clinical operations. These unacceptable facility designs include congested and unsafe traffic circulation conditions where the Ambulatory Care Center and Emergency Department entrances are immediately adjacent to one another and other traffic circulation problems that result in confusion and congestion problems for incoming patients and visitors. These designs do not provide parking structures that are located in the critically essential location immediately adjacent to the ambulatory care center. These alternatives would also encroach on the wetland. One of the primary functions and values of the wetland is wildlife habitat, and it was recognized that direct encroachment on the wetland, shading of the wetland, and human activities associated with the building in closer proximity to the wetland would likely have a detrimental effect on this wetland function and value. Although these alternatives would have less direct wetland impact than the proposed project, these alternatives were deemed impracticable for the delivery of patient care services and would likely have detrimental effect on the wetland's wildlife functions and values.

Alternative ONS-8 is the basis of the proposed project. This alternative fills the entire central wetland and raises the grades of the site up such that the emergency department entrance and the building expansion entrance are at the same elevation as the entrance of the Phase 1 hospital. This feature is an important design element to the hospital because it reduces patient and visitor navigation issues inside the building. This alternative meets the current standards for hospital design with appropriate adjacencies and colocation of key services; allows physician and staff efficiency because it has inpatient and outpatient services at one facility; it provides parking for both patients and staff adjacent to the hospital; and, provides enough floor space to meet current program objectives. It is the connectedness of the existing and proposed facility and the future expansion potential that makes this alternative the preferred alternative and the applicant stated that this is the only practicable alternative of meeting the project purpose of a state-of-the-art facility.

B. Minimal Alteration. The amount of freshwater wetland to be altered must be kept to the minimum amount necessary for meeting the overall purpose of the project. The applicant examined alternative site layouts for the project and the only site layout that met the overall purpose of the project proposes to fill 3.49 acres of wetland. Other alternative site layouts that had less direct impact to the wetland were reviewed, but they did not meet the project purpose and need and the wetland alterations, although smaller, would most likely compromise the higher functions and values of the wetland. Given the chosen alternative described in Finding 13 A, the amount of alteration cannot be further minimized.

C. Compensation. Compensation is required to achieve the goal of no net loss of wetland functions and values because the project alters greater than 15,000 square feet of freshwater wetland, which is the threshold over which compensation is generally required. The applicant conducted a wetland mitigation site search and concluded that on-site mitigation was not possible due to space constraints. Although off-site parcels represented viable options for wetland compensation, none of the parcels meet the objectives of compensating for the lost wetland acreage and functions and values within the watershed. The applicant proposes to mitigate for the lost wetland functions and values by making a payment to the In-Lieu Fee (ILF) program of the Maine Natural Resource Conservation Fund (MNRCF).

The wetland that is proposed to be filled was originally formed as a gravel extraction area that was excavated below the groundwater table. This wetland was used as a wetland preservation area to partially compensate for the 0.91 acre of wetland losses approved in Department Order #L-20775-19-A-N/L-20775-TG-B-N. As part of the wetland compensation package for that permit and to enhance the wildlife habitat at the site, the pond and surrounding wetland was enhanced by the removal of solid wastes (such as trash, white goods, tires, metal, etc.), the water quality of the pond was protected by designing the stormwater management system such that only limited amounts of stormwater were directed to the wetland, and a narrow buffer around the wetland was maintained. The remaining wetland compensation for the 0.91 acre of impact from the initial project was 0.21 acre wetland creation in swales on the west side of the Fore River Parkway. The 0.21 acre of wetlands created as compensation for the initial project will not be affected by the proposed project.

The wetland proposed to be impacted is classified as a palustrine (freshwater) system with the following cover type classes: emergent (PEM1), open water (PUB3/4), forested (PFO1), and shrub wetland (PSS1). The pond is fed by a groundwater discharge that appears to flow year-round; therefore, groundwater recharge/discharge is considered a principle function of the wetland. Small fish have been observed in the pond in the past; this population is likely the remnant from birds or the previous hydrological connections to the Fore River and is supported by the groundwater flows; hence, fish and shellfish habitat is a principle function of the wetland. Sediment/toxicant retention is expected to be one of the principle functions of the wetland because any toxicants and sediments flowing into the wetland from the surrounding uplands would become trapped in the organic rich substrate observed in many areas around the pond. Nutrient removal/retention/transformation is expected to be another principle function of the wetland based on the observation of the density and type of vegetation thriving in the wetland and the presence of organic deposits in the wetland. Floodflow alteration is not a principle function of the wetland. Production export is not considered a principal function either. The wetland does provide food for wildlife. The wetland provides habitat for small fish, invertebrates and amphibian populations, which provides a forage base for secondary and tertiary consumers. Reptiles (turtles) have been observed basking

around the pond. Piscivorous birds, including herons, were observed foraging in and along the pond habitat. Migratory waterfowl, including mallard ducks and black ducks, were observed using the wetland. Although the wetland provides food for the wildlife utilizing the wetland, it does not provide nutrients that are transported out of the wetland. Wildlife habitat is considered to be a principle function of the wetland because of the variety of resident and migratory species present. As noted above, the pond has populations of invertebrates, fish and amphibians that provide a forage base for higher trophic level consumers. The wetlands and adjacent forested upland also support small mammals such as voles, shrews, field mice, and potentially larger mammals such as fox and woodchucks. Uniqueness/heritage value is believed to be present because the central wetland is somewhat unique as the surrounding land is developed and freshwater wetlands are rare on the Portland peninsula.

The wetland compensation required in Department Order #L-20775-19-A-N/L-20775-TG-B-N for 0.70 acre of wetland impacts will be eliminated by the proposed project, plus an additional 3.49 acres of wetland impact requires compensation, therefore the total amount of wetland impact requiring compensation for the project is 4.19 acres. The applicant proposes to make a contribution into the ILF program of the MNRCF in the amount of $834,156.00. Prior to the start of construction, a cashier's check or bank draft, payable to "Treasurer, State of Maine", with the permit number noted on the check, must be mailed to: ME DEP, Attn: ILF Program Administrator, State House Station 17, Augusta, ME 04333.

The Department finds that the applicant has avoided and minimized wetland impacts to the greatest extent practicable, and that the proposed project represents the least environmentally damaging alternative that meets the overall purpose of the project provided that prior to project construction, the applicant submits the ILF payment as described above.

14. AIR QUALITY:

The applicant has obtained an air emissions license from the Bureau of Air Quality, #A-912-71-A-N, for Phase I of the project. The applicant must amend its air emissions license from the Bureau of Air Quality prior to using any new equipment that requires an air emissions license.

15. ALL OTHER:

All other Findings of Fact, Conclusions and Conditions remain as approved in Department Order #L-20775-19-A-N and #L-20775-TG-B-N, and subsequent orders.

BASED on the above findings of fact, and subject to the conditions listed below, the Department makes the following conclusions pursuant to 38 M.R.S.A. Sections 480-A et seq. and Section 401 of the Federal Water Pollution Control Act:

A. The proposed activity will not unreasonably interfere with existing scenic, aesthetic, recreational, or navigational uses.

B. The proposed activity will not cause unreasonable erosion of soil or sediment.

C. The proposed activity will not unreasonably inhibit the natural transfer of soil from the terrestrial to the marine or freshwater environment.

D. The proposed activity will not unreasonably harm any significant wildlife habitat, freshwater wetland plant habitat, threatened or endangered plant habitat, aquatic habitat, travel corridor, freshwater, estuarine, or marine fisheries or other aquatic life provided that the applicant makes a contribution to the In-Lieu Fee (ILF) program, the wildlife habitat losses are noted on the In Lieu Fee (ILF) Project Data Worksheet as described in Findings 6 and 13, and the Turtle Trapping and Removal plan is implemented prior to construction as described in Finding 6.

E. The proposed activity will not unreasonably interfere with the natural flow of any surface or subsurface waters.

F. The proposed activity will not violate any state water quality law including those governing the classifications of the State's waters.

G. The proposed activity will not unreasonably cause or increase the flooding of the alteration area or adjacent properties.

H. The proposed activity is not on or adjacent to a sand dune.

I. The proposed activity is not on an outstanding river segment as noted in 38 M.R.S.A. Section 480-P.

BASED on the above findings of fact, and subject to the conditions listed below, the Department makes the following conclusions pursuant to 38 M.R.S.A. Sections 481 et seq.:

A. The applicant has provided adequate evidence of financial capacity and technical ability to develop the project in a manner consistent with state environmental standards provided that the applicant submits evidence of financial capacity to the BLWQ for review and approval prior to the start of construction as described in Finding 2.

B. The applicant has made adequate provision for fitting the development harmoniously into the existing natural environment and the development will not adversely affect existing uses, scenic character, air quality, water quality or other natural resources in the municipality or in neighboring municipalities.

C. The proposed development will be built on soil types which are suitable to the nature of the undertaking and will not cause unreasonable erosion of soil or sediment nor inhibit the natural transfer of soil.

D. The proposed development meets the standards for storm water management in Section 420-D and the standard for erosion and sedimentation control in Section 420-C provided that the applicant retains the design engineer, or another qualified engineer, to oversee the construction of the stormwater management structures; submits a log of inspection reports to the BLWQ for review; submits a copy of an executed long-term maintenance contract for the on-going maintenance of the Filterra®, the underdrained subsurface sand filter, and the StormFilter®; and, disposes of materials removed from the stormwater management systems in compliance with the Maine Solid Waste Management Rules as described in Finding 8.

E. The proposed development will not pose an unreasonable risk that a discharge to a significant groundwater aquifer will occur.

F. The applicant has made adequate provision of utilities, including water supplies, sewerage facilities and solid waste disposal required for the development and the development will not have an unreasonable adverse effect on the existing or proposed utilities in the municipality or area served by those services.

G. The activity will not unreasonably cause or increase the flooding of the alteration area or adjacent properties nor create an unreasonable flood hazard to any structure.

THEREFORE, the Department APPROVES the application of MERCY HOSPITAL to construct Phase II of the Mercy Hospital Relocation project as described above, SUBJECT TO THE FOLLOWING CONDITIONS and all applicable standards and regulations:

1. The Standard Conditions of Approval, a copy attached.

2. In addition to any specific erosion control measures described in this or previous orders, the applicant shall take all necessary actions to ensure that its activities or those of its agents do not result in noticeable erosion of soils or fugitive dust emissions on the site during the construction and operation of the project covered by this approval.

3. Severability. The invalidity or unenforceability of any provision, or part thereof, of this License shall not affect the remainder of the provision or any other provisions. This

License shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

4. The applicant or other responsible party shall, within three months of the expiration of each five-year interval from the date of this Order, submit a report certifying that the items listed in Department Rules, Chapter 500, Appendix B(4) have been completed in accordance with the approved plans.

5. Prior to the start of construction, the applicant must submit evidence that it has been granted a line of credit or a loan by a financial institution authorized to do business in this State or evidence of any other form of financial assurance determined by Department Rules, Chapter 373(1), to be adequate to the BLWQ for review and approval.

6. Prior to occupancy of the new buildings, the applicant shall submit a copy of an executed long-term maintenance contract (minimum of 5 years and renewable) to the BLWQ for the on-going maintenance of the Filterra®, the underdrained subsurface sand filter, and the StormFilter®.

7. Storm sewer grit and sediment materials removed from any parts of the stormwater management system, including conveyance structures, during maintenance activities shall be disposed of in compliance with the Maine Solid Waste Management Rules.

8. The applicant shall retain the design engineer, or another qualified engineer, to oversee the construction of the stormwater management structures according to the details and notes specified on the approved plans. Within thirty days of completion of each stormwater management structure, the applicant shall submit a log of inspection reports detailing the items inspected, photos taken, and the dates of each inspection to the BLWQ for review.

9. Prior to the start of construction, the applicant shall mail or deliver a cashier's check or bank draft in the amount of $834,156.00, payable to "Treasurer, State of Maine", with the permit number noted on the check; to: ME DEP, Attn: ILF Program Administrator, State House Station 17, Augusta, ME 04333.

10. Prior to the start of construction, the applicant shall implement the Turtle Trapping and Removal plan.

11. All other Findings of Fact, Conclusions and Conditions remain as approved in Department Order #L-20775-19-A-N and #L-20775-TG-B-N, and subsequent orders, and are incorporated herein.

THIS APPROVAL DOES NOT CONSTITUTE OR SUBSTITUTE FOR ANY OTHER REQUIRED STATE, FEDERAL OR LOCAL APPROVALS NOR DOES IT VERIFY COMPLIANCE WITH ANY APPLICABLE SHORELAND ZONING ORDINANCES.

DONE AND DATED IN AUGUSTA, MAINE, THIS 22 DAY OF March, 2013.

DEPARTMENT OF ENVIRONMENTAL PROTECTION

BY: Michael Kuhns for
Patricia W. Aho, Commissioner

Filed
MAR 22 2013
State of Maine
Board of Environmental Protection

PLEASE NOTE THE ATTACHED SHEET FOR GUIDANCE ON APPEAL PROCEDURES...

CGW/L20775TA&UN/ATS#74936&74937

Department of Environmental Protection

SITE LOCATION OF DEVELOPMENT (SITE)
STANDARD CONDITIONS

A. **Approval of Variations from Plans.** The granting of this approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. Any variation from these plans, proposals, and supporting documents is subject to review and approval prior to implementation. Further subdivision of proposed lots by the applicant or future owners is specifically prohibited without prior approval of the Board, and the applicant shall include deed restrictions to that effect.

B. **Compliance with All Applicable Laws.** The applicant shall secure and comply with all applicable federal, state, and local licenses, permits, authorizations, conditions, agreements, and orders prior to or during construction and operation, as appropriate.

C. **Compliance with All Terms and Conditions of Approval.** The applicant shall submit all reports and information requested by the Board or the Department demonstrating that the applicant has complied or will comply with all preconstruction terms and conditions of this approval. All preconstruction terms and conditions must be met before construction begins.

D. **Advertising.** Advertising relating to matters included in this application shall refer to this approval only if it notes that the approval has been granted WITH CONDITIONS, and indicates where copies of those conditions may be obtained.

E. **Transfer of Development.** Unless otherwise provided in this approval, the applicant shall not sell, lease, assign or otherwise transfer the development or any portion thereof without prior written approval of the Board where the purpose or consequence of the transfer is to transfer any of the obligations of the developer as incorporated in this approval. Such approval shall be granted only if the applicant or transferee demonstrates to the Board that the transferee has the technical capacity and financial ability to comply with conditions of this approval and the proposals and plans contained in the application and supporting documents submitted by the applicant.

F. **Time frame for approvals.** If the construction or operation of the activity is not begun within four years, this approval shall lapse and the applicant shall reapply to the Board for a new approval. The applicant may not begin construction or operation of the development until a new approval is granted. A reapplication for approval may include information submitted in the initial application by reference. This approval, if construction is begun within the four-year time frame, is valid for seven years. If construction is not completed within the seven-year time frame, the applicant must reapply for, and receive, approval prior to continuing construction.

G. **Approval Included in Contract Bids.** A copy of this approval must be included in or attached to all contract bid specifications for the development.

H. **Approval Shown to Contractors.** Work done by a contractor pursuant to this approval shall not begin before the contractor has been shown by the developer a copy of this approval.

Natural Resource Protection Act (NRPA)
Standard Conditions

THE FOLLOWING STANDARD CONDITIONS SHALL APPLY TO ALL PERMITS GRANTED UNDER THE NATURAL RESOURCE PROTECTION ACT, TITLE 38, M.R.S.A. SECTION 480-A ET.SEQ. UNLESS OTHERWISE SPECIFICALLY STATED IN THE PERMIT.

A. Approval of Variations From Plans. The granting of this permit is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. Any variation from these plans, proposals, and supporting documents is subject to review and approval prior to implementation.

B. Compliance With All Applicable Laws. The applicant shall secure and comply with all applicable federal, state, and local licenses, permits, authorizations, conditions, agreements, and orders prior to or during construction and operation, as appropriate.

C. Erosion Control. The applicant shall take all necessary measures to ensure that his activities or those of his agents do not result in measurable erosion of soils on the site during the construction and operation of the project covered by this Approval.

D. Compliance With Conditions. Should the project be found, at any time, not to be in compliance with any of the Conditions of this Approval, or should the applicant construct or operate this development in any way other the specified in the Application or Supporting Documents, as modified by the Conditions of this Approval, then the terms of this Approval shall be considered to have been violated.

E. Time frame for approvals. If construction or operation of the activity is not begun within four years, this permit shall lapse and the applicant shall reapply to the Board for a new permit. The applicant may not begin construction or operation of the activity until a new permit is granted. Reapplications for permits may include information submitted in the initial application by reference. This approval, if construction is begun within the four-year time frame, is valid for seven years. If construction is not completed within the seven-year time frame, the applicant must reapply for, and receive, approval prior to continuing construction.

F. No Construction Equipment Below High Water. No construction equipment used in the undertaking of an approved activity is allowed below the mean high water line unless otherwise specified by this permit.

G. Permit Included In Contract Bids. A copy of this permit must be included in or attached to all contract bid specifications for the approved activity.

H. Permit Shown To Contractor. Work done by a contractor pursuant to this permit shall not begin before the contractor has been shown by the applicant a copy of this permit.

STORMWATER STANDARD CONDITIONS

STRICT CONFORMANCE WITH THE STANDARD AND SPECIAL CONDITIONS OF THIS APPROVAL IS NECESSARY FOR THE PROJECT TO MEET THE STATUTORY CRITERIA FOR APPROVAL

Standard conditions of approval. Unless otherwise specifically stated in the approval, a department approval is subject to the following standard conditions pursuant to Chapter 500 Stormwater Management Law.

(1) Approval of variations from plans. The granting of this approval is dependent upon and limited to the proposals and plans contained in the application and supporting documents submitted and affirmed to by the applicant. Any variation from these plans, proposals, and supporting documents must be reviewed and approved by the department prior to implementation. Any variation undertaken without approval of the department is in violation of 38 M.R.S.A. §420-D(8) and is subject to penalties under 38 M.R.S.A. §349.

(2) Compliance with all terms and conditions of approval. The applicant shall submit all reports and information requested by the department demonstrating that the applicant has complied or will comply with all terms and conditions of this approval. All preconstruction terms and conditions must be met before construction begins.

(3) Advertising. Advertising relating to matters included in this application may not refer to this approval unless it notes that the approval has been granted WITH CONDITIONS, and indicates where copies of those conditions may be obtained.

(4) Transfer of project. Unless otherwise provided in this approval, the applicant may not sell, lease, assign, or otherwise transfer the project or any portion thereof without written approval by the department where the purpose or consequence of the transfer is to transfer any of the obligations of the developer as incorporated in this approval. Such approval may only be granted if the applicant or transferee demonstrates to the department that the transferee agrees to comply with conditions of this approval and the proposals and plans contained in the application and supporting documents submitted by the applicant. Approval of a transfer of the permit must be applied for no later than two weeks after any transfer of property subject to the license.

(5) Time frame for approvals. If the construction or operation of the activity is not begun within four years, this approval shall lapse and the applicant shall reapply to the department for a new approval. The applicant may not begin construction or operation of the project until a new approval is granted. A reapplication for approval may include information submitted in the initial application by reference. This approval, if construction is begun within the four-year time frame, is valid for seven years. If construction is not completed within the seven-year time frame, the applicant must reapply for, and receive, approval prior to continuing construction.

(6) Certification. Contracts must specify that "all work is to comply with the conditions of the Stormwater Permit." Work done by a contractor or subcontractor pursuant to this approval may not begin before the contractor and any subcontractors have been shown a copy of this

approval with the conditions by the developer, and the owner and each contractor and subcontractor has certified, on a form provided by the department, that the approval and conditions have been received and read, and that the work will be carried out in accordance with the approval and conditions. Completed certification forms must be forwarded to the department.

(7) Maintenance. The components of the stormwater management system must be adequately maintained to ensure that the system operates as designed, and as approved by the department.

(8) Recertification requirement. Within three months of the expiration of each five-year interval from the date of issuance of the permit, the permittee shall certify the following to the department.

(a) All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.

(b) All aspects of the stormwater control system have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the facilities.

(c) The erosion and stormwater maintenance plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the department, and the maintenance log is being maintained.

(9) Severability. The invalidity or unenforceability of any provision, or part thereof, of this permit shall not affect the remainder of the provision or any other provisions. This permit shall be construed and enforced in all respects as if such invalid or unenforceable provision or part thereof had been omitted.

November 16, 2005 (revised December 27, 2011)

DEP INFORMATION SHEET
Appealing a Department Licensing Decision

Dated: March 2012 **Contact: (207) 287-2811**

SUMMARY

There are two methods available to an aggrieved person seeking to appeal a licensing decision made by the Department of Environmental Protection's ("DEP") Commissioner: (1) in an administrative process before the Board of Environmental Protection ("Board"); or (2) in a judicial process before Maine's Superior Court. An aggrieved person seeking review of a licensing decision over which the Board had original jurisdiction may seek judicial review in Maine's Superior Court.

A judicial appeal of final action by the Commissioner or the Board regarding an application for an expedited wind energy development (35-A M.R.S.A. § 3451(4)) or a general permit for an offshore wind energy demonstration project (38 M.R.S.A. § 480-HH(1)) or a general permit for a tidal energy demonstration project (38 M.R.S.A. § 636-A) must be taken to the Supreme Judicial Court sitting as the Law Court.

This INFORMATION SHEET, in conjunction with a review of the statutory and regulatory provisions referred to herein, can help a person to understand his or her rights and obligations in filing an administrative or judicial appeal.

I. ADMINISTRATIVE APPEALS TO THE BOARD

LEGAL REFERENCES

The laws concerning the DEP's *Organization and Powers*, 38 M.R.S.A. §§ 341-D(4) & 346, the *Maine Administrative Procedure Act*, 5 M.R.S.A. § 11001, and the DEP's *Rules Concerning the Processing of Applications and Other Administrative Matters* ("Chapter 2"), 06-096 CMR 2 (April 1, 2003).

HOW LONG YOU HAVE TO SUBMIT AN APPEAL TO THE BOARD

The Board must receive a written appeal within 30 days of the date on which the Commissioner's decision was filed with the Board. Appeals filed after 30 calendar days of the date on which the Commissioner's decision was filed with the Board will be rejected.

HOW TO SUBMIT AN APPEAL TO THE BOARD

Signed original appeal documents must be sent to: Chair, Board of Environmental Protection, c/o Department of Environmental Protection, 17 State House Station, Augusta, ME 04333-0017; faxes are acceptable for purposes of meeting the deadline when followed by the Board's receipt of mailed original documents within five (5) working days. Receipt on a particular day must be by 5:00 PM at DEP's offices in Augusta; materials received after 5:00 PM are not considered received until the following day. The person appealing a licensing decision must also send the DEP's Commissioner a copy of the appeal documents and if the person appealing is not the applicant in the license proceeding at issue the applicant must also be sent a copy of the appeal documents. All of the information listed in the next section must be submitted at the time the appeal is filed. Only the extraordinary circumstances described at the end of that section will justify evidence not in the DEP's record at the time of decision being added to the record for consideration by the Board as part of an appeal.

WHAT YOUR APPEAL PAPERWORK MUST CONTAIN

Appeal materials must contain the following information at the time submitted:

1. *Aggrieved Status.* The appeal must explain how the person filing the appeal has standing to maintain an appeal. This requires an explanation of how the person filing the appeal may suffer a particularized injury as a result of the Commissioner's decision.
2. *The findings, conclusions or conditions objected to or believed to be in error.* Specific references and facts regarding the appellant's issues with the decision must be provided in the notice of appeal.
3. *The basis of the objections or challenge.* If possible, specific regulations, statutes or other facts should be referenced. This may include citing omissions of relevant requirements, and errors believed to have been made in interpretations, conclusions, and relevant requirements.
4. *The remedy sought.* This can range from reversal of the Commissioner's decision on the license or permit to changes in specific permit conditions.
5. *All the matters to be contested.* The Board will limit its consideration to those arguments specifically raised in the written notice of appeal.
6. *Request for hearing.* The Board will hear presentations on appeals at its regularly scheduled meetings, unless a public hearing on the appeal is requested and granted. A request for public hearing on an appeal must be filed as part of the notice of appeal.
7. *New or additional evidence to be offered.* The Board may allow new or additional evidence, referred to as supplemental evidence, to be considered by the Board in an appeal only when the evidence is relevant and material and that the person seeking to add information to the record can show due diligence in bringing the evidence to the DEP's attention at the earliest possible time in the licensing process or that the evidence itself is newly discovered and could not have been presented earlier in the process. Specific requirements for additional evidence are found in Chapter 2.

OTHER CONSIDERATIONS IN APPEALING A DECISION TO THE BOARD

1. *Be familiar with all relevant material in the DEP record.* A license application file is public information, subject to any applicable statutory exceptions, made easily accessible by DEP. Upon request, the DEP will make the material available during normal working hours, provide space to review the file, and provide opportunity for photocopying materials. There is a charge for copies or copying services.
2. *Be familiar with the regulations and laws under which the application was processed, and the procedural rules governing your appeal.* DEP staff will provide this information on request and answer questions regarding applicable requirements.
3. *The filing of an appeal does not operate as a stay to any decision.* If a license has been granted and it has been appealed the license normally remains in effect pending the processing of the appeal. A license holder may proceed with a project pending the outcome of an appeal but the license holder runs the risk of the decision being reversed or modified as a result of the appeal.

WHAT TO EXPECT ONCE YOU FILE A TIMELY APPEAL WITH THE BOARD

The Board will formally acknowledge receipt of an appeal, including the name of the DEP project manager assigned to the specific appeal. The notice of appeal, any materials accepted by the Board Chair as supplementary evidence, and any materials submitted in response to the appeal will be sent to Board members with a recommendation from DEP staff. Persons filing appeals and interested persons are notified in advance of the date set for Board consideration of an appeal or request for public hearing. With or without holding a public hearing, the Board may affirm, amend, or reverse a Commissioner decision or remand the matter to the Commissioner for further proceedings. The Board will notify the appellant, a license holder, and interested persons of its decision.

II. JUDICIAL APPEALS

Maine law generally allows aggrieved persons to appeal final Commissioner or Board licensing decisions to Maine's Superior Court, see 38 M.R.S.A. § 346(1); 06-096 CMR 2; 5 M.R.S.A. § 11001; & M.R. Civ. P 80C. A party's appeal must be filed with the Superior Court within 30 days of receipt of notice of the Board's or the Commissioner's decision. For any other person, an appeal must be filed within 40 days of the date the decision was rendered. Failure to file a timely appeal will result in the Board's or the Commissioner's decision becoming final.

An appeal to court of a license decision regarding an expedited wind energy development, a general permit for an offshore wind energy demonstration project, or a general permit for a tidal energy demonstration project may only be taken directly to the Maine Supreme Judicial Court. See 38 M.R.S.A. § 346(4).

Maine's Administrative Procedure Act, DEP statutes governing a particular matter, and the Maine Rules of Civil Procedure must be consulted for the substantive and procedural details applicable to judicial appeals.

ADDITIONAL INFORMATION

If you have questions or need additional information on the appeal process, for administrative appeals contact the Board's Executive Analyst at (207) 287-2452 or for judicial appeals contact the court clerk's office in which your appeal will be filed.

Note: The DEP provides this INFORMATION SHEET for general guidance only; it is not intended for use as a legal reference. Maine law governs an appellant's rights.

GENERAL APPLICATION DOCUMENT

WAIVER REQUESTS

The Accompanying Waiver Table provides a description of the applicable waiver requests and supporting evidence for these requests.

Standard to be Waived: Cite Ordinance or Technical Manual Standard	**Cite Standard Language:** Cite specific language of applicable Ordinance or Technical Manual Standard	**Waiver Being Sought:** Describe waiver being sought. Ex. – We are requesting a two-way parking lot drive aisle width of 20'.	**Justification for Waiver:** Address specific waiver criteria, if applicable, and document reasons for the waiver request.
Technical Standards – Section 5. Portland Stormwater Management Standards and MaineDEP Chapter 500 Stormwater Management	*Flooding Standards: : Subcatchment plans with flow paths, full hydrology computations/model output of pre- and post-development conditions, summary of pre- and post-development flowrates, and a written request for waiver with rationale for waiver as noted in Section 5.II.F. (as applicable)*	The applicant is requesting a waiver for the flooding standard requirements.	The project will discharge stormwater runoff to existing drainage systems that will discharge directly to the Fore River which is a tidal waterbody. Mercy has previously requested and been granted, a waiver of the flooding standards under both the State and Local stormwater rules.
Technical Standards – Transportation Standards – Sidewalks (14-526 (a) 2 c)	*(i) All proposed developments shall provide sidewalks along all frontages in accordance with Sections 14-498 and 14- 499 of the City Code, installed to City specifications as described in Section 1 of the Technical Manual. An applicant may request a waiver from curb and sidewalk installation requirements if they meet applicable waiver criteria listed in Section 14-506 (b) of the City Code.*	The applicant is requesting a waiver to provide curb and sidewalk from the southerly driveway to the north end of the property, as there is no curb in the area today and no drainage systems.	There is no sidewalk in existence or expected within 1000 feet and the construction of sidewalks does not contribute to the development of a pedestrian oriented infrastructure.
Technical Standards – Transportation Standards –Bicycle Parking (14-526 (a) 4 b)	*(b) Non-residential structures. Two (2) bicycle parking spaces for every ten (10) vehicle parking spaces for the first one hundred (100) required vehicle parking spaces, plus one (1) bicycle parking space for every twenty (20) required motor vehicle parking space over one hundred (100) required vehicle parking spaces.*	The applicant is requesting a waiver of the required number of bicycle parking spaces as that would exceed well over 50 bike spaces which is considered excessive for the Hospital use.	The proposed development is expected to generate a reduced demand for bicycle parking due to the service they provide.

GENERAL APPLICATION DOCUMENT

ZONING ASSESSMENT

See attached Zoning Assessment Table and project site plans for additional information.

ZONING ANALYSIS Relevant Zone(s) C-26 Mercy Hospital Contract Zone

All Projects:

	Required	Proposed
Lot Size	C2	33.51 AC
Area Per Dwelling Unit		
Minimum Street Frontage		
Front Yard ~~Minimum~~ Setback	20 FT	100 FT
Front Yard Maximum		
Rear Yard	10 FT	123 FT
Yard Right		
Yard Left		
Side Street Setback	10 FT	204 FT
Step Back		
Maximum Lot Coverage		
Minimum Lot Coverage		
Maximum Height	90 FT	<90 FT
Open Space		
Maximum Impervious Area	80%	66%
Pavement Setback		16 FT
Floor Area Ratio		
Off Street Parking Spaces	679	857
Loading Bays	2	2
Other 1		
Other 2		
Other 3		

The above information is subject to the existing Contract Zone approved for Mercy Hospital.

NOT APPLICABLE

Planned Residential Unit Developments (PRUD) Requirements

	Required	Proposed
Minimum Lot Size		
Minimum Lot Area per Dwelling		
Maximum # Units per Building		
Maximum Building Length		
Maximum Accessory Building Length		
Minimum Setbacks		
Minimum Building Separation		
Minimum Open Space		

Affordable Housing Density Bonuses (if applicable)

	Bonus Increase or Decrease	Maximum Allowable With Bonus	Proposed
Density			
Height			
Setback Reduction			
Recreation Space			
Maximum Accessory Building Length			
Minimum Setbacks			
Minimum Building Separation			
Minimum Open Space			
Explanatory Text 1 (optional):			
Explanatory Text 2 (optional):			
Explanatory Text 3 (optional):			

GORRILL PALMER

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Parking and Driveway Mitigation Evaluations
Mercy Hospital Phase II Expansion – Portland, Maine
JN 3257.04

Date: September 10, 2019
Subject: Parking and Driveway Mitigation Evaluations
Mercy Hospital Phase II Expansion
To: Nick Munro, Northern Light Health
From: Randy Dunton, Gorrill Palmer

Gorrill Palmer (GP) has been retained by Northern Light Health to provide a preliminary evaluation of potential parking deficit and driveway intersection mitigation as a result of the Phase II expansion of Mercy Hospital on Fore River Parkway in Portland, Maine. The proposed expansion includes the following:

- 32 new beds (Total of 71 beds for Phase I + II)
- 54,889 sf of new hospital (Total of 192,988 sf for Phase I + II)
- 34,987 sf ambulatory surgery center (ASC) (Total of 117,173 sf MOB for Phase I + II)

It is assumed that the ASC is medical office building space with outpatient service only.

PARKING EVALUATION

On-Site Parking Inventory

GP previously completed weekday on-site parking occupancy counts on Wednesday, January 10, 2017 from 10:30 AM to 11:30 AM and again on January 25, 2017 from 10:00 AM to 2:00 PM. Wednesday was chosen after discussions with the hospital and this was identified as their busiest day. Based on information provided in *ITE Parking Generation, 4th Edition*, 11 AM and 12 PM were identified as peak parking demand times for a hospital. The following table summarizes the parking demands that occurred on Wednesday, January 10, 2017. The attached site plan identified the individual lots counted.

January 10, 2017 Parking Inventory and Demand

Lot	Total Number of Spaces Available	Number of Parked Vehicles		
		10:30 AM	11:00 AM	11:30 AM
1	34	24	27	24
2	50	47	44	44
3	101	50	53	54
4	162	112	102	107
5	105	62	65	59
6	310	174	174	178
Total	**762**	**469**	**465**	**466**

The following table summarizes the parking demands that occurred on Wednesday, January 25, 2017. Please note that the parking times were expanded from the previous parking inventory to capture a broader time period.

January 25, 2017 Parking Inventory and Demand

Lot	Total Number of Spaces Available	Number of Parked Vehicles				
		10:00 AM	11:00 AM	12:00 PM	1:00 PM	2:00 PM
1	34	20	23	17	14	20
2	50	44	46	42	40	41
3	101	56	57	56	55	55
4	162	115	116	107	117	146
5	105	62	64	64	65	65
6	310	181	184	205	208	187
Total	**762**	**478**	**490**	**491**	**499**	**514**

As can be seen from the above two tables, the highest parking demand in the times recorded (514 at 2:00 PM on January 25, 2017) was approximately 67 percent of the total. Please note that the parking demand trend is increasing from 10 AM to 2 PM, which indicates that later in the day after the 2 PM time period, the demand could be slightly higher. However, comparing this with other studies and the previous count, we suspect the parking demand was close to its peak. To be conservative, we added 11 parked cars to the 514 for a total of 525 vehicle peak parking demand.

It should be noted that this count is conservative, since parking for the State Street location was being provided on this campus at the time of the counts, and therefore the parking demand rate will be higher than it normally would.

Parking Demand

- Based on City Ordinance Requirements:

Using the City ordinance requirement of 1 space per 500 sf of floor area for the hospital, the existing hospital (approximately 138,099 sf) would require 276 parking spaces.

Using the City ordinance requirement of 1 space per 400 sf of floor area, the existing medical office building (MOB, approximately 82,186 sf) would require 205 parking spaces.

The total number of existing parking spaces required based on the City ordinance is 481 (276 hospital + 205 MOB = 481). Since the site currently has 762 parking spaces, it exceeds the City ordinance by approximately 281 parking spaces.

- Based on Current Parking Demand Rate:

Since the hospital and MOB share parking fields, it would be difficult to identify the destination of the driver of each of the parked cars. For the purposes of this evaluation, we assumed a conservative approach that of the parked cars, 85% of the 205 spaces identified by the City ordinance requirement (or approximately 174 spaces) are associated with the MOB. This would leave approximately 351 of the 525 peak parking demand associated with the demand for the hospital.

The existing hospital is 138,099 sf (not including MOB). Based on this size and the peak parking demand of 351 parked vehicles, the current parking demand for the Hospital is approximately 1.27 spaces per 500 sf of hospital, which is close to the City ordinance (1 per 500 sf). As noted previously, the rate was expected to be slightly higher due to State Street vehicles parking on this campus.

The existing MOB is 82,186 sf. Based on this size and the peak parking demand of 174 parked vehicles, the current parking demand for MOB is approximately 0.85 spaces per 400 sf of MOB, which is close to the City ordinance (1 per 400 sf).

- Parking Demand for the Hospital Expansion:

Based on the City ordinance (1 per 500 sf), the additional parking required for the 54,889 sf hospital expansion is 110 parking spaces. Using the estimated existing rate identified by the counts (1.27 per 500 sf), the increased parking demand would be 140 parking spaces.

- Parking Demand for the MOB Expansion:

Based on the City ordinance (1 per 400 sf), the additional parking required for the 34,987 sf MOB expansion is 88 parking spaces. Using the estimated existing rate identified by the counts (0.85 per 400 sf), the increased parking demand would be 75 parking spaces.

- Recommended Site Parking Supply After Hospital Expansion:

The forecast parking demand of 198 spaces using the ordinance or 215 parking spaces using the calculated rate, plus the existing parking demand of 525 parking spaces is approximately 723 to 740 parking spaces. When determining parking demands, the standard is to provide "practical capacity", which is approximately 15% additional parking than the forecast demand. This "practical capacity" provides enough additional parking spaces so the last few drivers do not have to drive around the entire parking area in order to find a parking space. Applying this "practical capacity" adjustment increases the recommended parking demand to approximately 831 to 851 parking spaces. Upon completion of Phase 11, the total on-site parking supply will be 857 parking spaces, a surplus of approximately 6 to 26 parking spaces more than what is needed.

Parking Layout

As part of the hospital expansion, some parking will be displaced. The proposed hospital expansion will displace approximately 105 parking spaces (staff only). In addition, 19 parking spaces will be needed for the emergency department (ED). The site plan submitted under separate cover shows the 105 relocated parking spaces and the 19 ED spaces.

As previously identified, ample parking will be provided on-site.

DRIVEWAY MITIGATION EVALUATION

In addition to evaluating the parking demand, GP also evaluated the potential for additional mitigation at the site driveways to accommodate the additional traffic generated by the proposed hospital expansion. The following is a summary of the findings:

Collision Data

GP obtained the crash data for the area surrounding the site from the MaineDOT for the period of 2016-2018, the most recent three-year period available. In order to evaluate whether a location has a crash problem, MaineDOT uses two criteria to define a High Crash Location (HCL). Both criteria must be met in order to be classified as an HCL.

1. A critical rate factor (CRF) of 1.00 or more for a three year period. A CRF compares the actual crash rate to the rate for similar intersections in the state. A CRF of less than 1.00 indicates a rate of less than average, **and**:

2. A minimum of eight crashes over the same three-year period.

Based on the crash data report generated by MaineDOT, there are no HCLs in the vicinity of the site. Although there are no HCLs in the vicinity of the site, the intersection of Fore River Parkway with Veterans Bridge meets one of the two criteria with 12 crashes and a CRF of 0.37 during the most recent three year period.

It is also important to note that there were no crashes involving pedestrians or bicyclists in the most recent three year period.

Existing Traffic Volumes

GP completed turning movement counts on Wednesday, January 25, 2017 at the two site driveways on Fore River Parkway from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM. As identified in a previous section, Wednesdays were identified by the Hospital as being their busiest day. The results of the counts are shown on the attached Figure 2.

2022 Predevelopment Design Hour Volumes

The traffic volumes in Figure 2 were counted in late January. The Fore River Parkway traffic volumes are adjusted to the 30th highest hour of the year using MaineDOT weekly group mean factors. This adjustment increases the Fore River volumes to those that may be experienced during peak summer months. This seasonal adjustment resulted in an increase of 18%. The traffic volumes into and out of the site are not adjusted by a seasonal adjustment.

In addition to seasonally adjusting the Fore River Parkway traffic volumes, they are also increased by an annual growth to estimate traffic volumes for the build out year of the project. MaineDOT traffic counts in the area show an average increase in traffic volumes of approximately 1.5% per year, which was utilized to increase the Fore River Parkway counted volumes. The build out year for the hospital is anticipated to be 2022. The 2022 Adjusted Volumes on the attached Figure 3 reflect the seasonal and annual adjustments for the Fore River traffic volumes.

Approved projects that are not yet opened, as well as projects for which applications have been filed are required to be included in the predevelopment volumes on Fore River Parkway. This initial evaluation was started in 2017, and at that time GP included traffic from the full build-out of the Thompson's Point development. It should be noted that this project has standing since 2002. To be conservative GP increased the through traffic by 25% to accommodate for other development traffic and is shown on the attached Figure 4.

The 2022 Adjusted Volumes on the attached Figure 3 have been combined with the Other Development traffic volumes on Figure 4 to yield the 2022 Predevelopment shown on Figure 5.

Increase in Traffic due to Hospital Expansion

To calculate the trip generation for the proposed hospital expansion (54,889 SF & 32 new beds), GP utilized two separate sources. The first source was to use the same trip generation rates that were used in the previously approved 2001 Traffic Impact Study completed by DeLuca-Hoffman Associates, Inc. The second source was to use the ITE *Trip Generation*, 10th Edition, Land Use Code (LUC) 610 – Hospital to forecast trip generation for the proposed expansion. The trip generation has been based on the average of the trip generation for gross floor area (GFA) and number of beds. The number of employees was not used in the original 2001 study and to ensure we were comparing "apples to apples" the same methodology was used using the ITE source.

GP also used LUC 720 – Medical / Dental Office Building for the proposed ASC facility (34,987 SF).

Based on the MaineDOT Traffic Movement Permit (TMP) (Div. 06-00035-A-N) issued on 5-13-2002, the site is permitted for 784 AM and 687 PM peak hour trips during the adjacent street peak hours and 990 PM peak hour trips of the generator.

Trip Generation Summary

	AM Adjacent St			PM Adjacent St		
	In	Out	Total	In	Out	Total
Permitted for Site	598	186	784	222	465	687
Counted for Site	185	53	238	64	173	237
Proposed Hospital Expansion using 2001 Rates	59	19	78	21	38	59
Proposed Hospital Expansion using ITE 10th Edition	38	16	54	17	40	57
Proposed ASC Facility using ITE 10th Edition	78	19	97	36	85	121
Remaining Trip Credit using: 2001 Rates & (ITE 10 Edition)	276 (297)	95 (98)	371 (395)	101 (105)	169 (167)	270 (272)

(xx) = Remaining Trip Credit using ITE 10th Edition for all uses

As shown in the table, the site is well below the permitted trip generation with 371 AM and 270 PM peak hour trip end **credits** using the original trip rates from the 2001 Traffic Impact Study and 395 AM and 272 PM peak hour trip end **credits** using the most current edition of ITE. As identified previously, this also includes employees from the State Street location already parking on this site.

Since the existing plus proposed trip generation is forecast to be well below both the AM and PM permitted peak hour trips, it is our opinion that no modification is required to the previously issued TMP.

For the purposes of the remainder of the study, to be conservative the trip generation using the previous 2001 TIS was used since it is slightly higher than the trip generation using the ITE rates.

Trip Distribution and Assignment

GP has assumed that all trips are primary in nature, with the sole purpose of going to and from the site. The trip distribution and assignment has been based on the existing traffic patterns and is shown on the attached Figure 6.

2022 Postdevelopment Design Hour Volumes

The 2022 Predevelopment Design Hour Volumes (DHV) shown on Figure 5 have been combined with the traffic forecast for the development shown on Figure 6 to yield the 2022 Postdevelopment DHV shown on the attached Figure 7.

Capacity Analysis

GP completed capacity analyses for the site driveways using Synchro/SimTraffic computer analysis software with and without the hospital expansion. Level of service rankings are similar to the academic ranking system where an 'A' is very good with little control delay and an 'F' represents very congested traffic conditions. If the level of service falls below a 'D,' an evaluation should be made to determine if mitigation is warranted. The following tables summarize the relationship between control delay and level of service for signalized and unsignalized intersections.

Level of Service Criteria for Signalized Intersections

Level of Service	Control Delay per Vehicle (sec)
A	Less than 10.0
B	10.1 to 20.0
C	20.1 to 35.0
D	35.1 to 55.0
E	55.1 to 80.0
F	Greater than 80.0

Level of Service Criteria for Unsignalized Intersections

Level of Service	Control Delay per Vehicle (sec)
A	Less than 10.0
B	10.1 to 15.0
C	15.1 to 25.0
D	25.1 to 35.0
E	35.1 to 50.0
F	Greater than 50.0

The results of the capacity analysis are summarized as follows. The detailed analyses are attached.

Level of Service Summary

Approach	Level of Service			
	AM Pre	AM Post	PM Pre	PM Post
Fore River / North Driveway (unsignalized)				
Driveway WB	A	A	A	A
Fore River NB	A	A	A	A
Fore River SB	A	A	A	A
Fore River / South Driveway (signalized)				
Driveway WB	B	B	B	B
Fore River NB	A	A	A	A
Fore River SB	A	A	A	A
Overall	**A**	**A**	**A**	**A**

As shown in the table, the two site driveways are forecast to operate at high levels of service both before and after the campus expansion is completed. The expansion is not forecast to change the levels of service at either site driveway.

Queuing Analysis

GP completed queuing analyses for the site driveways using the same Synchro/SimTraffic used to complete the capacity analysis with and without the hospital expansion. The queue analysis involves comparing the 95th percentile queue length to the available storage length. The following table summarizes the storage lengths and the 95th percentile queue lengths for the two site driveways:

Queue Analysis Summary

Approach	Storage Length (ft)	95th Percentile Queue Length (ft)			
		AM Pre	AM Post	PM Pre	PM Post
Fore River / North Driveway (unsignalized)					
Driveway WB	NA	45	60	60	80
Fore River NB R	170	5	15	5	5
Fore River SB L	270	55	65	40	55
Fore River / South Driveway (signalized)					
Driveway WB L	NA	55	65	55	75
Driveway WB R	100	15	25	40	50
Fore River NB R	400	--	--	--	--
Fore River SB L	500	35	40	15	25

For the purposes of queue length evaluation, the length of one car and the associated space between cars is considered to be 25 feet. The 95th percentile queue lengths are forecast to increase by one vehicle or less from the predevelopment to the postdevelopment conditions. Additionally, the available storage lengths can accommodate the 95th percentile queue lengths after the expansion is completed. This analysis reflects timing changes from pre to post development conditions.

Lane Warrant Analysis

GP would typically complete a lane warrant analysis for Fore River Parkway at the site driveways to determine if left or right turn auxiliary lanes are warranted. However, Fore River Parkway at both site driveways has both left and right turn storage lanes at both site driveways, so no lane warrant analysis was required.

CONCLUSIONS / RECOMMENDATIONS

The following is a summary of the conclusions and recommendations based on the parking and driveway mitigation analyses:

1. The recommended on-site parking supply after the construction of the proposed campus expansion and including adjustment for "practical capacity" is 831 to 851 parking spaces. The expansion will supply 857 parking spaces, a surplus of 6 to 26 spaces more than what is needed.

2. The campus expansion and ASC facility is forecast to generate 175 trip ends during the AM peak hour of the adjacent street and 180 trip ends during the PM peak hour of the adjacent street. In reviewing the previously issued MaineDOT Traffic Movement Permit for this

project, the site is forecast to still be well below the permitted trip generations and therefore will not require any modifications to the permit.

3. The MaineDOT crash data indicates that there are no high crash locations in the vicinity of the site.

4. The intersections of Fore River Parkway with the site driveways are forecast to operate at acceptable levels of service with no additional mitigation required.

TRANSPORTATION DEMAND MANAGEMENT

The following statements are provided in accordance with the Section 1.13 of the Technical Manual pertaining to Transportation Demand Management (TDM);

TRANSPORTATION

1.13.1 Transportation Narrative –

Every TDM plan shall describe how the project fits within the multimodal transportation system serving the district in which the development is located. The narrative should address the specifics of the use, occupants, visitors, and location of the development and how it is anticipated to relate to its transportation context.

Mercy expects to operate the Fore River Campus in a manner that promotes transportation demand alternatives to the extent practicable, given the use and inherent conditions associated Acute care and Outpatient health services, staff work hours[1] and overall hospital campus visitation. A fundamental result of the relocation of Mercy programming from the State Street facility to the Fore River Campus will be decreased traffic resulting from Mercy State Street operations. This action alone will result in significant shifting of long standing Mercy traffic from the Portland Peninsula interior and specifically State and High Streets, to the Fore River Parkway and its direct connectivity to the regional highway system. The State Street neighborhood will dramatically benefit from decreased emergency services traffic and overall parking demand along neighborhood streets. Further, the Phase 2 development will not result in increased traffic pressure on the Peninsula as a whole, since Mercy has always been a valued existing land use that has generated traffic on the Peninsula. Simply, the move results in an improvement for Mercy generated traffic as it utilizes the direct highway connectivity and ample capacity of these highways and the Fore River Parkway. These circumstances likely provide greater overall benefit than what will be achieved through TDM, although TDM remains a valuable secondary source of transportation and trip generation management.

The Fore River campus also benefits from proximity to the METRO service and this will continue into the future, particularly with updated METRO routing and positioning of multiple stops along the Parkway expected in the future. The ability for both staff and patients to use METRO and public transportation associated with the nearby Transportation Terminal is unique to the Fore River Campus and Mercy will seek to take advantage of these transportation resources ever more greatly into the future.

In addition, Mercy continues to promote the shifting of various operational and administrative functions to their outpatient facilities in surrounding Portland

[1] Acute care hospital settings and workforce hours are characterized by shift work, per diem staff and irregular patient load, thus contributing to challenges of a traditional TDM plan.

Communities and/or work from home telecommuting opportunities, thus resulting in decreased traffic overall to the Portland Peninsula.

Ultimately Mercy's TDM will include strategies that encourage employees to use alternatives to driving to work unaccompanied. For example, employees participating in a ride share program currently benefit from designated spaces at the northwest parking lot, nearest the MOB and thus do not need to park in the south parking lot[2]. This will enable Mercy and other tenants to successfully provide parking to all employees, visitors, patients, and physicians in the designed parking plan. Mercy also maintains bike racks at the front of the hospital and near the staff entrance at the south end of the hospital building. Bicycle riding staff have the availability of staff locker room facilities for changing and showering. Mercy routinely provides Taxi vouchers to patients on an as needed basis and they have promoted bus pass programs in the past. An updated Transportation Demand Management Plan is currently underway and will be shared as it becomes available. In the interim the accompanying copy of the original TDM approved in 2006 is provided for initial review.

[2] There are approximately 12 designated spaces for rideshare vehicles to park closer to the MOB/Hospital than the south parking lot.

Alternative Transportation/Travel Demand Management Plan

TDM Objective: To establish a set of strategies that encourages Mercy employees to use alternatives to driving to work unaccompanied. This would enable Mercy to successfully provide parking to all employees, visitors, patients, and physicians in the designed parking plan, which has been established at 5% below Mercy's anticipated parking capacity need.

The literature on travel demand management (TDM) identifies three basic goals for TDM programs:

1. decreasing driving alone
2. reducing the number of trips per week
3. reducing the number of peak hour trips

Goals:
Mercy's Alternative Transportation/Travel Demand Management Plan includes objectives and strategies for each goal:

Strategy	Objective	Tactics
Decrease driving alone	• Establish and market a Mercy Rideshare Program	• Use Mercy Intranet as a portal for an in-house rideshare electronic "matching program"; market through employee orientation program. • Provide incentives for carpooling, such as preferential parking for carpools of 2 or more persons at Fore River site, or monthly prize raffles. • Evaluate financial incentives for car pooling.
	• Promote use of public transportation to Mercy campus	• Promote public transportation alternatives through employee newsletters, intranet, and employee orientation. • Offer employees a 50% subsidy for use of monthly bus passes; investigate using a Section 132F Plan • Encourage managers to review work schedules and provide employee flexibility in work start times to meet bus schedules. • Meet with public transportation providers to review existing service levels and opportunities to improve service levels.
	• Promote walking and bicycle use.	• Ensure availability of bike racks and shower facilities. • Construct pedestrian connector and encourage its use.

Stagger the arrivals at Mercy Fore River	• Increase use of compressed work schedules. • Increase use of flexible hours	• Expand use of 4/10 and 3/36 work schedules to departments beyond nursing (currently over 80% of nurses are on compressed schedules) • Encourage managers to evaluate opportunities for increased use of flexible hours.
Reduce peak hour trips	Continue to refine three-shift schedule.	• Encourage managers to evaluate opportunities to shift employee schedules away from traditional patterns.

Implementation:
Mercy Fore River will target formal implementation of the Plan on with the opening of the new facility.

Measures:
Given that the current parking plan is sized at 5% below predicted need, Mercy will strive to have a parking use rate of 95% or lower at all times (or establish a confidence level of 95% that a space is available for the "next arriving vehicle"). Mercy will also strive to have zero parking complaints related to availability of spots (vs. proximity of spots).

Monitoring:
Annually, covering all shift times, Mercy will monitor parking space usage and traffic turnover to determine traffic flow and lot usage against hospital staff and visitor traffic. The responsibility for this function will be held by the Director of Plant and Engineering who will work with the Manager of Security to implement monitoring plans. These will include examining parking space vacancy rates/shifts in comparison to the numbers of employees and patients. Mercy's monitoring will be implemented in a way that reviews parking lot usage during peak times as well as different seasons. Mercy will use direct feedback as well as patient and employee satisfaction surveys, to monitor parking complaints.

Fall Back Alternatives:
In the event that TDM efforts are not successful or successful enough, Mercy would use some combinations of fallback alternatives, such as remote parking with shuttles or seeking additional parking on-site. Ultimately, the parking management plan, and thus the TDM plan, calls for a parking garage with implementation of Phase II.

Att. N

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT, CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MASSACHUSETTS 01742-2751

REPLY TO
ATTENTION OF

RECEIVED NOV 17 2017

Regulatory Division
CENAE-RDC

David B. Van Slyke
Preti, Flaherty, Beliveau & Pachios, LLP
One City Center
Portland, Maine 04101

Dear Mr. Van Slyke:

This refers to Department of the Army permit number NAE-2012-00084, which authorized your client, Mercy Hospital, to fill approximately 3.49 acres of freshwater wetland adjacent to the Fore River at Portland, Maine in order to expand an existing hospital complex.

In accordance with your recent request, the time limit in which to complete the work authorized by the permit is hereby extended to December 31, 2022.

All other conditions of the permit remain in force and effect.

BY AUTHORITY OF THE SECRETARY OF THE ARMY:

Frank J. Del Giudice
Chief, Permits & Enforcement Branch
Regulatory Division

DEPARTMENT OF THE ARMY
NEW ENGLAND DISTRICT CORPS OF ENGINEERS
696 VIRGINIA ROAD
CONCORD, MA 01742-2718

OFFICIAL BUSINESS

CENAE-R/CODE 450



David B. Van Slyke
Preti, Flaherty, Beliveau & Pachios, LLP
One City Center
Portland, Maine 04101

RECEIVED NOV 17 2017

04101-419399

ENVIRONMENTAL AND LANDSCAPE FEATURES

The following statements are provided in accordance with the Section 14-526 of the ordinance.

(b) Environmental Quality Standards

Preservation of Significant Natural Features (14-526 (b) 1), if applicable

- *Trees, plants, habitats listed on State or Federal list of endangered or threatened*
- *High and moderate value waterfowl and wading habitat*
- *Aquifers on Casco Bay Islands*
- *Waterbodies (including wetlands, watercourses, significant vernal pools and floodplains)*
- *Proposed preservation areas and protection measures*
- *Documentation from environmental consultants, determinations from applicable state agencies*

1. *Preservation of Significant Natural Features:*

   - In 2012, Normandeau Associates completed an onsite investigation to delineate wetlands and to identify resources that may be subject to regulatory review as part of the proposed amended development process. A copy of their wetlands report is included with the original submission material on file with the City. The wetlands were delineated according to the 1987 Corps of Engineers Wetlands Delineation Manual (Technical Report Y-87-1) as clarified in Performance Standard and Supplemental Definitions for use with the 1987 Corps Manual (August 1, 1995). This multi-parameter approach uses the characteristics of vegetation, soils and hydrology in determining wetland boundaries.

     The existing site was historically used as a railyard, a construction staging site, a materials stockyard and a borrow pit among other land uses. Since Mercy's acquisition and development of the Phase 1 Hospital, the site has undergone significant change and aesthetic improvement. The former borrow pit has largely reverted to a naturalized condition with pond features that have supported wildlife habitat and aesthetic appeal over time. However, Mercy has sought and has been granted approval by the MDEP and USACOE to fill in the former borrow pit entirely to achieve their proposed long-term development goals. Thus, this part of the site will be altered as part of the current development proposal. Other important site areas include the waterfront zones associated with the existing northern and southern open spaces that will remain place. The northern open space contains 3.32 acres of open area that contains a shorefront pedestrian path and several seating areas overlooking the Fore River. This open space is access from the Fore River Parkway Trail and is open to the public. The southern open space, located just south of the Veterans Bridge contains 0.99 acres also overlooking the Fore River.

     The current MDEP and USACOE permits authorize Mercy's intentions to fill the previously existing gravel pit area for the proposed development activity. As the current plans do involve changes to the development plan previously approved, Mercy will be filing a project amendment with each agency and these applications are expected to be reviewed concurrently with the Site plan application to the City.

- The does not contain any population of trees or plants that are on the official list of endangered and threatened plans in Maine. Nor does the site contain any habitat for endangered or threatened species, high or moderate value waterfowl and wading bird habitat or significant wetlands or vernal pools.

Landscaping and Landscape Preservation (14-526 (b) 2 a)

- *Preservation of trees and preservation within required zoning setbacks (Technical Manual, Section 4)*
- *Protection measures of existing vegetation during construction*
- *Protection measures within Shoreland Zone, if applicable*

2. Landscaping and Landscape Prevention:

a. Landscape Preservation.

(i) The existing tree coverage within the basin area will be largely removed to allow for filling of the pond. A very limited number of larger trees at the very top of the basin perimeter may be retained when possible, however trees along the embankments and in the pond will be removed. A number of trees and shrubs will be removed around the parking lot within which the hospital expansion will be constructed. The majority of the site will remain unchanged with the now well-established vegetation that was planted in 2008 now coming to maturity and providing a well screened and aesthetically appealing site, particularly for the Portland Peninsula.

(ii) Not applicable.

(iii) There is no specific vegetation protection required on the site.

(iv) The Applicant will request a waiver from this standard.

(v) Not applicable.

Landscaping and Landscape Preservation (14-526 (b) 2 b i)

a. Screening and buffering of service areas and between non-residential and residential uses
b. Planting plans with plant schedule and sizes

2. Landscaping and Landscape Prevention:

b. Site Landscaping:

(i) Landscaped Buffers:

(a) There is an existing loading area at the rear of the existing hospital and this area will remain open. All trash collection will be within a secure area at the rear of the hospital at ground level and is relatively screened from view simply by topography.

(b) The site is fully landscaped and contains significant tree screening along all sides.

(c) Not applicable.

(d) Not applicable.

Landscaping and Landscape Preservation (14-526 (b) 2 b ii)

Parking Lot Landscaping, if applicable

- *Landscaped islands within parking areas (Technical Manual, Section 4)*

2. Landscaping and Landscape Preservation:

a. Site Landscaping.

(ii) Parking Lot Landscaping:

a) thru d) The proposed parking lots will contain landscaping that is consistent with the existing parking lots on the campus. This landscaping is maintained in a well-manicured manner and is considered exemplary for the Portland peninsula.

Street Trees (14-526 (b) 2 b iii)

- *Existing Heritage or Feature Trees on site and measures to preserve*
- *Identify street trees on the plan meeting the site plan and Technical Manual standards (Section 4) or identify alternative measures, if applicable*

2. Landscaping and Landscape Preservation:

b. Site Landscaping.

(iii) Street Trees:

(a) The Fore River Parkway contains a large number of trees along the waterfront side of the road, between the Parkway Trail and the road. Along the Mercy frontage there are a substantial number of existing trees and shrubs between the north parking lot and the Parkway. There is a maintained lawn area along the site frontage between the two site driveways and more trees and shrubs somewhat interior to the site. The south parking lot contains significant tree and shrub plantings that meet or exceed the City standards including street trees that extend up to the Veterans intersection. The landscape architect will coordinate plantings with the City arborist.

ENVIRONMENTAL AND STORMWATER

The following statements are provided in accordance with the submission checklist and Section 14-526 of the ordinance.

(b) Environmental Quality Standards

Water Quality, Stormwater Management and Erosion Control (14-526 (b) 3 a)

- *Stormwater report in compliance with Section 5 of Technical Manual and DEP Chapter 500 stormwater for basic, general and flooding standards, as applicable*
- *Erosion control plan and measures*
- *Evidence of compliance with Urban Impaired Stream Standards pursuant to DEP Chapter 500 stormwater, as applicable*
- *Subsurface sanitary sewage disposal and groundwater protection*

3. Water Quality, Stormwater Management and Erosion Control:

a. Stormwater:

(i) The Mercy Fore River Campus contains an expansive drainage system for the collection, treatment and conveyance of stormwater runoff to the Fore River. The campus setting is located adjacent the Fore River, which is under tidal influence, thus, Mercy has previously requested and been granted, a waiver of the flooding standards under both the State and Local stormwater rules. The existing site was developed in 2006, and at the time the water quality standards involved the Total Suspended Solids (TSS) requirements. To achieve compliance, the development included multiple hydrodynamic separators and vegetated treatment swales that function to remove suspended sediments from the runoff flow leaving the site. For the proposed Phase II hospital expansion and Ambulatory Surgical Center, a wet pond will be constructed within the southwest corner of the existing basin. The wet pond has been designed to comply with the MDEP BMP manual design guidelines. The existing systems and TSS devices will remain in place and the new wet pond will function to treat the new impervious areas created as part of the Phase II development. A full Stormwater management report is contained within the application materials and the report provides evidence for compliance with the City's Stormwater management regulations.

(ii) The site's stormwater runoff is collected and conveyed by multiple closed systems that ultimately discharge to the Fore River. The north end of the site basically drains thru a closed drainage system and two hydrodynamic separators to a 36" storm drain across the Parkway and into parallel vegetated treatment swales before discharging into the River. The central area of the site drains to a closed drainage system and an 18" storm drain that discharges to the River. The existing pond discharges into a closed pipe system that also crosses the Parkway and discharges to the River. Finally, the south parking lot drainage includes a closed drainage system, hydrodynamic separator and discharge into parallel vegetated treatment swales within the south open space, before discharging to the river. These systems are adequately sized to handle the development's stormwater runoff

conditions. The proposed wet pond will serve as a quantity control/flood storage measure to reduce the peak flow to the existing drainage system.

(iii) The existing drainage systems within the Fore River Parkway are adequately sized to handle the increase in runoff volume and peak discharge. The stormwater management report contains HydroCAD calculations that evaluate the 25 and 100-year storm events and system capacities. The results indicate there is adequate capacity in these systems.

(iv) The existing drainage systems within the Fore River Parkway are adequately sized to handle the increase in runoff volume and peak discharge.

b. Flooding Standards:

The project will ultimately meet the General Standards under Chapter 500, Stormwater Law (City of Portland Technical Manual, Section 5 – Portland Stormwater Management and MaineDEP Ch. 500, 3 (e)). The Basic Standards will apply to this project and a detailed Soil Erosion and Sediment Control Plan has been developed to address this.

c. Not applicable, not located within an Urban Impaired Stream.

d. Not applicable – not a residential development.

e. Construction at the site will be required to follow Local, State and Federal regulations and will be undertaken under the supervision of a suitably qualified environmental professional. Post-construction activities at the site do not pose a risk of groundwater contamination.

f. The project will be connected to the public sanitary sewer system which is adequately sized for the anticipated project flows.

TRANSPORTATION

The following statements are provided in accordance with the Section 14-526 of the ordinance.

TRANSPORTATION

(a) Transportation Standards

Transportation Analysis – Traffic Impact (14-526 (a) 1)

- *Provisions for pedestrian, bicycle, vehicle, and loading circulation and incremental volume of traffic impacts*
- *Traffic Impact Study (Technical Manual, Section 1) if applicable*

1. *Impact on Surrounding Street Systems:*

   The surrounding street system consists of the Fore River Parkway and the I-295 Interchange to the west and the Veterans Bridge Intersection to the East. The proposed use is considered consistent with the zoning and objectives identified in various City reports; therefore, we believe it results in no significant impact to the surrounding street system. There will continue to be two primary driveways into the site from the Fore River Parkway and each will have sight distance in each direction exceeding 200 feet. The easterly signalized driveway provides primary access from points east of the site, including South Portland, Cape Elizabeth, Scarborough, and the Portland Waterfront. The westerly, unsignalized driveway provides for access from points north and west including from I-295, Portland, Falmouth, Westbrook, etc. The westerly driveway restricts exiting movements to right turns out only. These existing driveways will continue to operate at an acceptable level of service upon the completion of the Phase 2 Hospital relocation, based on the relatively low traffic volumes on the Fore River Parkway and considering the design volumes originally contemplated for that roadway. Gorrill Palmer is currently completing a driveway analysis to evaluate the operating conditions at each driveway and will be providing this for City review under a subsequent submission.

2. *Traffic Impact Study*

   A Traffic Assessment is underway by Gorrill Palmer and this assessment will include trip generation and accident information for the site and surrounding area. The Mercy site was originally approved for a Traffic Movement Permit in 2002 (Div. 06-00035-A-N) and it was permitted for 784 am and 687 pm peak hour trips during the adjacent street peak hours and 990 PM peak hour trips of the generator.

   Gorrill Palmer conducted turning movement counts in January 2017. Adjusting the counts for seasonal factors the actual trip generation is approximately 238 trips in the AM and 237 Trips in the PM peak hours. Thus, the site is well below the permitted trip generation leaving a significant credit for additional trip generation to apply to the proposed expansion and the proposed Ambulatory Surgical Center. The traffic assessment to be completed by Gorrill Palmer will discuss this information and findings in greater detail.

   Any further traffic assessment is subject to the City's peer review.

Access and Circulation (14-526 (a) 2 a)

- *Access and internal circulation, addressing ADA access*
- *Access and egress impacts on traffic flows*
- *Description and use of drive-up features, if applicable*

3. Access and Circulation:

a. Site Access and Circulation.

(i) Vehicular access to the site remains unchanged and includes two primary driveways off the Fore River Parkway. A 24' wide paved loop drive around the site perimeter provides clear and safe access to the interior parking lots. Directional and traffic control signage has been in place and helps provide direction to patients/visitors and also controls onsite speed and circulation. The proposed hospital expansion will involve a dedicated drive off the perimeter loop road and parking for ER visitors/patients as well as for ambulance services. Mercy is currently working on an updated wayfinding sign package to replace the existing signs as part of a Mercy rebranding effort, now that they are part of the Northern Light Health family.

(ii) We believe the primary points of access will not conflict with any existing turning movements on the Parkway or within the internal circulation drives as well as avoid conflict with any of the existing traffic flow on nearby streets.

(iii) Not applicable as there are no drive through features proposed.

Loading and Servicing (14-526 (a) 2 b)

- *Loading and servicing needs, route and travel way geometrics for deliveries*
- *Turning templates for delivery vehicles, if applicable*

2. Access and Circulation:

b. Loading and Servicing:

(i) Adequate provisions are made at the site for periodic loading from various size trucks to service the Hospital and ASC. There are existing unloading facilities including multiple dock spaces to accommodate Hospital truck traffic at the rear of the existing hospital building. Larger delivery vehicle access is not required for the new hospital building, although ambulance traffic has been accommodated to the ER entrances. The ASC building will have a small loading area at the rear of that building. Given the site's proximity to I-295 and the Veteran's Bridge, the overall accessibility for loading and servicing to the property is considered excellent.

Sidewalks (14-526 (a) 2 c)

- *Sidewalks and condition along street frontages and internal walkways*
- *Engineered details for ADA ramps and public sidewalk details meeting sidewalk materials policy and ADA ramp construction details as applicable (Technical Manual, Section 1)*

2. Access and Circulation:

c. Sidewalks:

(i) The existing site has sidewalks throughout for complete access around the property. There is a pedestrian crossing signal at the southerly driveway on the Parkway which connect pedestrians to the Fore River Parkway Trail and to points north and south i.e. Veterans Bridge and Congress Street. The Parkway was not constructed with a sidewalk along the site frontage except between the southerly driveway and the Veteran's Bridge Intersection. The applicant is requesting a waiver to provide curb and sidewalk from the southerly driveway to the north end of the property, as there is no curb in the area today and no drainage systems.

Public Transit (14-526 (a) 3), if applicable

- *Existing available transit services*
- *Proposed site plan design details, such as easement, pad base, and shelter*

3. Public Transit Access.

a. The Fore River Campus is currently served by METRO bus service along the METRO #1 Congress Street route. The Bus service routes through the south entrance off the Fore River Parkway and stops for drop off/pick up at an existing bus shelter adjacent the Medical office Building. The bus exits the north driveway and proceeds to Congress Street.

b. There is an existing METRO stop and shelter located on the site adjacent the existing Medical Office building.

c. The existing bus stop is on the existing sidewalk system that connects the buildings as well as to the Fore River Parkway sidewalk system.

Off-Street Parking: Vehicle & Motorcycle/Scooter (14-526 (a) 4 a and c)

- *Expected parking demand, proposed parking supply, ADA parking, and applicable Zoning Requirements*
- *Address Technical Manual standards (Section 1) for curb cut separation and parking lot layout and locate on site plan*

4. Parking.
a. Location and Required Number of Vehicle Parking Spaces.
c. Motorcycles and Scooter Parking.

i. Gorrill Palmer has conducted a parking study on the campus. In January 2017, GP conducted a parking inventory across the campus to determine the parking supply and demand conditions. There are currently 762 spaces on the campus. At the time of the parking counts, GP determined a peak demand to be approximately 525 spaces, thus leaving a substantial volume of available parking.

The ordinance requirements for onsite parking are as follows:

Land Use	Area (SF)	Ordinance Requirement	Spaces Required
Existing Hospital	138,099	1 sp/500 SF	276
Existing MOB	82,186	1 sp/400 SF	205
Proposed Hospital Expansion	54,889	1 sp/500 SF	110
Ambulatory Surgical Center	34,987	1 sp/400 SF	88
		Total	**679**

Upon completion of the proposed expansion and ASC, the total onsite parking supply will be 858 parking spaces which exceeds the ordinance requirements. On the basis of the parking demand study performed by Gorrill Palmer, we believe there will continue to be more than adequate onsite parking available for the proposed Hospital expansion and ASC.

ii. Mercy provided a Transportation Demand Management Plan as part of the original Site plan process in 2006 and they continue to provide oversight of their TDM initiatives. An update to the TDM plan is currently underway and it will be submitted for review upon completion.

iii. Please see above.

iv. Parking aisles and dimensions on the existing parking lots meet the applicable standards. All new parking areas will continue to meet similar standards.

v. All new surface parking shall be paved.

The site plan has been developed to allow safe passage and parking for motorcycles and scooters within the surface parking lots.

Bicycle Parking (14-526 (a) 4 b)

- *Address bicycle parking requirements and identify locations on-site*
- *Construction details for bike racks (Technical Manual, Section 1)*

4. Parking.

b. Location and Required Number of Bicycle Parking Spaces.

The hospital currently provides several bike rack locations on the campus that satisfy the demand for bike parking. There is an existing rack at the north end of the existing hospital that will need to be relocated due to the expansion and the relocation is identified on the site plan. A second rack is located at the employee ground level entrance at the south end of the existing



Existing Bike Rack at North End of Hospital

hospital. This rack will remain in place. New bike racks will be provided at the ASC entrance area as identified on the site plan.

The applicant is requesting a waiver of the required number of bicycle parking spaces as that would exceed well over 50 bike spaces which is considered excessive for the Hospital use.



Existing Bike Rack at North End of Hospital

Snow Storage (14-526 (a) 4 d)

- *Management plan for snow removal and locate snow storage areas on plans*

4. Parking.

d. Snow Storage.

i. The Hospital campus includes a snow dump at the far south end of the site. Snow removal on the site will continue to be managed by contracted services and snow will be plowed and moved to this stockpile area in accordance with previously approved MDEP standards and requirements.

ii. The hospital provides snow removal on the pedestrian walks across the campus and removes snow to avoid displacement of any onsite parking.

Traffic Demand Management (TDM) (14-526 (a) 5), if applicable

- *Develop TDM with Trip Reduction Targets and Strategies*

5. Transportation Demand Management (TDM).

a. A Transportation Demand Management (TDM) Plan will be prepared and submitted for Planning review within the upcoming application review period. Mercy Hospital is currently reviewing and updating the original TDM plan associated with the Phase 1 development.

GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, Maine 04106
207.772.2515

Response to City (Peer Review) Request for Additional Information
Mercy Hospital Phase II Expansion – Portland, Maine
JN 3257.04

Date: November 14, 2019
Subject: Response to City's Peer Review Request for Additional Information
Mercy Hospital Phase II Expansion
To: Nick Munro, Northern Light Health
From: Randy Dunton, Gorrill Palmer

GP had submitted a Parking and Driveway Mitigation Evaluation for this project dated September 10, 2019. Mr. Errico requested additional information to supplement that submittal in an email dated October 24, 2019. For ease of review, we have repeated Mr. Errico's **requests** followed by our *response shown in italics*:

Request: The parking inventory for the site should be expanded to 6pm. The data presented indicates a peak parking demand at 2pm (the end of the survey). We would like to confirm that parking demand does not increase after 2pm. A graphic shall be provided that generally depicts the location of available spaces.

Response: To confirm the peak parking demand, additional occupancy counts were completed on Wednesday November 6, 2019 from 1:00 PM to 6:00 PM. The Lot numbers are consistent with the previous submittal. The following table summarizes that count data.

November 6, 2019 Parking Occupancy Count

Lot	*Total Number of Spaces Available*	*Number of Parked Vehicles*					
		1:00 PM	*2:00 PM*	*3:00 PM*	*4:00 PM*	*5:00 PM*	*6:00 PM*
1	*34*	*23*	*22*	*16*	*15*	*9*	*8*
2	*50*	*45*	*48*	*47*	*37*	*13*	*6*
3	*101*	*54*	*55*	*49*	*48*	*14*	*4*
4	*162*	*100*	*111*	*108*	*87*	*50*	*32*
5	*105*	*57*	*52*	*58*	*54*	*36*	*31*
6	*310*	*216*	*205*	*176*	*119*	*61*	*37*
Total	***762***	***495***	***493***	***454***	***360***	***183***	***118***

As can be seen from the above table, the peak parking demand of 495 spaces is less than the 514 spaces identified in the September 10, 2019 evaluation as the peak. It should be noted, that to be conservative, GP had increased the 514 spaces in the last submittal up to 525 spaces.

Request: For comparison purposes, parking demand estimates using the Parking Generation Manual, ITE, 5th edition shall be provided.

Response: The below compares the parking demand rate based on actual counts completed on site, the City Ordinance, and the ITE Parking Generation Manual, 5th Edition using Land Use Code 610 – Hospital and Land Use Code 720 – Medical-Dental Office Building.

Parking Rates (per 1,000 spaces)

	Based on Counts	*Ordinance*	*ITE*
Hospital	*2.54*	*2.0*	*2.25*
Medical Office Building	*2.13*	*2.5*	*3.23*

As seen from the above summary, the actual parking demand rate for the hospital is nearer the ITE than to the Ordinance and the MOB rate is much closer to the Ordinance than to the ITE.

Request: A pedestrian facilities/routing graphic for the entire site shall be provided with anticipated origin-destination patterns to and from each parking area.

Response:

See attached diagram.

Request: The Parking and Driveway Mitigation Evaluation report posted in ePlan does not include the noted Figures. Those should be uploaded. I would also suggest that printouts of the SimTraffic Model results be provided.

Response: To address this request, GP completed turning movement counts on Wednesday, November 6, 2019 at the two site driveways on Fore River Parkway from 7:00 AM to 9:00 AM and 4:00 PM to 6:00 PM. Wednesdays were identified by the Hospital as being their busiest day. The results of the counts are shown on the attached Figure 2. Similar to the previous submittal, the raw volumes were seasonally and annually adjusted, other development was added, and the proposed development was added to arrive at the postdevelopment traffic volumes shown on the attached Figure 7.

Capacity analysis was completed similar to the previous submittal and the computer printouts are attached. A summary of the results of the capacity analysis is provided in the following summary table.

Level of Service Summary

Approach	Level of Service			
	AM Pre	AM Post	PM Pre	PM Post
Fore River / North Driveway (unsignalized)				
Driveway WB	A	A	A	A
Fore River NB	A	A	A	A
Fore River SB	A	A	A	A
Fore River / South Driveway (signalized)				
Driveway WB	B	B	A	B
Fore River NB	A	A	A	A
Fore River SB	A	A	A	A
Overall	**A**	**A**	**A**	**A**

As shown in the table, the two site driveways are forecast to operate at high levels of service both before and after the campus expansion is completed. This is consistent with the results in the September 10, 2019 evaluations submitted to the City.

Request: In conjunction with site plan standards (see below) a traffic safety study shall be conducted at the High Crash Location (HCL) of Fore River Parkway and Congress Street.

Response: Per request, GP requested and received the latest collision diagram from the MaineDOT (attached) for the high crash location. Based on a review of that collision diagram, there are five patterns:

- *Congress Street Eastbound rear-end (12 crashes)*
- *I-295 southbound off-ramp rear-end (11 crashes)*
- *Congress Street eastbound through traffic angle crash with left turns from Fore River Parkway (3 crashes)*
- *Congress Street eastbound through traffic angle crash with southbound left turns onto Fore River Parkway (4 crashes)*
- *Right turns off Fore River Parkway onto eastbound Congress Street. (4 crashes)*

We offer the following for consideration:

- *The referenced site plan standards indicate the adjacent street. In our opinion, the Fore River Parkway / Congress Street intersection would not fall into that category given the significant I-295 ramps between the hospital and this intersection.*

- *This intersection is included in an existing MaineDOT / City corridor study to coordinate traffic signals from the intersection with Stevens Avenue to this intersection. That study will revise the timing and phasing of this intersection, which would be expected to address and change the existing crash patterns.*

UNION STATION PLAZA

MMC PARKING GARAGE (UNDER CONSTRUCTION 2019)

FERGUSON SUPPLY

EXISTING PERIMETER ACCESS ROAD

PAN AM RAILWAY

TYSON FOODS

COUNTY WAY

CUMBERLAND COUNTY JAIL

STAFF PARKING

PHASE 2 PROPOSED ASC BUILDING FOOTPRINT 17,574 GSF TOTAL AREA 34,987 GSF

PATIENT / VISITOR PARKING

PATIENT / VISITOR PARKING

PHASE 2 HOSPITAL EXPANSION FOOTPRINT 20,140 GSF TOTAL AREA 54,889 GSF

PHASE 1 EXISTING MERCY HOSPITAL 4 STORY BRICK BUILDING FOOTPRINT - 37,566 GSF TOTAL AREA - 138,099 GSF

PHASE 1 EXISTING MEDICAL OFFICE BUILDING 1 STORY BRICK FOOTPRINT - 20,047 GSF TOTAL AREA - 62,186 GSF

PATIENT / VISITOR PARKING

PATIENT / VISITOR PARKING

STAFF / PATIENT PARKING

STAFF PARKING

MAINTENANCE FACILITY

EXISTING SNOW STORAGE FACILITY

SOUTH OPEN SPACE

FORE RIVER TRAIL

EX. FORE RIVER TRAIL - 10' WIDE, SHARED USE

FORE RIVER MUD FLATS

FORE RIVER

FORE RIVER MUD FLATS

VETERANS MEMORIAL BRIDGE (FORE RIVER) U.S. ROUTE ONE

NORTH OPEN SPACE

FUTURE PEDESTRIAN CONNECTION

TYPICAL STAFF / PEDESTRIAN ACCESS ROUTE TO / FROM PARKING TO BUILDINGS

TYPICAL ACCESS ROUTES TO OPEN SPACE

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE

75 0 37.5 75 150

(IN FEET)
1 inch = 75 ft.

STATE OF MAINE
STEPHEN R. BUSHEY
11.04.19
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
1	11.04.19	PREPARED FOR L.O.R. #1 & SUBMITTED TO CITY

Issued For	Date	By
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB	Draft: CDD	Date: AUG. 2019
Checked: SRB	Scale: NTS	Job No.: 3257.04
File Name: 325704-MASTER PLAN.dwg		

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Drawing Name: Master Plan – Pedestrian Access Routes

Project: Fore River Campus Consolidation
Portland, Maine

Client: Northern Light Mercy Hospital
144 State Street, Portland, Maine 04101

Drawing No. FIG. 5

U:\3257.04_Mercy Hospital_Expansion_DD_Permits\STANTEC\civil\cadd\permit\dwg\325704-MASTER PLAN.dwg 11/4/2019 4:12 PM

Site Location

Figure No. 1



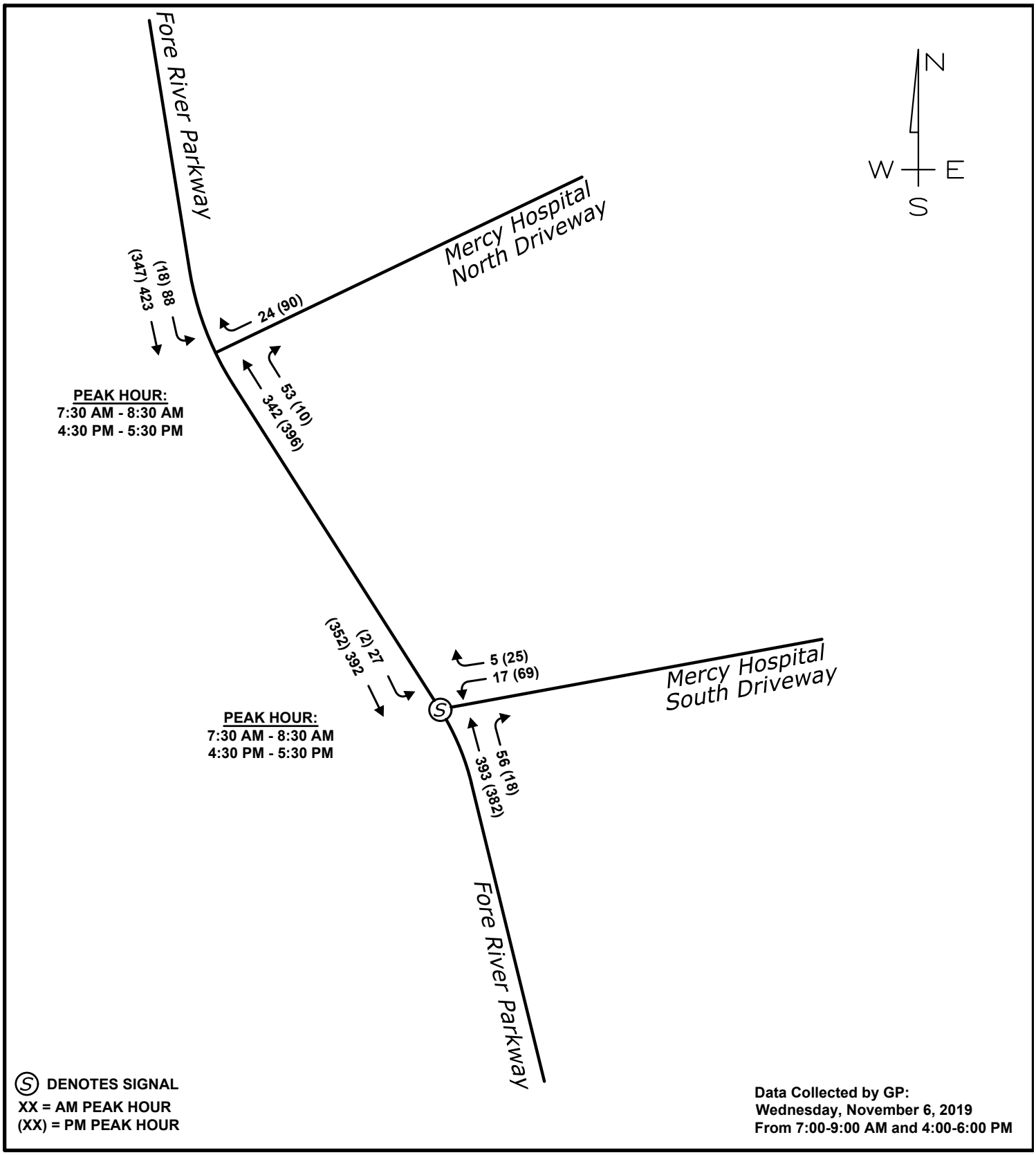
MERCY HOSPITAL
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Design:	TPG	Scale:	NONE
Draft:	TPG	Date:	11/6/2019
Checked:	RED	File Name:	Figure Set.dwg

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Raw Volumes

Figure No. 2



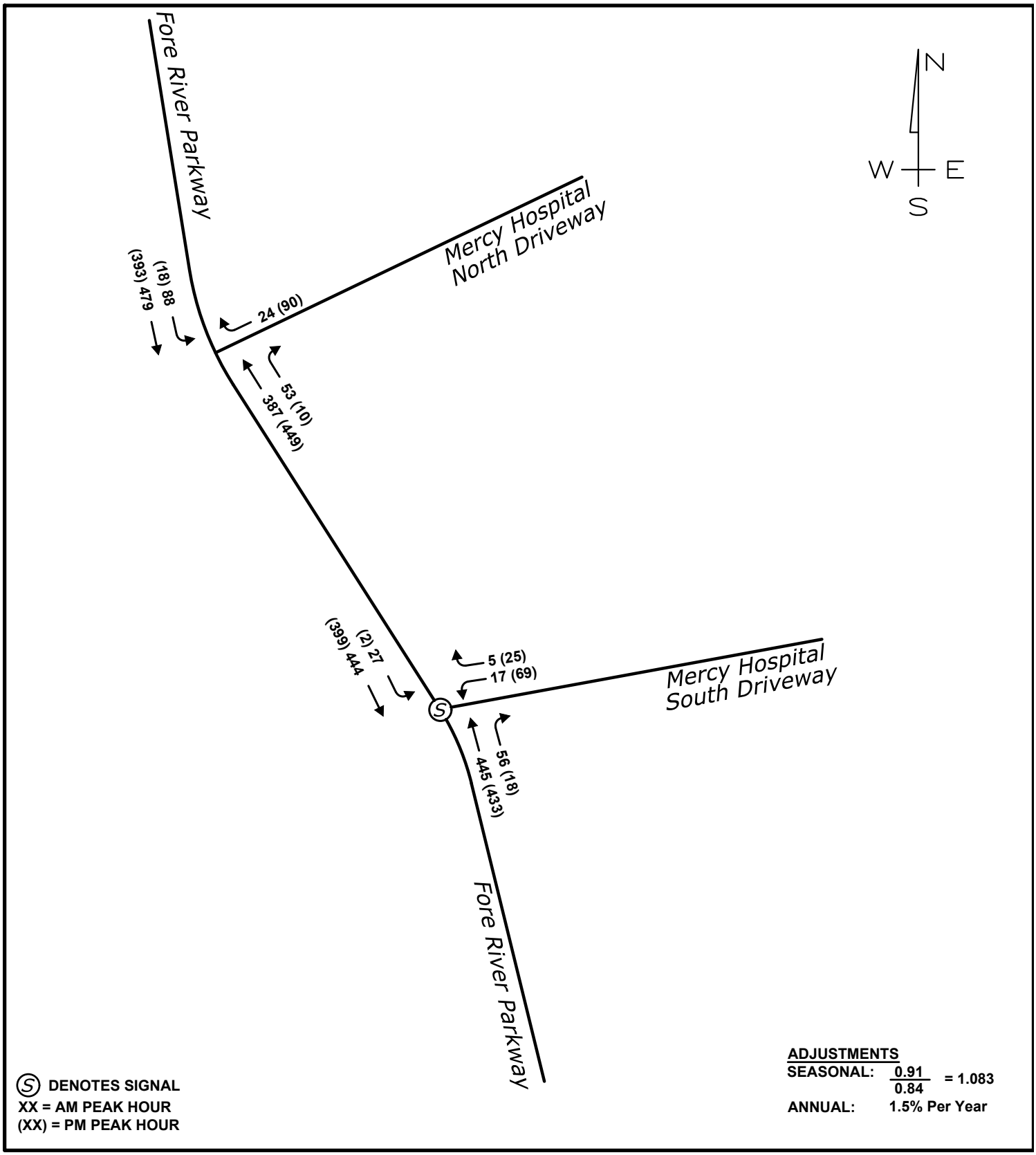
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Design: TPG Scale: NONE
Draft: TPG Date: 11/6/2019
Checked: RED File Name: Figure Set.dwg

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2022 Adjusted Volumes

Figure No. 3



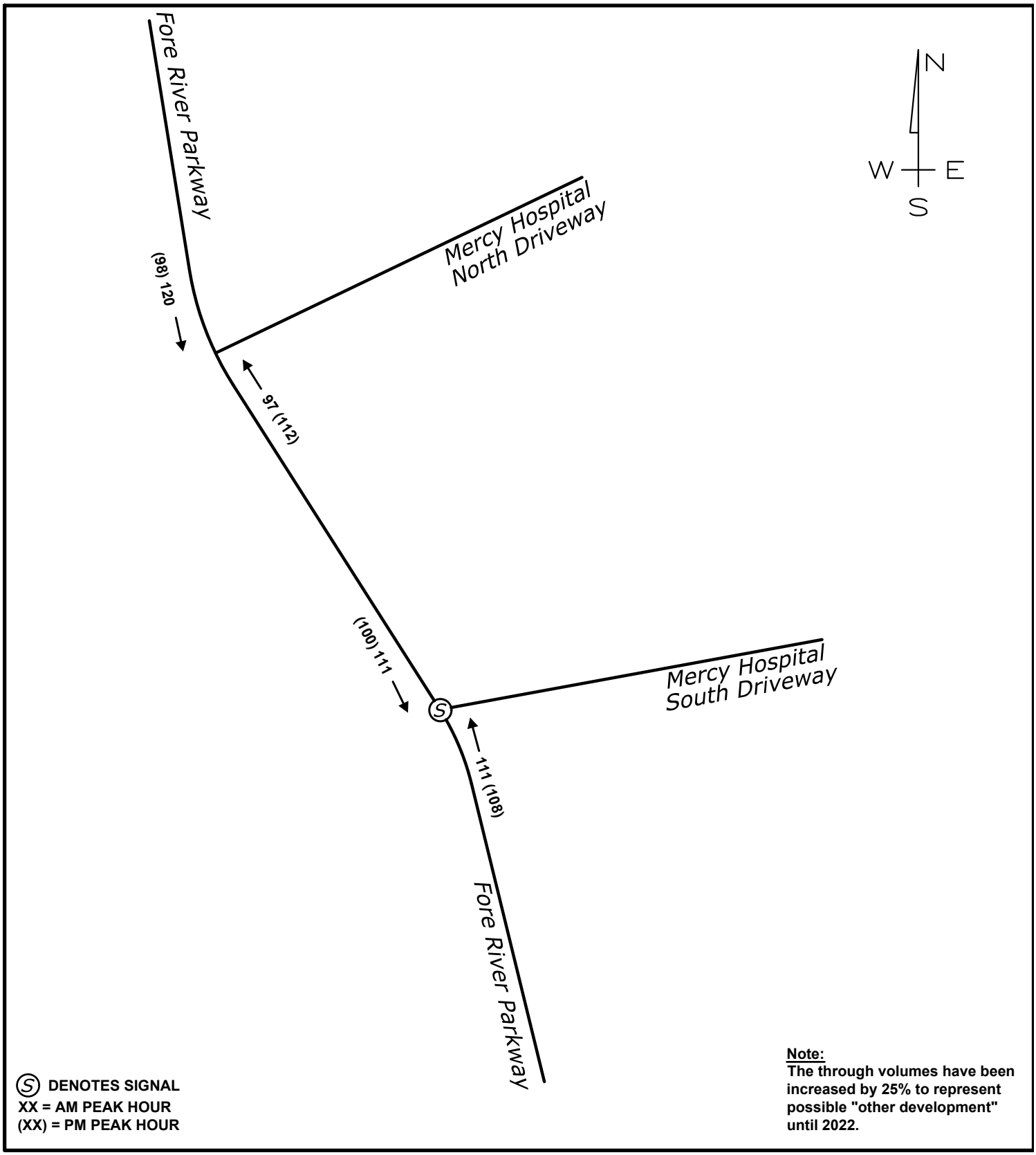
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Design:	TPG	Scale:	NONE
Draft:	TPG	Date:	11/6/2019
Checked:	RED	File Name:	Figure Set.dwg

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Other Developments

Figure No. 4



S DENOTES SIGNAL
XX = AM PEAK HOUR
(XX) = PM PEAK HOUR

Note:
The through volumes have been increased by 25% to represent possible "other development" until 2022.

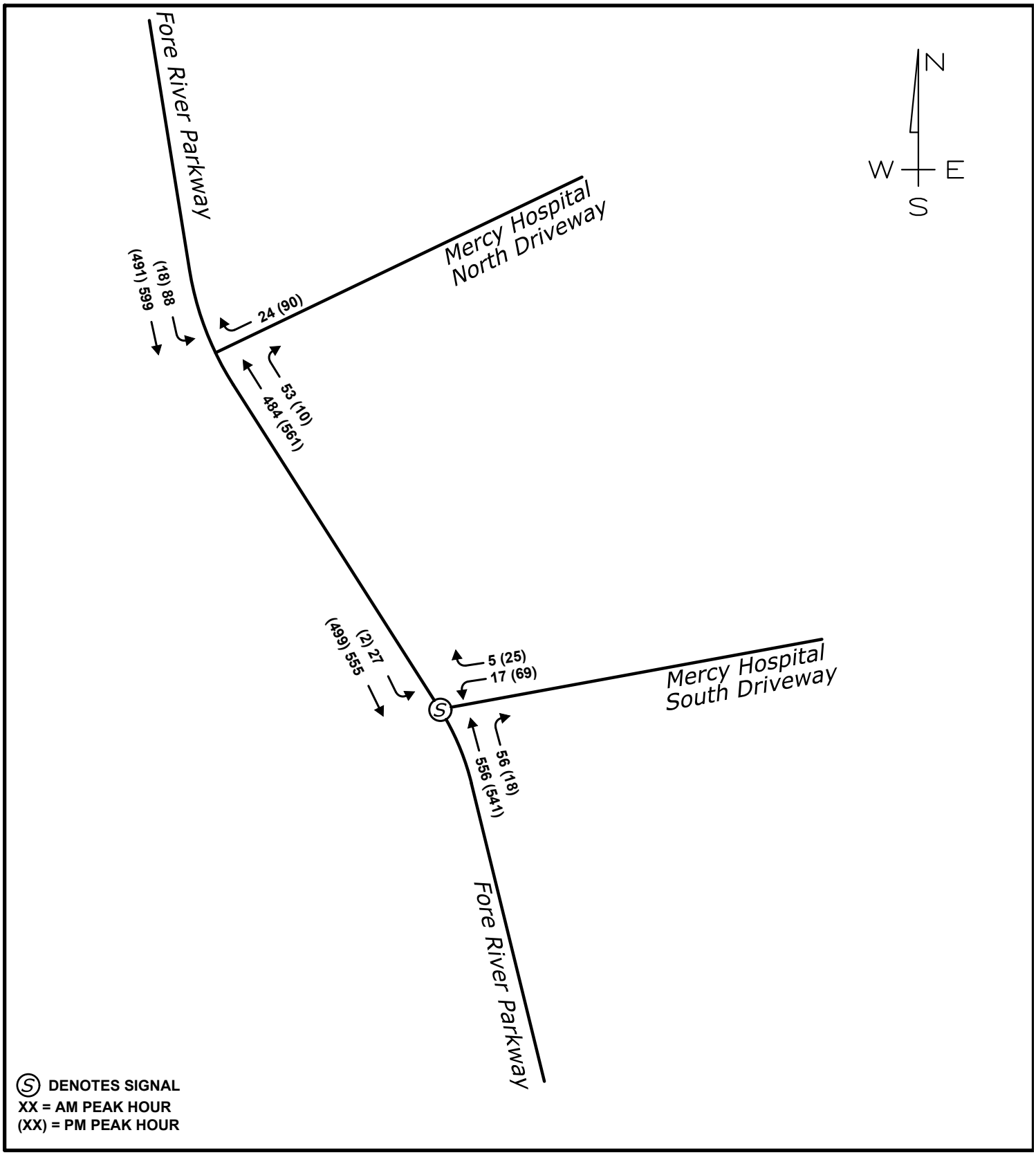
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Design: TPG Scale: NONE
Draft: TPG Date: 11/6/2019
Checked: RED File Name: Figure Set.dwg

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2022 Predevelopment DHV

Figure No. 5



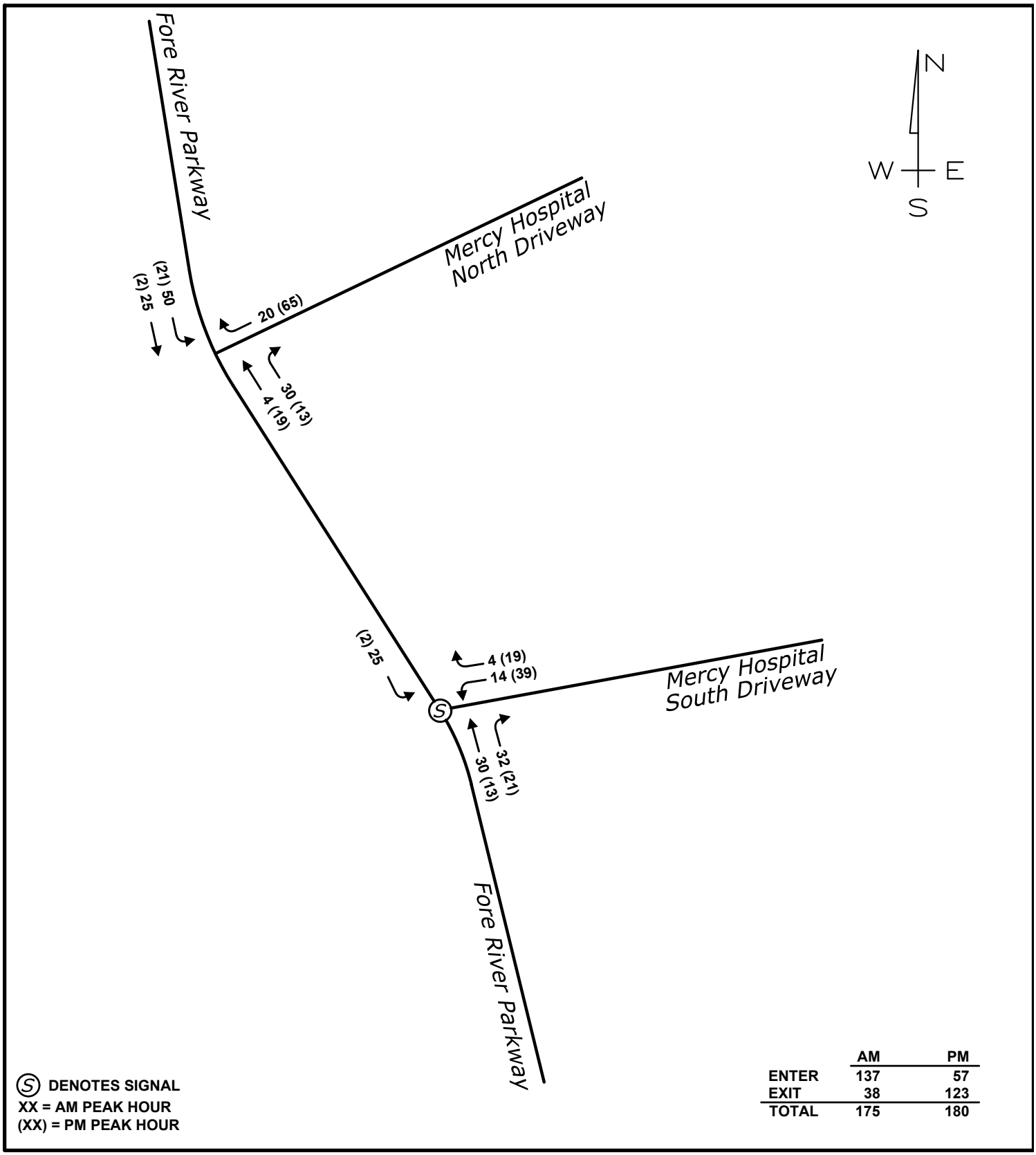
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Design:	TPG	Scale:	NONE
Draft:	TPG	Date:	11/6/2019
Checked:	RED	File Name:	Figure Set.dwg

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Trip Assignment

Figure No. 6



	AM	PM
ENTER	137	57
EXIT	38	123
TOTAL	175	180

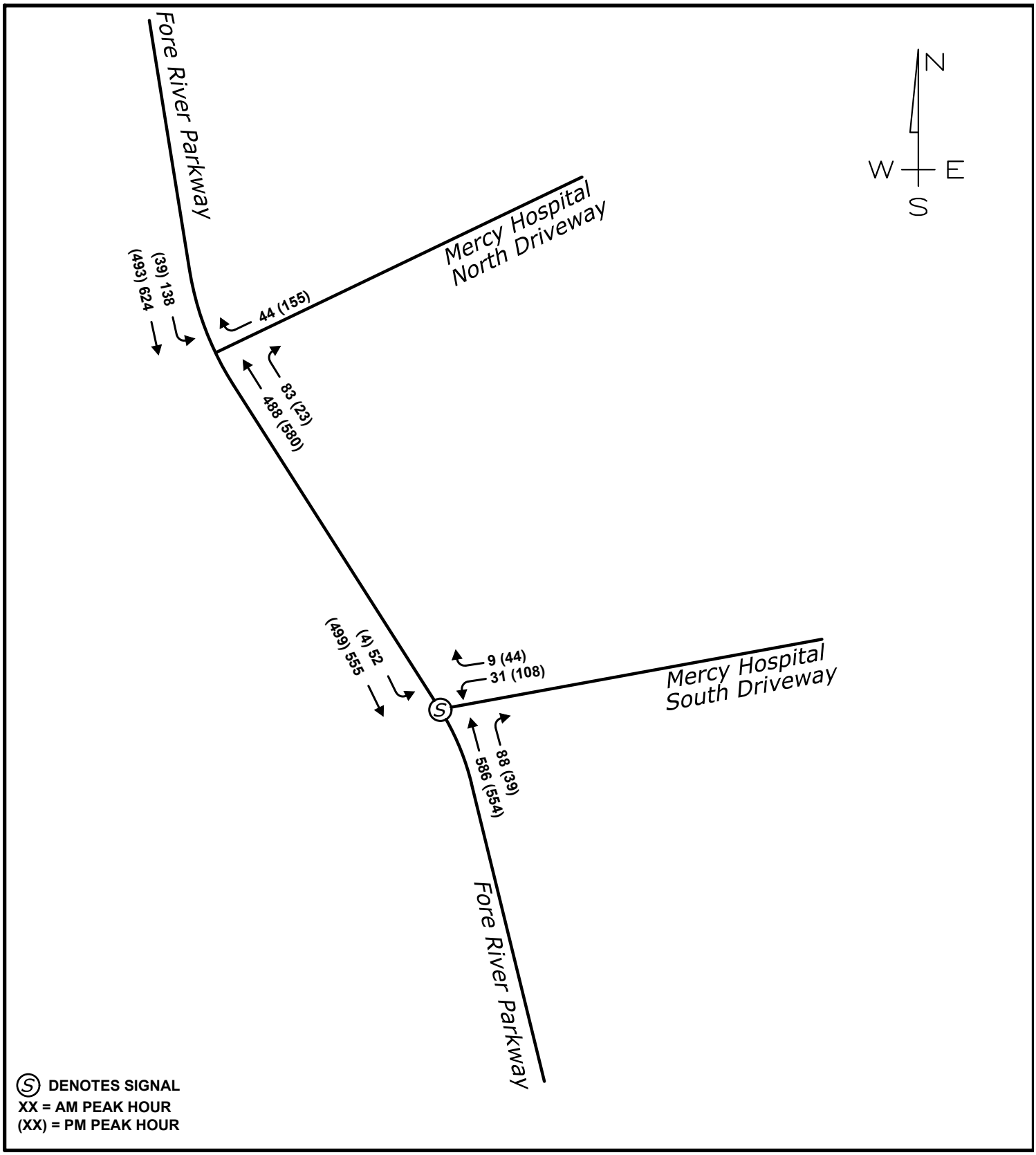
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Design: TPG Scale: NONE
Draft: TPG Date: 11/6/2019
Checked: RED File Name: Figure Set.dwg

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2022 Postdevelopment DHV

Figure No. 7



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Design:	TPG	Scale:	NONE
Draft:	TPG	Date:	11/6/2019
Checked:	RED	File Name:	Figure Set.dwg

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Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	1420	1363	1363	1335	1316	1360
Vehs Exited	1417	1351	1367	1333	1311	1356
Starting Vehs	23	14	24	16	19	17
Ending Vehs	26	26	20	18	24	22
Denied Entry Before	1	0	0	0	1	0
Denied Entry After	2	0	0	0	1	0
Travel Distance (mi)	573	557	558	540	537	553
Travel Time (hr)	22.2	21.5	21.5	20.8	20.7	21.3
Total Delay (hr)	2.5	2.4	2.4	2.4	2.3	2.4
Total Stops	239	242	257	271	239	249
Fuel Used (gal)	18.5	17.9	18.1	17.5	17.2	17.8

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	1420	1363	1363	1335	1316	1360
Vehs Exited	1417	1351	1367	1333	1311	1356
Starting Vehs	23	14	24	16	19	17
Ending Vehs	26	26	20	18	24	22
Denied Entry Before	1	0	0	0	1	0
Denied Entry After	2	0	0	0	1	0
Travel Distance (mi)	573	557	558	540	537	553
Travel Time (hr)	22.2	21.5	21.5	20.8	20.7	21.3
Total Delay (hr)	2.5	2.4	2.4	2.4	2.3	2.4
Total Stops	239	242	257	271	239	249
Fuel Used (gal)	18.5	17.9	18.1	17.5	17.2	17.8

3: Fore River Parkway & North Driveway Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	1.0	0.5
Total Del/Veh (s)	4.4	1.6	1.2	1.4
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: South Driveway & Fore River Parkway Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.8	0.8	0.0	0.4
Total Del/Veh (s)	11.6	2.8	2.9	3.0
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

Total Network Performance

Denied Del/Veh (s)	0.9
Total Del/Veh (s)	5.3
Denied Entry Before	0
Denied Entry After	0

Intersection: 3: Fore River Parkway & North Driveway

Movement	WB	NB	SB
Directions Served	R	R	L
Maximum Queue (ft)	40	9	61
Average Queue (ft)	16	0	26
95th Queue (ft)	39	4	54
Link Distance (ft)	273		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		170	270
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: South Driveway & Fore River Parkway

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	T	L	T
Maximum Queue (ft)	45	29	118	62	164
Average Queue (ft)	14	3	48	16	40
95th Queue (ft)	39	16	102	46	105
Link Distance (ft)	423		748		822
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		100		500	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 0

Intersection: 5: South Driveway & Fore River Parkway

Phase	1	2	6	8
Movement(s) Served	SBL	NBT	SBTL	WBL
Maximum Green (s)	5.0	24.0	34.0	16.0
Minimum Green (s)	5.0	10.0	10.0	5.0
Recall	None	None	None	None
Avg. Green (s)	6.8	15.2	16.5	6.1
g/C Ratio	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	92	3	5	87
Cycles @ Minimum (%)	6	18	16	0
Cycles Maxed Out (%)	8	8	3	0
Cycles with Peds (%)	0	0	0	0

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	1508	1539	1576	1508	1472	1520
Vehs Exited	1500	1529	1580	1513	1472	1519
Starting Vehs	21	15	26	23	24	21
Ending Vehs	29	25	22	18	24	25
Denied Entry Before	1	0	0	0	1	0
Denied Entry After	0	0	1	3	0	1
Travel Distance (mi)	587	599	621	590	576	595
Travel Time (hr)	23.3	24.0	25.0	23.8	22.9	23.8
Total Delay (hr)	3.0	3.3	3.6	3.4	3.0	3.2
Total Stops	354	369	435	410	344	383
Fuel Used (gal)	19.3	19.9	20.8	19.7	18.9	19.7

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	1508	1539	1576	1508	1472	1520
Vehs Exited	1500	1529	1580	1513	1472	1519
Starting Vehs	21	15	26	23	24	21
Ending Vehs	29	25	22	18	24	25
Denied Entry Before	1	0	0	0	1	0
Denied Entry After	0	0	1	3	0	1
Travel Distance (mi)	587	599	621	590	576	595
Travel Time (hr)	23.3	24.0	25.0	23.8	22.9	23.8
Total Delay (hr)	3.0	3.3	3.6	3.4	3.0	3.2
Total Stops	354	369	435	410	344	383
Fuel Used (gal)	19.3	19.9	20.8	19.7	18.9	19.7

3: Fore River Parkway & North Driveway Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	1.3	0.7
Total Del/Veh (s)	4.5	2.1	1.6	1.9
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: South Driveway & Fore River Parkway Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	1.0	1.0	0.0	0.6
Total Del/Veh (s)	12.9	4.3	3.1	4.0
Denied Entry Before	0	0	0	0
Denied Entry After	0	1	0	1

Total Network Performance

Denied Del/Veh (s)	1.1
Total Del/Veh (s)	6.5
Denied Entry Before	0
Denied Entry After	1

Intersection: 3: Fore River Parkway & North Driveway

Movement	WB	NB	SB
Directions Served	R	R	L
Maximum Queue (ft)	46	22	83
Average Queue (ft)	22	3	35
95th Queue (ft)	42	15	66
Link Distance (ft)	273		
Upstream Blk Time (%)			
Queuing Penalty (veh)			
Storage Bay Dist (ft)		170	270
Storage Blk Time (%)			
Queuing Penalty (veh)			

Intersection: 5: South Driveway & Fore River Parkway

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	T	L	T
Maximum Queue (ft)	59	34	182	78	155
Average Queue (ft)	20	7	71	22	45
95th Queue (ft)	48	27	150	54	111
Link Distance (ft)	423		748		822
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		100		500	
Storage Blk Time (%)	0				
Queuing Penalty (veh)	0				

Network Summary

Network wide Queuing Penalty: 0

Intersection: 5: South Driveway & Fore River Parkway

Phase	1	2	6	8
Movement(s) Served	SBL	NBT	SBTL	WBL
Maximum Green (s)	5.0	24.0	34.0	16.0
Minimum Green (s)	5.0	10.0	10.0	5.0
Recall	None	None	None	None
Avg. Green (s)	6.6	16.1	18.7	6.4
g/C Ratio	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	85	4	8	80
Cycles @ Minimum (%)	12	15	13	0
Cycles Maxed Out (%)	15	11	7	0
Cycles with Peds (%)	0	0	0	0

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	1275	1338	1246	1177	1149	1237
Vehs Exited	1288	1327	1244	1175	1159	1239
Starting Vehs	28	22	16	19	25	21
Ending Vehs	15	33	18	21	15	20
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	0	1	0	0	0	0
Travel Distance (mi)	531	551	514	484	482	512
Travel Time (hr)	21.0	22.0	20.3	19.0	18.8	20.2
Total Delay (hr)	2.8	3.0	2.6	2.4	2.3	2.6
Total Stops	381	442	352	356	314	370
Fuel Used (gal)	17.3	18.2	16.7	15.7	15.6	16.7

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	1275	1338	1246	1177	1149	1237
Vehs Exited	1288	1327	1244	1175	1159	1239
Starting Vehs	28	22	16	19	25	21
Ending Vehs	15	33	18	21	15	20
Denied Entry Before	0	0	0	0	0	0
Denied Entry After	0	1	0	0	0	0
Travel Distance (mi)	531	551	514	484	482	512
Travel Time (hr)	21.0	22.0	20.3	19.0	18.8	20.2
Total Delay (hr)	2.8	3.0	2.6	2.4	2.3	2.6
Total Stops	381	442	352	356	314	370
Fuel Used (gal)	17.3	18.2	16.7	15.7	15.6	16.7

3: Fore River Parkway & North Driveway Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.1	0.0	0.5	0.2
Total Del/Veh (s)	5.6	1.9	0.6	1.6
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: South Driveway & Fore River Parkway Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	1.3	0.6	0.0	0.4
Total Del/Veh (s)	11.0	4.1	3.9	4.6
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

Total Network Performance

Denied Del/Veh (s)	0.6
Total Del/Veh (s)	6.9
Denied Entry Before	0
Denied Entry After	0

Intersection: 3: Fore River Parkway & North Driveway

Movement	WB	SB
Directions Served	R	L
Maximum Queue (ft)	64	36
Average Queue (ft)	30	7
95th Queue (ft)	51	29
Link Distance (ft)	273	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		270
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: South Driveway & Fore River Parkway

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	T	L	T
Maximum Queue (ft)	62	50	175	12	128
Average Queue (ft)	28	16	62	1	55
95th Queue (ft)	57	43	131	8	104
Link Distance (ft)	423		748		822
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		100		500	
Storage Blk Time (%)					
Queuing Penalty (veh)					

Network Summary

Network wide Queuing Penalty: 0

Intersection: 5: South Driveway & Fore River Parkway

Phase	1	2	6	8
Movement(s) Served	SBL	NBT	SBTL	WBL
Maximum Green (s)	5.0	24.0	34.0	16.0
Minimum Green (s)	5.0	10.0	10.0	5.0
Recall	None	None	None	None
Avg. Green (s)	8.4	15.3	15.5	7.0
g/C Ratio	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	98	2	2	63
Cycles @ Minimum (%)	1	15	14	0
Cycles Maxed Out (%)	2	6	1	0
Cycles with Peds (%)	0	0	0	0

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

Summary of All Intervals

Run Number	1	2	3	4	5	Avg
Start Time	6:57	6:57	6:57	6:57	6:57	6:57
End Time	8:00	8:00	8:00	8:00	8:00	8:00
Total Time (min)	63	63	63	63	63	63
Time Recorded (min)	60	60	60	60	60	60
# of Intervals	2	2	2	2	2	2
# of Recorded Intervals	1	1	1	1	1	1
Vehs Entered	1435	1513	1436	1416	1388	1439
Vehs Exited	1430	1513	1434	1406	1394	1435
Starting Vehs	24	25	15	18	28	21
Ending Vehs	29	25	17	28	22	24
Denied Entry Before	0	0	0	1	0	0
Denied Entry After	1	0	0	2	0	0
Travel Distance (mi)	566	598	559	547	550	564
Travel Time (hr)	23.2	24.9	23.3	22.7	22.6	23.3
Total Delay (hr)	3.6	4.1	3.8	3.7	3.5	3.7
Total Stops	549	605	619	605	553	586
Fuel Used (gal)	19.1	20.3	19.2	18.8	18.5	19.2

Interval #0 Information Seeding

Start Time	6:57
End Time	7:00
Total Time (min)	3

Volumes adjusted by Growth Factors.

No data recorded this interval.

Interval #1 Information Recording

Start Time	7:00
End Time	8:00
Total Time (min)	60

Volumes adjusted by Growth Factors.

Run Number	1	2	3	4	5	Avg
Vehs Entered	1435	1513	1436	1416	1388	1439
Vehs Exited	1430	1513	1434	1406	1394	1435
Starting Vehs	24	25	15	18	28	21
Ending Vehs	29	25	17	28	22	24
Denied Entry Before	0	0	0	1	0	0
Denied Entry After	1	0	0	2	0	0
Travel Distance (mi)	566	598	559	547	550	564
Travel Time (hr)	23.2	24.9	23.3	22.7	22.6	23.3
Total Delay (hr)	3.6	4.1	3.8	3.7	3.5	3.7
Total Stops	549	605	619	605	553	586
Fuel Used (gal)	19.1	20.3	19.2	18.8	18.5	19.2

3: Fore River Parkway & North Driveway Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	0.2	0.0	0.6	0.3
Total Del/Veh (s)	7.4	2.3	0.8	2.3
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

5: South Driveway & Fore River Parkway Performance by approach

Approach	WB	NB	SB	All
Denied Del/Veh (s)	1.3	0.7	0.0	0.5
Total Del/Veh (s)	11.0	5.3	5.3	5.9
Denied Entry Before	0	0	0	0
Denied Entry After	0	0	0	0

Total Network Performance

Denied Del/Veh (s)	0.7
Total Del/Veh (s)	8.5
Denied Entry Before	0
Denied Entry After	0

Intersection: 3: Fore River Parkway & North Driveway

Movement	WB	SB
Directions Served	R	L
Maximum Queue (ft)	89	44
Average Queue (ft)	42	14
95th Queue (ft)	75	40
Link Distance (ft)	273	
Upstream Blk Time (%)		
Queuing Penalty (veh)		
Storage Bay Dist (ft)		270
Storage Blk Time (%)		
Queuing Penalty (veh)		

Intersection: 5: South Driveway & Fore River Parkway

Movement	WB	WB	NB	SB	SB
Directions Served	L	R	T	L	T
Maximum Queue (ft)	101	68	170	25	175
Average Queue (ft)	42	22	81	2	72
95th Queue (ft)	79	52	146	14	133
Link Distance (ft)	423		748		822
Upstream Blk Time (%)					
Queuing Penalty (veh)					
Storage Bay Dist (ft)		100		500	
Storage Blk Time (%)	0	0			
Queuing Penalty (veh)	0	0			

Network Summary

Network wide Queuing Penalty: 0

Intersection: 5: South Driveway & Fore River Parkway

Phase	1	2	6	8
Movement(s) Served	SBL	NBT	SBTL	WBL
Maximum Green (s)	5.0	24.0	34.0	16.0
Minimum Green (s)	5.0	10.0	10.0	5.0
Recall	None	None	None	None
Avg. Green (s)	6.3	16.4	16.7	7.8
g/C Ratio	-0.01	-0.01	-0.01	-0.01
Cycles Skipped (%)	96	2	1	43
Cycles @ Minimum (%)	3	11	11	0
Cycles Maxed Out (%)	4	14	1	0
Cycles with Peds (%)	0	0	0	0

Controller Summary
Average Cycle Length (s): NA

Number of Complete Cycles : 0

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I ☐ Section Detail ☑ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☐ 1320 Summary

REPORT DESCRIPTION

Portland: Fore River Pkwy from Congress St (node 19209) to Commercial St/Veterans Bridge (node 66542)

REPORT PARAMETERS

Year 2016, Start Month 1 through Year 2018 End Month: 12

Route: 3200556	Start Node: 63206	Start Offset: 0	☐ Exclude First Node
	End Node: 19209	End Offset: 0	☐ Exclude Last Node
Route: 3200159	Start Node: 59425	Start Offset: 0	☐ Exclude First Node
	End Node: 59423	End Offset: 0	☑ Exclude Last Node
Route: 3200158	Start Node: 59424	Start Offset: 0	☐ Exclude First Node
	End Node: 59423	End Offset: 0	☑ Exclude Last Node
Route: 320556S	Start Node: 59417	Start Offset: 0	☑ Exclude First Node
	End Node: 59413	End Offset: 0	☑ Exclude Last Node
Route: 320556S	Start Node: 59413	Start Offset: 0	☑ Exclude First Node
	End Node: 63206	End Offset: 0	☑ Exclude Last Node
Route: 320556S	Start Node: 63206	Start Offset: 0	☑ Exclude First Node
	End Node: 63211	End Offset: 0	☑ Exclude Last Node
Route: 0001A	Start Node: 63211	Start Offset: 0	☐ Exclude First Node
	End Node: 66542	End Offset: 0	☐ Exclude Last Node
Route: 3209586	Start Node: 66548	Start Offset: 0	☐ Exclude First Node
	End Node: 66546	End Offset: 0	☑ Exclude Last Node
Route: 001AS	Start Node: 66581	Start Offset: 0	☑ Exclude First Node
	End Node: 63209	End Offset: 0	☑ Exclude Last Node
Route: 001AS	Start Node: 63209	Start Offset: 0	☑ Exclude First Node
	End Node: 63211	End Offset: 0	☑ Exclude Last Node
Route: 001AS	Start Node: 63211	Start Offset: 0	☑ Exclude First Node

Crash Summary Report

Report Selections and Input Parameters

REPORT SELECTIONS

☑ Crash Summary I ☐ Section Detail ☑ Crash Summary II ☐ 1320 Public ☐ 1320 Private ☐ 1320 Summary

REPORT DESCRIPTION

Portland: Fore River Pkwy from Congress St (node 19209) to Commercial St/Veterans Bridge (node 66542)

REPORT PARAMETERS

Year 2016, Start Month 1 through Year 2018 End Month: 12

End Node: 63206 End Offset: 0 ☑ Exclude Last Node

Crash Summary I

Nodes

Node	Route - MP	Node Description	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual M Ent-Veh	Crash Rate	Critical Rate	CRF
63206	3200556 - 0	Int of FORE RIVER PKY RINV 3200154	2	0	0	0	0	0	0	0.0	6.024	0.00	0.28	0.00
												Statewide Crash Rate:	0.11	
59413	3200556 - 0.05	Int of FORE RIVER PKY RAMP OFF 295 SB THOMPSONS I	9	8	0	0	1	1	6	25.0	6.244	0.43	1.21	0.00
												Statewide Crash Rate:	0.73	
59418	3200556 - 0.09	Int of FORE RIVER PKY RINV 3200156	2	2	0	0	0	0	2	0.0	2.777	0.24	0.35	0.00
												Statewide Crash Rate:	0.11	
59417	3200556 - 0.18	Non Int FORE RIVER PKY	2	0	0	0	0	0	0	0.0	5.420	0.00	0.37	0.00
												Statewide Crash Rate:	0.15	
59423	3200556 - 0.21	Int of FORE RIVER PKY RINV 3200158 RINV 3200159	2	5	0	0	0	1	4	20.0	5.806	0.29	0.34	0.00
												Statewide Crash Rate:	0.14	
P19209	3200556 - 0.24	Int of CONGRESS ST FORE RIVER PKY RAMP D OFF TO (	9	45	0	0	2	14	29	35.6	12.091	1.24	1.08	1.15
												Statewide Crash Rate:	0.73	
A59425	3200159 - 0	Int of CONGRESS ST, RINV 3200159	9	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.73	
A59424	3200158 - 0	Int of CONGRESS ST RINV 3200158	2	0	0	0	0	0	0	0.0	0.000	0.00	0.00	0.00
												Statewide Crash Rate:	0.14	
63207	320556S - 0.29	Int of FORE RIVER PKY RINV 05 E1000	2	0	0	0	0	0	0	0.0	2.104	0.00	0.37	0.00
												Statewide Crash Rate:	0.11	
63211	0001A - 9.08	Int of FORE RIVER PKY RD INV 3201452	2	2	0	0	1	0	1	50.0	3.415	0.20	0.33	0.00
												Statewide Crash Rate:	0.11	
63209	0001A - 9.11	Int of FORE RIVER PKY RAMP ONTO I 295	2	2	0	0	0	0	2	0.0	3.343	0.20	0.33	0.00
												Statewide Crash Rate:	0.11	
66581	0001A - 9.45	Non Int FORE RIVER PKY	2	0	0	0	0	0	0	0.0	3.127	0.00	0.42	0.00
												Statewide Crash Rate:	0.15	
63191	0001A - 9.55	Int of FORE RIVER PKY, RD INV 3201441	9	4	0	0	2	0	2	50.0	3.300	0.40	1.38	0.00
												Statewide Crash Rate:	0.73	
66546	0001A - 9.67	Int of FORE RIVER PKY RD INV 3209586	2	0	0	0	0	0	0	0.0	3.306	0.00	0.42	0.00
												Statewide Crash Rate:	0.15	
66542	0001A - 9.70	Int of FORE RIVER PKY VETERANS BRIDGE	9	12	0	0	0	1	11	8.3	9.466	0.42	1.13	0.00
												Statewide Crash Rate:	0.73	
66548	3209586 - 0	Int of FORE RIVER PKY RD INV 3209586	2	0	0	0	0	0	0	0.0	5.487	0.00	0.37	0.00
												Statewide Crash Rate:	0.15	
63212	001AS - 3.04	Int of FORE RIVER PKY RINV 05 G1000	2	1	0	0	0	0	1	0.0	2.672	0.12	0.35	0.00
												Statewide Crash Rate:	0.11	
Study Years:	3.00	NODE TOTALS:		81	0	0	6	17	58	28.4	74.582	0.36	0.48	0.75

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
63206	59413	3123688	0 - 0.05	3200556 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00126	0.00	699.54	0.00
Int of FORE RIVER PKY RINV 3200154				RD INV 3200556											Statewide Crash Rate: 216.18		
59413	59418	3115322	0 - 0.04	3200556 - 0.05	0.04	2	0	0	0	0	0	0	0.0	0.00087	0.00	766.58	0.00
Int of FORE RIVER PKY RAMP OFF 295 SB THOMPSONS POINT CONNECTOR RD				RD INV 3200556											Statewide Crash Rate: 216.18		
59418	59417	3115321	0 - 0.09	3200556 - 0.09	0.09	2	0	0	0	0	0	0	0.0	0.00252	0.00	585.45	0.00
Int of FORE RIVER PKY RINV 3200156				RD INV 3200556											Statewide Crash Rate: 216.18		
59423	59417	2080875	0 - 0.03	3200556 - 0.18	0.03	2	3	0	0	0	0	3	0.0	0.00157	636.94	661.90	0.00
Int of FORE RIVER PKY RINV 3200158 RINV 3200159				RD INV 3200556											Statewide Crash Rate: 216.18		
19209	59423	2080874	0 - 0.03	3200556 - 0.21	0.03	2	0	0	0	0	0	0	0.0	0.00064	0.00	820.66	0.00
Int of CONGRESS ST FORE RIVER PKY RAMP D OFF TO CONGRESS ST				RD INV 3200556											Statewide Crash Rate: 216.18		
59425	59423	3115018	0 - 0.05	3200159 - 0	0.05	2	0	0	0	0	0	0	0.0	0.00049	0.00	863.84	0.00
Int of CONGRESS ST, RINV 3200159				RD INV 3200159											Statewide Crash Rate: 216.18		
59424	59423	3115017	0 - 0.04	3200158 - 0	0.04	2	0	0	0	0	0	0	0.0	0.00085	0.00	708.84	0.00
Int of CONGRESS ST RINV 3200158				RD INV 3200158											Statewide Crash Rate: 194.16		
59413	59417	3116436	0 - 0.13	320556S - 0	0.13	2	1	0	0	0	0	1	0.0	0.00316	105.53	552.49	0.00
Int of FORE RIVER PKY RAMP OFF 295 SB THOMPSONS POINT CONNECTOR RD				RD INV 320566S											Statewide Crash Rate: 216.18		
59413	63206	3116345	0 - 0.05	320556S - 0.13	0.05	2	1	0	0	0	0	1	0.0	0.00165	202.04	653.52	0.00
Int of FORE RIVER PKY RAMP OFF 295 SB THOMPSONS POINT CONNECTOR RD				RD INV 320566S											Statewide Crash Rate: 216.18		
63206	63207	3116343	0 - 0.11	320556S - 0.18	0.11	2	0	0	0	0	0	0	0.0	0.00231	0.00	598.72	0.00
Int of FORE RIVER PKY RINV 3200154				RD INV 320566S											Statewide Crash Rate: 216.18		
63207	63211	3121828	0 - 0.03	320556S - 0.29	0.03	2	0	0	0	0	0	0	0.0	0.00058	0.00	838.22	0.00
Int of FORE RIVER PKY RINV 05 E1000				RD INV 320566S											Statewide Crash Rate: 216.18		
63211	63209	3115957	0 - 0.03	0001A - 9.08	0.03	2	0	0	0	0	0	0	0.0	0.00050	0.00	859.97	0.00
Int of FORE RIVER PKY RD INV 3201452				US 1A											Statewide Crash Rate: 216.18		
63209	66581	3129848	0 - 0.34	0001A - 9.11	0.34	2	2	0	0	0	1	1	50.0	0.00520	128.24	487.41	0.00
Int of FORE RIVER PKY RAMP ONTO I 295				US 1A											Statewide Crash Rate: 216.18		
66581	63191	3097052	0 - 0.10	0001A - 9.45	0.10	2	1	0	0	0	1	0	100.0	0.00320	104.30	550.84	0.00
Non Int FORE RIVER PKY				US 1A											Statewide Crash Rate: 216.18		
63191	66546	3117411	0 - 0.12	0001A - 9.55	0.12	2	0	0	0	0	0	0	0.0	0.00350	0.00	538.20	0.00
Int of FORE RIVER PKY, RD INV 3201441				US 1A											Statewide Crash Rate: 216.18		
66546	66542	3508657	0 - 0.03	0001A - 9.67	0.03	2	0	0	0	0	0	0	0.0	0.00064	0.00	819.81	0.00
Int of FORE RIVER PKY RD INV 3209586				US 1A											Statewide Crash Rate: 216.18		
66548	66546	3120374	0 - 0.06	3209586 - 0	0.06	2	0	0	0	0	0	0	0.0	0.00047	0.00	871.07	0.00
Int of FORE RIVER PKY RD INV 3209586				RD INV 3209586											Statewide Crash Rate: 216.18		
66581	63209	3129849	0 - 0.34	001AS - 2.63	0.34	2	0	0	0	0	0	0	0.0	0.00567	0.00	477.21	0.00
Non Int FORE RIVER PKY				US 1AS											Statewide Crash Rate: 216.18		

Crash Summary I

Sections

Start Node	End Node	Element	Offset Begin - End	Route - MP	Section Length	U/R	Total Crashes	Injury Crashes K	A	B	C	PD	Percent Injury	Annual HMVM	Crash Rate	Critical Rate	CRF
63209	63211	3130274	0 - 0.02	001AS - 2.97	0.02	2	0	0	0	0	0	0	0.0	0.00029	0.00	926.02	0.00
Int of FORE RIVER PKY RAMP ONTO I 295				US 1AS											Statewide Crash Rate: 216.18		
63211	63212	3130132	0 - 0.05	001AS - 2.99	0.05	2	0	0	0	0	0	0	0.0	0.00087	0.00	765.87	0.00
Int of FORE RIVER PKY RD INV 3201452				US 1AS											Statewide Crash Rate: 216.18		
63212	63206	3118571	0 - 0.09	001AS - 3.04	0.09	2	0	0	0	0	0	0	0.0	0.00245	0.00	589.82	0.00
Int of FORE RIVER PKY RINV 05 G1000				US 1AS											Statewide Crash Rate: 216.18		
Study Years: 3.00				Section Totals:	1.83		8	0	0	0	2	6	25.0	0.03868	68.93	322.44	0.21
				Grand Totals:	1.83		89	0	0	6	19	64	28.1	0.03868	766.89	454.44	1.69

Crash Summary

Section Details

Start Node	End Node	Element	Offset Begin - End	Route - MP	Total Crashes	Injury Crashes K	A	B	C	PD	Crash Report	Crash Date	Crash Mile Point	Injury Degree
63206	59413	3123688	0 - 0.05	3200556 - 0	0	0	0	0	0	0				
59413	59418	3115322	0 - 0.04	3200556 - 0.05	0	0	0	0	0	0				
59418	59417	3115321	0 - 0.09	3200556 - 0.09	0	0	0	0	0	0				
59423	59417	2080875	0 - 0.03	3200556 - 0.18	3	0	0	0	0	3	2016-6903	02/29/2016	0.19	PD
											2016-21341	08/01/2016	0.20	PD
											2017-34237	11/12/2017	0.20	PD
19209	59423	2080874	0 - 0.03	3200556 - 0.21	0	0	0	0	0	0				
59425	59423	3115018	0 - 0.05	3200159 - 0	0	0	0	0	0	0				
59424	59423	3115017	0 - 0.04	3200158 - 0	0	0	0	0	0	0				
59413	59417	3116436	0 - 0.13	320556S - 0	1	0	0	0	0	1	2016-6346	02/05/2016	0.10	PD
59413	63206	3116345	0 - 0.05	320556S - 0.13	1	0	0	0	0	1	2016-19807	07/16/2016	0.15	PD
63206	63207	3116343	0 - 0.11	320556S - 0.18	0	0	0	0	0	0				
63207	63211	3121828	0 - 0.03	320556S - 0.29	0	0	0	0	0	0				
63211	63209	3115957	0 - 0.03	0001A - 9.08	0	0	0	0	0	0				
63209	66581	3129848	0 - 0.34	0001A - 9.11	2	0	0	0	1	1	2016-4063	02/05/2016	9.15	PD
											2017-15583	05/25/2017	9.24	C
66581	63191	3097052	0 - 0.10	0001A - 9.45	1	0	0	0	1	0	2018-17191	06/21/2018	9.51	C
63191	66546	3117411	0 - 0.12	0001A - 9.55	0	0	0	0	0	0				
66546	66542	3508657	0 - 0.03	0001A - 9.67	0	0	0	0	0	0				
66548	66546	3120374	0 - 0.06	3209586 - 0	0	0	0	0	0	0				
66581	63209	3129849	0 - 0.34	001AS - 2.63	0	0	0	0	0	0				
63209	63211	3130274	0 - 0.02	001AS - 2.97	0	0	0	0	0	0				
63211	63212	3130132	0 - 0.05	001AS - 2.99	0	0	0	0	0	0				
63212	63206	3118571	0 - 0.09	001AS - 3.04	0	0	0	0	0	0				
				Totals:	8	0	0	0	2	6				

Crash Summary II - Characteristics

Crashes by Day and Hour

	AM												PM												
	Hour of Day																								
Day Of Week	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	Un	Tot
SUNDAY	0	0	0	0	0	0	0	0	0	1	3	0	0	0	1	0	1	0	1	0	0	1	0	0	0	8
MONDAY	0	0	0	0	0	0	0	1	2	2	1	0	0	5	2	1	2	1	0	0	0	1	0	0	0	18
TUESDAY	0	0	0	0	0	0	2	1	2	0	0	1	3	0	2	1	0	2	0	0	1	0	0	0	0	15
WEDNESDAY	0	0	0	0	0	0	1	0	4	2	1	1	1	0	0	0	0	1	1	0	0	0	0	0	0	12
THURSDAY	0	0	0	0	0	0	3	0	1	1	2	1	2	1	0	0	1	2	1	0	0	2	0	0	0	17
FRIDAY	0	0	0	0	0	0	1	2	0	2	2	0	0	0	3	0	0	1	0	0	1	0	0	0	0	12
SATURDAY	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	0	0	0	0	2	0	1	1	0	0	7
Totals	0	0	0	0	0	0	7	4	9	8	10	3	6	7	9	2	4	7	3	2	2	5	1	0	0	89

Vehicle Counts by Type

Unit Type	Total
1-Passenger Car	104
2-(Sport) Utility Vehicle	42
3-Passenger Van	6
4-Cargo Van (10K lbs or Less)	5
5-Pickup	9
6-Motor Home	0
7-School Bus	0
8-Transit Bus	2
9-Motor Coach	0
10-Other Bus	0
11-Motorcycle	1
12-Moped	1
13-Low Speed Vehicle	0
14-Autocycle	0
15-Experimental	0
16-Other Light Trucks (10,000 lbs or Less)	0
17-Medium/Heavy Trucks (More than 10,000 lbs)	1
18-ATV - (4 wheel)	0
20-ATV - (2 wheel)	0
21-Snowmobile	0
22-Pedestrian	1

Unit Type	Total
23-Bicyclist	0
24-Witness	8
25-Other	4
26-Construction	0
27-Farm Vehicle	0
Total	184

Crash Summary II - Characteristics

Crashes by Driver Action at Time of Crash

Driver Action at Time of Crash	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
No Contributing Action	22	65	1	0	0	0	88
Ran Off Roadway	1	0	0	0	0	0	1
Failed to Yield Right-of-Way	8	6	0	0	0	0	14
Ran Red Light	3	0	0	0	0	0	3
Ran Stop Sign	0	0	0	0	0	0	0
Disregarded Other Traffic Sign	0	0	0	0	0	0	0
Disregarded Other Road Markings	0	0	0	0	0	0	0
Exceeded Posted Speed Limit	0	0	0	0	0	0	0
Drove Too Fast For Conditions	6	3	0	0	0	0	9
Improper Turn	0	0	0	0	0	0	0
Improper Backing	1	0	0	0	0	0	1
Improper Passing	0	0	0	0	0	0	0
Wrong Way	0	0	0	0	0	0	0
Followed Too Closely	38	4	0	0	0	0	42
Failed to Keep in Proper Lane	4	0	0	0	0	0	4
Operated Motor Vehicle in Erratic, Reckless, Careless, Negligent or Aggressive Manner	0	0	0	0	0	0	0
Swerved or Avoided Due to Wind, Slippery Surface, Motor Vehicle, Object, Non-Motorist in Roadway	1	0	0	0	0	0	1
Over-Correcting/Over-Steering	0	0	0	0	0	0	0
Other Contributing Action	2	3	0	0	0	0	5
Unknown	2	2	0	0	0	0	4
Total	88	83	1	0	0	0	172

Crashes by Apparent Physical Condition And Driver

Apparent Physical Condition	Dr 1	Dr 2	Dr 3	Dr 4	Dr 5	Other	Total
Apparently Normal	87	80	1	0	0	1	169
Physically Impaired or Handicapped	0	1	0	0	0	0	1
Emotional(Depressed, Angry, Disturbed, etc.)	1	1	0	0	0	0	2
Ill (Sick)	0	0	0	0	0	0	0
Asleep or Fatigued	0	0	0	0	0	0	0
Under the Influence of Medications/Drugs/Alcohol	0	0	0	0	0	0	0
Other	0	1	0	0	0	0	1
Total	88	83	1	0	0	1	173

Driver Age by Unit Type

Age	Driver	Bicycle	SnowMobile	Pedestrian	ATV	Total
09-Under	0	0	0	0	0	0
10-14	0	0	0	0	0	0
15-19	9	0	0	0	0	9
20-24	22	0	0	0	0	22
25-29	14	0	0	0	0	14
30-39	27	0	0	0	0	27
40-49	36	0	0	0	0	36
50-59	32	0	0	0	0	32
60-69	21	0	0	0	0	21
70-79	11	0	0	0	0	11
80-Over	0	0	0	0	0	0
Unknown	3	0	0	1	0	4
Total	175	0	0	1	0	176

Crash Summary II - Characteristics

Most Harmful Event

Most Harmful Event	Total	Most Harmful Event	Total
1-Overturn / Rollover	0	38-Other Fixed Object (wall, building, tunnel, etc.)	0
2-Fire / Explosion	0	39-Unknown	32
3-Immersion	0	40-Gate or Cable	0
4-Jackknife	0	41-Pressure Ridge	0
5-Cargo / Equipment Loss Or Shift	0	Total	173
6-Fell / Jumped from Motor Vehicle	0		
7-Thrown or Falling Object	0		
8-Other Non-Collision	0		
9-Pedestrian	0		
10-Pedalcycle	0		
11-Railway Vehicle - Train, Engine	0		
12-Animal	0		
13-Motor Vehicle in Transport	140		
14-Parked Motor Vehicle	1		
15-Struck by Falling, Shifting Cargo or Anything Set in Motion by Motor Vehicle	0		
16-Work Zone / Maintenance Equipment	0		
17-Other Non-Fixed Object	0		
18-Impact Attenuator / Crash Cushion	0		
19-Bridge Overhead Structure	0		
20-Bridge Pier or Support	0		
21-Bridge Rail	0		
22-Cable Barrier	0		
23-Culvert	0		
24-Curb	0		
25-Ditch	0		
26-Embankment	0		
27-Guardrail Face	0		
28-Guardrail End	0		
29-Concrete Traffic Barrier	0		
30-Other Traffic Barrier	0		
31-Tree (Standing)	0		
32-Utility Pole / Light Support	0		
33-Traffic Sign Support	0		
34-Traffic Signal Support	0		
35-Fence	0		
36-Mailbox	0		
37-Other Post Pole or Support	0		

Injury Data

Severity Code	Injury Crashes	Number Of Injuries
K	0	0
A	0	0
B	6	7
C	19	25
PD	64	0
Total	89	32

Road Character

Road Grade	Total
1-Level	74
2-On Grade	10
3-Top of Hill	1
4-Bottom of Hill	4
5-Other	0
Total	89

Traffic Control Devices

Traffic Control Device	Total
1-Traffic Signals (Stop & Go)	62
2-Traffic Signals (Flashing)	1
3-Advisory/Warning Sign	1
4-Stop Signs - All Approaches	0
5-Stop Signs - Other	2
6-Yield Sign	14
7-Curve Warning Sign	1
8-Officer, Flagman, School Patrol	0
9-School Bus Stop Arm	0
10-School Zone Sign	0
11-R.R. Crossing Device	0
12-No Passing Zone	0
13-None	8
14-Other	0
Total	89

Light

Light Condition	Total
1-Daylight	69
2-Dawn	1
3-Dusk	1
4-Dark - Lighted	17
5-Dark - Not Lighted	1
6-Dark - Unknown Lighting	0
7-Unknown	0
Total	89

Crash Summary II - Characteristics

Crashes by Year and Month

Month	2016	2017	2018	Total
JANUARY	5	2	2	9
FEBRUARY	6	0	3	9
MARCH	3	1	2	6
APRIL	2	2	0	4
MAY	4	5	2	11
JUNE	1	4	3	8
JULY	3	2	1	6
AUGUST	4	2	1	7
SEPTEMBER	2	1	2	5
OCTOBER	3	2	4	9
NOVEMBER	1	3	3	7
DECEMBER	2	4	2	8
Total	36	28	25	89

Report is limited to the last 10 years of data.

Crash Summary II - Characteristics

Crashes by Crash Type and Type of Location

Crash Type	Straight Road	Curved Road	Three Leg Intersection	Four Leg Intersection	Five or More Leg Intersection	Driveways	Bridges	Interchanges	Other	Parking Lot	Private Way	Cross Over	Railroad Crossing	Traffic Circle-Roundabout	Total
Object in Road	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rear End - Sideswipe	3	3	22	40	0	0	0	1	0	0	0	0	0	0	69
Head-on - Sideswipe	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
Intersection Movement	0	0	5	10	0	0	0	0	0	0	0	0	0	0	15
Pedestrians	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1
Train	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Went Off Road	1	1	1	0	0	0	0	0	0	0	0	0	0	0	3
All Other Animal	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bicycle	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Other	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Jackknife	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Rollover	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Fire	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Submersion	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Thrown or Falling Object	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Bear	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Deer	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Moose	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Turkey	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	4	4	29	51	0	0	0	1	0	0	0	0	0	0	89

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Blowing Sand, Soil, Dirt												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Blowing Snow												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Clear												
Dark - Lighted	10	1	0	0	0	0	0	0	0	0	1	12
Dark - Not Lighted	1	0	0	0	0	0	0	0	0	0	0	1
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	47	2	0	0	0	0	0	1	0	0	5	55
Dusk	1	0	0	0	0	0	0	0	0	0	0	1
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Cloudy												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	2	0	0	0	0	0	0	0	0	0	2	4
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Fog, Smog, Smoke												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Other												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Rain												
Dark - Lighted	0	0	0	0	0	0	1	0	0	0	2	3
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	1	1
Daylight	0	0	0	0	0	0	0	0	0	0	4	4
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Severe Crosswinds												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0

Crash Summary II - Characteristics

Crashes by Weather, Light Condition and Road Surface

Weather Light	Dry	Ice/Frost	Mud, Dirt, Gravel	Oil	Other	Sand	Slush	Snow	Unknown	Water (Standing, Moving)	Wet	Total
Sleet, Hail (Freezing Rain or Drizzle)												
Dark - Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	0	0	0	0	0	0	0	0	0	0	0
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
Snow												
Dark - Lighted	0	0	0	0	0	0	0	2	0	0	0	2
Dark - Not Lighted	0	0	0	0	0	0	0	0	0	0	0	0
Dark - Unknown Lighting	0	0	0	0	0	0	0	0	0	0	0	0
Dawn	0	0	0	0	0	0	0	0	0	0	0	0
Daylight	0	2	0	0	0	0	0	4	0	0	0	6
Dusk	0	0	0	0	0	0	0	0	0	0	0	0
Unknown	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	61	5	0	0	0	0	1	7	0	0	15	89

H. C. L.
CRASH COLLISION DIAGRAM
DATA PACKAGE

COUNTY: **CUMBERLAND** TOWN: **PORTLAND**

LOW NODE: **19209** HIGH NODE: **0000** REGION: **1** U/R: **URBAN**

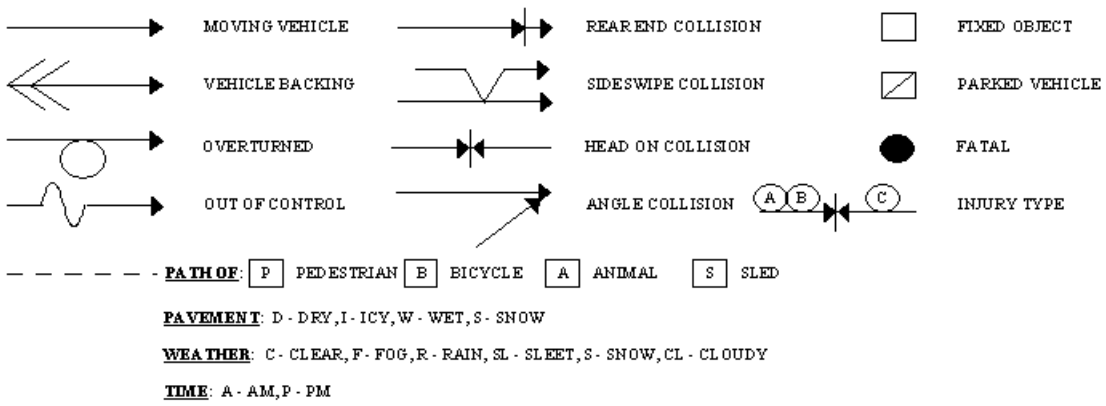
DESCRIPTION: **Jct Congress St & Fore River Pkwy/I-295 SB Off**

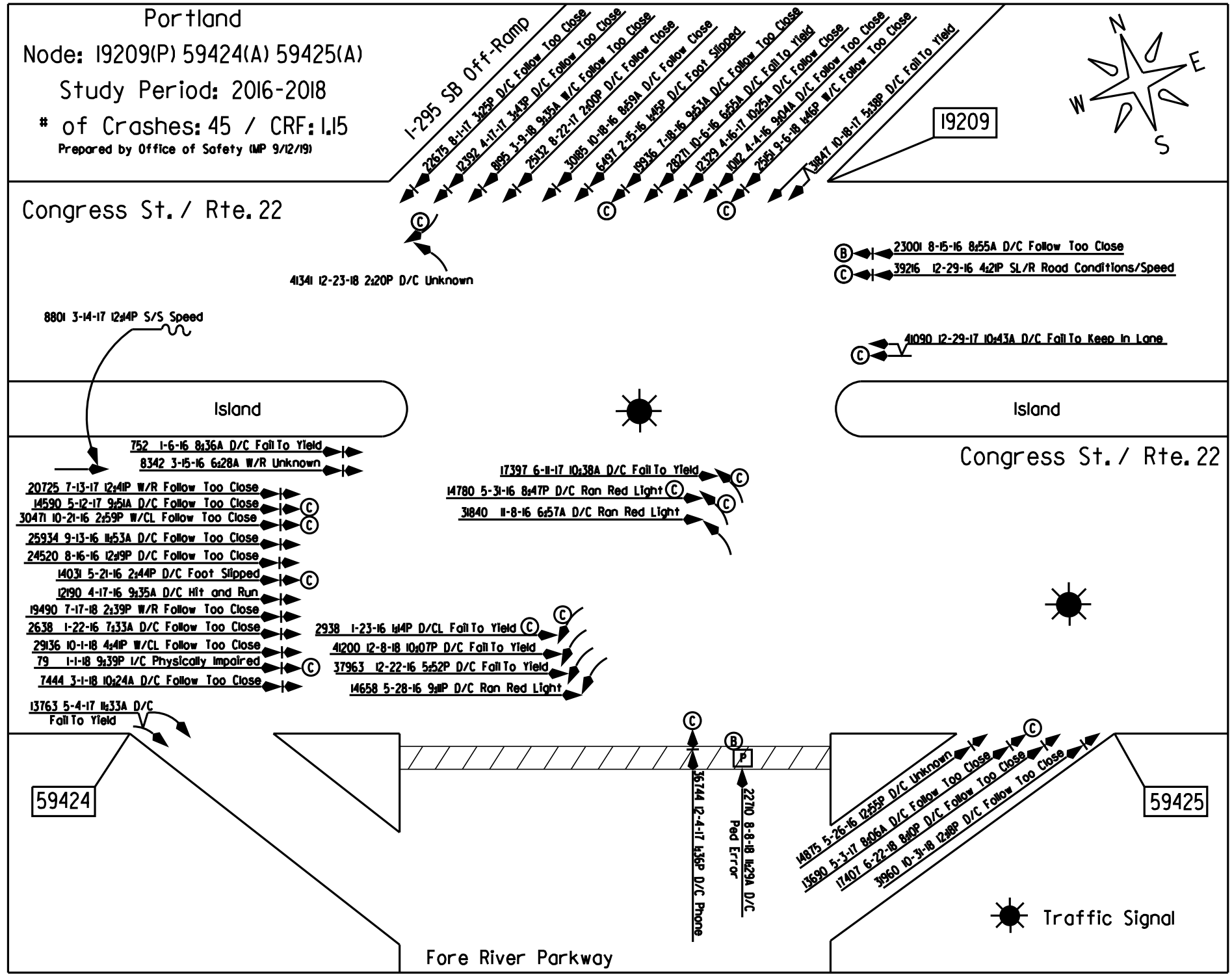
RTE # / RD #: **0022S** DATE DRAWN: **9/12/2019** DRAWN BY: **Michelle**

STUDY FROM: **1/1/2016** STUDY TO: **12/31/2018**

CRASH RATE: **1.24** CRF: **1.15** % INJURY: **35.6** TOTAL CRASHES: **45**

LEGEND




Portland
Node: 19209(P) 59424(A) 59425(A)
Study Period: 2016-2018
# of Crashes: 45 / CRF: 1.15
Prepared by Office of Safety (MP 9/12/19)
I-295 SB Off-Ramp
22675 8-1-17 3:25P D/C Follow Too Close
12392 4-17-17 3:43P D/C Follow Too Close
8895 3-9-18 9:35A W/C Follow Too Close
25132 8-22-17 2:00P D/C Follow Too Close
30885 10-18-16 8:59A D/C Follow Too Close
6497 2-15-16 1:45P D/C Foot Slipped
19336 7-18-16 9:53A D/C Follow Too Close
28271 10-6-16 6:55A D/C Fail To Yield
12329 4-16-17 10:25A D/C Follow Too Close
1012 4-4-16 9:04A D/C Follow Too Close
25151 9-6-18 1:46P W/C Follow Too Close
38847 10-18-17 5:38P D/C Fail To Yield
19209
N
E
S
W
Congress St. / Rte. 22
41341 12-23-18 2:20P D/C Unknown
23001 8-15-16 8:55A D/C Follow Too Close
39216 12-29-16 4:21P SL/R Road Conditions/Speed
8801 3-14-17 12:14P S/S Speed
41090 12-29-17 10:43A D/C Fail To Keep In Lane
Island
Island
Congress St. / Rte. 22
752 1-6-16 8:36A D/C Fail To Yield
8342 3-15-16 6:28A W/R Unknown
17397 6-11-17 10:38A D/C Fail To Yield
14780 5-31-16 8:47P D/C Ran Red Light
31840 11-8-16 6:57A D/C Ran Red Light
20725 7-13-17 12:41P W/R Follow Too Close
14590 5-12-17 9:51A D/C Follow Too Close
30471 10-21-16 2:59P W/CL Follow Too Close
25934 9-13-16 11:53A D/C Follow Too Close
24520 8-16-16 12:19P D/C Follow Too Close
14031 5-21-16 2:44P D/C Foot Slipped
12190 4-17-16 9:35A D/C Hit and Run
19490 7-17-18 2:39P W/R Follow Too Close
2638 1-22-16 7:33A D/C Follow Too Close
29136 10-1-18 4:41P W/CL Follow Too Close
79 1-1-18 9:39P I/C Physically Impaired
7444 3-1-18 10:24A D/C Follow Too Close
2938 1-23-16 1:14P D/CL Fail To Yield
41200 12-8-18 10:07P D/C Fail To Yield
37963 12-22-16 5:52P D/C Fail To Yield
14658 5-28-16 9:11P D/C Ran Red Light
13763 5-4-17 11:33A D/C Fail To Yield
59424
36744 12-4-17 1:36P D/C Phone
22710 8-8-18 11:29A D/C Ped Error
14875 5-26-16 12:55P D/C Unknown
13690 5-3-17 8:06A D/C Follow Too Close
17407 6-22-18 8:40P D/C Follow Too Close
31960 10-31-18 12:18P D/C Follow Too Close
59425
Traffic Signal
Fore River Parkway

PUBLIC INFRASTRUCTURE AND SAFETY

The following statements are provided in accordance with the submission and Section 14-526 of the ordinance.

(c) Public Infrastructure and Community Safety Standards.

Consistency with City Master Plans (14-526 (c) 1)

- *Identify consistency with master plans*
- *Proposed easements, rights and improvements to connect or continue off-premises public infrastructure, as applicable*

1. *Consistency with City Master Plans:*

    a. The project has been designed to be consistent with the Contract Zoning agreement and off-site infrastructure plans. The site is uniquely placed along the Fore River Parkway and in the 11 years since the Phase 1 Hospital opened, the campus has operated efficiently and without issue with respect to the surrounding land uses, access conditions and overall city peninsula planning. The Mercy site continues to represent a welcoming view for the traveling public on the I-295 and Veteran's Bridge roadways and Mercy continues to offer health care delivery services that are much needed within the community.

    b. Various easements will remain in place for public infrastructure including water supply, power, and sanitary sewer among others. These will remain in place and unchanged. Public access to the north and south open spaces also remains unchanged because of the Phase II activity.

Public Safety and Fire Prevention (14-526 (c) 2)

- *Address Crime Prevention through Environmental Design (CPTED) (Technical Manual, Section 3)*
- *Emergency vehicle access*
- *Address consistency with public safety standards (Technical Manual, Section 3)*
- *Submit a code summary referring NFPA 1 and all Fire Department standards (Technical Manual, Section 3) – Fire Checklist*

2. *Public Safety and Fire Prevention:*

    a. The site has been designed to promote a safe and welcoming environment. Mercy does maintain security on the campus including building entry controls, restricted parking areas, and camera surveillance.

    b. The site provides access from Fore River Parkway for emergency vehicles. A secondary emergency access from County Way also is provided, although it is gated and is available for emergency use only.

    c. Fire hydrants are located throughout the property. The buildings are fully sprinklered. A summary letter to Division Chief Thompson is included at the end of this section.

Availability and Adequacy of Public Utilities (14-526 (c) 3) (Technical Manual, Sections 2 & 9)

- *Electrical services, including providing underground services*
- *Identify existing and proposed connections for public utilities and required public utility upgrades*
- *Sewer line connections are required, if there is a main within 200 feet*
- *Proposed solid waste management facilities on-site and management for the site*
- *Written evidence of the ability to serve from utility companies, as applicable*

a. The Applicant is securing letters from the applicable utilities stating their ability to continue to serve the site. The project will require new electrical, gas, sewer, and water services to the ambulatory surgical center, while the hospital expansion will rely on the existing hospital interior utilities.

b. All new electrical services to the ASC site will be underground.

c. All new utility infrastructures from the existing facilities will meet the provisions of the Technical Manual. The ASC will be served by new fire and domestic mains off the PWD 12" water main located on the site. The ASC sewer will connect to the existing Fore River Interceptor sewer located along the rear property line. Power will be from the existing underground primary distribution system that CMP maintains on the property.

d. The project will utilize a new ASC service connection to the public sewer system within the Fore River Interceptor located along the site's rear property line.

e. All new sewer and stormwater infrastructure will meet City standards. Backflow prevention in accordance with PWD standards will be provided in the ASC.

f. A solid waste collection and storage area will be provided with adequate capacity for the needs of the ASC development. Mercy maintains their existing solid waste collection equipment at the rear of the existing hospital where it will remain upon completion of the Phase II expansion.

Ability to serve letters will be forwarded to the planning office upon receipt.

SECTION 12

STORMWATER MANAGEMENT REPORT

NORTHERN LIGHT℠ MERCY HOSPITAL
FORE RIVER CAMPUS
PORTLAND MAINE

Prepared for

Northern Light℠
Mercy Hospital

43 Whiting Hill Road
Brewer, ME 04412

Prepared by

Gorrill Palmer
707 Sable Oaks Drive – Suite 30
South Portland, Maine 04106
207.772.2515

AUGUST 2019

STORMWATER MANAGEMENT REPORT

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12.2	DEVELOPMENT DESCRIPTION	4
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12.10	STORMWATER MANAGEMENT SUMMARY	10
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Figure

1 USGS Project Location Map

Attachments

A Watershed Maps:
W-1 Current Conditions Land Cover
W-2 Proposed Land Cover
W-3 Post Development Watershed Map
W-Q Water Quality Map

B Post Development HydroCAD Model

C Storm Drain Calculation

D Operation & Maintenance Manual

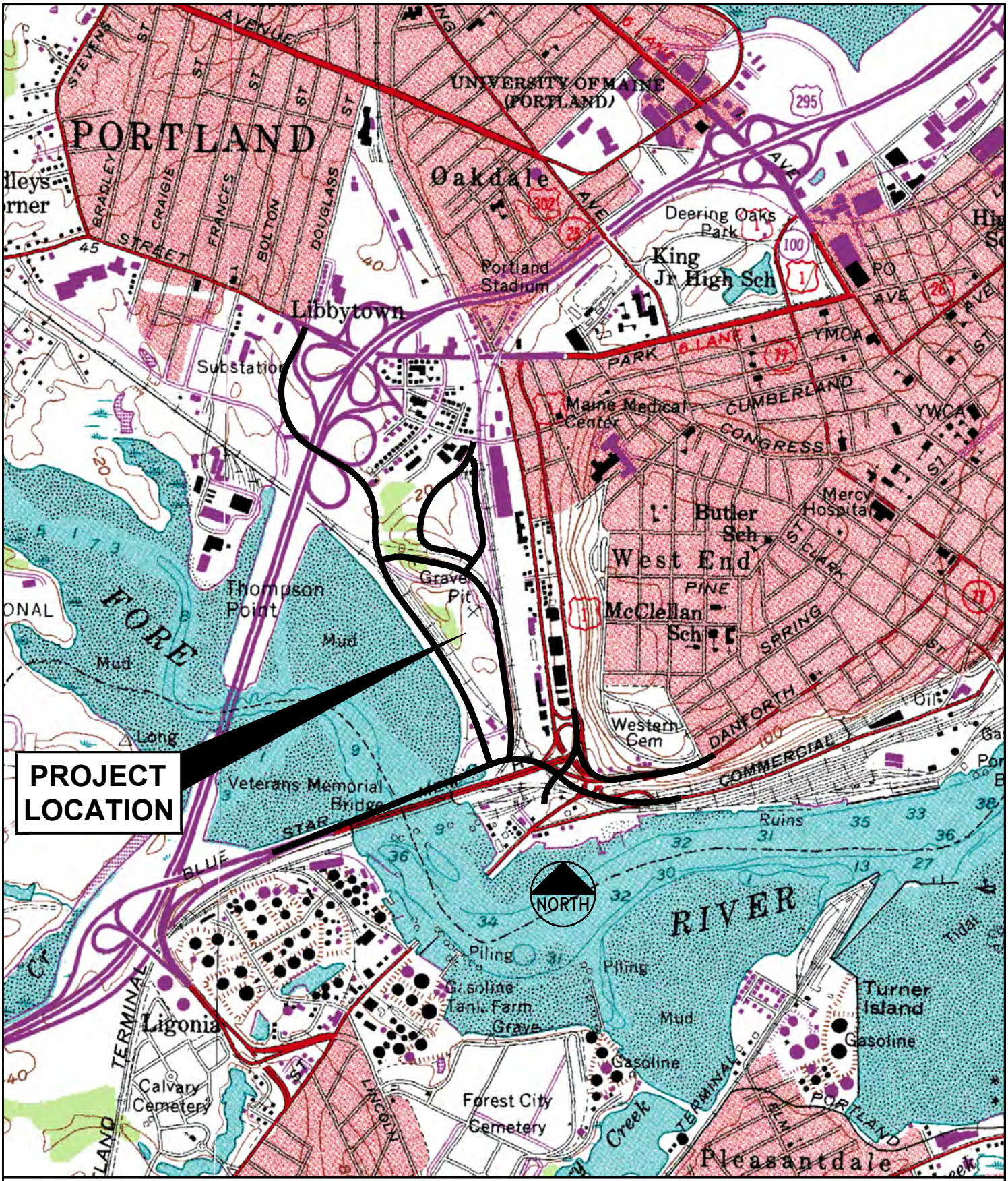
12.0 INTRODUCTION

Northern Light℠ Mercy Hospital (Mercy) is an acute care, non-profit hospital located in Portland, ME and is licensed for 200 in-patient beds. Mercy has over 1,604 employees, 743 medical staff, and over 125 volunteers. Mercy has served the greater Portland community for over 100 years opening its current 144 State Street Campus in 1943. In the early 2000s, Mercy Hospital's strategic plan identified important objectives that could not be achieved at the 3.5-acre State Street site, given its age, size, location and Portland's Historic District constraints. Mercy chose to relocate from their State Street site and move to the Fore River Campus in order to meet important strategic obligations and maintain appropriate standards of care that were in jeopardy long-term if the Hospital were to remain at State Street. A two-phase move was planned due to various circumstances. In 2001, Mercy first was granted a Site Location of Development Approval from the Maine Department of Environmental Protection[1]. Mercy also executed a Contract Zone Agreement with the City of Portland to allow the Hospital Campus on what at the time, was Industrial zoned land, within which a Hospital land use was not a permitted use. With these approvals in hand, Mercy acquired the land from the original owners, Portland Terminal Company and P.D. Merrill. Mercy obtained a Certificate of Need approval from the State of Maine in 2006. The first phase of the move to the Fore River campus was completed in 2008 with the construction of the Phase 1 hospital facility and the adjoining medical office building (MOB), ancillary facilities including surface parking for 762 vehicles, utilities, snow storage, and a maintenance building were also constructed. In 2013, Mercy approached the Maine Department of Environmental Protection and the US Army Corps of Engineers with a long-term plan for the Hospital needs on the Campus. This involved the expansion of building(s) and parking facilities that encompass filling of the former gravel pit entirely. Based on the long-term plans and supporting evidence, both the MDEP and the USACOE approved development plans that result in the complete filling of the existing basin. Both agencies accepted as compensation for the impacts to the basin resource, Mercy's participation in the In-Lieu Fee Compensation program. Mercy has provided a contribution of $834,156 to the State to satisfy the NRPA condition of approval, thus establishing their standing to move ahead with filling of the onsite basin.

The proposed project represents Phase 2 which includes the construction of a 19,260 SF footprint building addition to the existing hospital and a 17,610 SF footprint Ambulatory Surgical Center (ASC). The hospital expansion will be directly connected to the existing Phase 1 Fore River Hospital, while maximizing site safety and allowing for a future Phase 3 expansion that will be in close proximity to the ASC. The ASC will be positioned within the existing basin area so that it provides relatively close proximity to the Hospital while also maintaining its own parking and stand-alone features, given its outpatient services programing. Figure 1 is a map showing the project location.

Mercy is currently seeking a Site Plan Permit from the City of Portland and an Amendment to the Site Location of Development Permit from the MDEP. The project combines redevelopment and new construction on a site that has previously received a Site Location of Development Permit. The proposed project is subject to the standards of MaineDEP's Chapter 500 Rules for Stormwater Management and City of Portland Stormwater Management regulations. The plans prepared by Gorrill Palmer include the infrastructure necessary to serve the project and to comply with current local and state stormwater standards. Erosion and Sedimentation Controls (Basic Standards) will be

[1] See Permit orders #L-20775-19-A-N and #L-20775-TG-B-N



U.S.G.S. Location Map

NLH Mercy Hospital, Fore River Campus Consolidation, Portland, Maine

U.S.G.S. Portland West, State-7.5 Minute Series (Topographic)

Design: JTA	Date: AUG. 2019
Draft: CDD	Job No.: 3257.04
Checked: SRB	Scale: N.T.S.
File Name: 325704–COVER.dwg	

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Figure 1

employed during the construction of this project and are summarized in the Erosion and Sedimentation Control Plans provided on Sheets C-4.0, C-7.5, and C-7.6.

12.1 EXISTING SITE CONDITIONS

The project boundary is located within the parcel bounded by the Fore River parkway to the west, the railroad to the north and east and the new Veteran's Bridge to the south. This portion of the lands owned by Mercy Hospital is comprised of 33.51 acres.

Topography varies across the site and can be broken down into two areas. The north end of the site is generally 14 feet higher than the south end. The north end is slightly rolling and designed to provide access to the first floor of the existing hospital (FFE 32) and Medical Office Building (FFE 30). The southerly end of the site is relatively flat and designed to access the ground floor/service area of the hospital at finished floor elevation 17.5. The northerly developed portion of the site ranges from elevation 20 to 36. The southerly portion of the site ranges from elevation 10 to elevation 19 with isolated mounds up to elevation 26.

The soils on the site are shown on the USDA medium intensity soils map to be Hinckley gravelly sandy loam, Cut and Fill land and Gravel Pit. The historical gravel pit operations and Phase I construction of the property has modified all of the original surface soils from their original classification to a "Cut and Fill" classification. A mix of native and imported soils was used to construct the parking lots and structural fill for the buildings.

The existing drainage is divided into four areas; all four areas are tributary to a storm drainage network comprised of precast catch basin inlets and HDPE storm drainage piping. There are four points of discharge from the site into the Fore River. Referring to the Existing Conditions plan, the points of discharge are listed below, from North to South:

- 36" culvert – runoff from medical office building and associated parking lot discharging into a vegetated treatment swale.
- 15" culvert - runoff from the hospital building and service area and discharges directly to Fore River
- 18" culvert – runoff from perimeter access road and wetland area discharges directly to Fore River
- 36" culvert – runoff from parking lot and maintenance yard discharges directly to Fore River

12.2 DEVELOPMENT DESCRIPTION

The Phase 2 development site comprises approximately 4.62 acres of the 33.5-acre site. Approximately 26.9 acres of the site have been previously developed for the original Phase 1 project. Approximately 1.9 acres of the current project area is currently developed with pavement and grassed area. The southerly portion of the project site contains a former gravel pit that has become a pond. The applicant has previously received a permit to fill the pond and has completed the In-Lieu fee payment to the MDEP.

Abutting land uses include:

- North – Railroad/Cumberland County Jail
- East – Railroad/Commercial/MMC Parking Garage
- South – Medical/Railroad/Cassidy Point
- West – Fore River Parkway/Fore River

Runoff from the site is tributary to the Fore River. The Fore River is not currently listed as an "Urban Impaired Stream", therefore, the development will not be required to meet the Chapter 500 Urban Impaired Stream Standard.

Changes in land cover will include removal of paved surfaces, wooded areas, and grassed areas through portions of the project site and the addition of roof, paved surfaces, and lawn areas. The existing impervious area within the limit of work is approximately 1.25 acres. The existing developed area is approximately 1.9 acres. The overall proposed impervious area for Phase 2 is 3.88 acres, and the overall proposed developed area is 4.77 acres.

12.3 REFERENCES

The following reference sources were reviewed during preparation of the stormwater analysis:

1. Hydraulic Engineering Circular No. 22, Second Edition – Urban Drainage Design Manual, U.S. Department of Transportation, August 2001.
2. AASHTO Model Drainage Manual, American Association of State Highway and Transportation, 1991.
3. Hydraulic Engineering Circular No. 14 - Hydraulic Design of Energy Dissipators for Culverts and Channel, U.S. Department of Transportation, September 1983.
4. Maine Erosion and Sedimentation Control Handbook for Construction: Best Management Practices, MaineDEP, current edition.
5. Best Management Practices for Erosion and Sediment Control, U.S. Department of Transportation, June 1995.
6. Municipal Stormwater Management – Second Edition, Thomas N. Debo, Andrew J. Reese, 2003.
7. Handbook of Applied Hydrology, Chow, 1964.
8. Technical Release Number 55 – Urban Hydrology for Small Watersheds, USDA Soil Conservation Service, June 1986.
9. Stormwater Management for Maine, Volume III BMPS Technical Design Manual, MeDEP, January 2006.
10. Technical Release Number 20 – Computer Program for Project Formulation – Hydrology, USDA Soil Conservation Service, May 1983.
11. Section 4 – Hydrology, USDA Soil Conservation Service, March 1985.

12. Technical Release Number 55 – Urban Hydrology for Small Watersheds, USDA Soil Conservation Service, June 1986.

The following sources were used for preparation of the North Village stormwater quality analysis:

1. Stormwater Management for Maine, Volume III BMPS Technical Design Manual, MaineDEP, May 2016
2. A Current Assessment of Urban Best Management Practices, Techniques for Reducing Non-point Source Pollution in the Coastal Zone, U.S.E.P.A. Office of Watersheds, March 1992.
3. MeDEP Chapter 500, Stormwater Management Rules.

Computer programs used to assist in the various components of this analysis include:

1. HydroCAD 10.00, HydroCAD Software Solutions LLC – used for modeling watersheds for pre and post development conditions.
2. Microsoft Excel, Microsoft Corporation – used for spreadsheet computations.
3. AutoCAD Civil 3D 2010, 2011, and 2019, Autodesk - used to determine areas and graphical representation of design.
4. AutoDesk Storm and Sanitary Analysis 2019 – used to analyze storm drain network performance during specified storm events.

Data resources used to obtain the hydrologic input data for the stormwater models are identified later in this report.

12.4 OVERVIEW OF STORMWATER RUNOFF MODELING

The stormwater analysis evaluates the following elements:

- Predevelopment and post development stormwater runoff and peak discharge rates; We have updated the Mercy Hospital model with an examination at the original points of analysis now considering the Phase 2 development;
- The impacts of the proposed development and subsequent modification to site discharge rates and locations;
- The effect of land cover modifications within the site, especially those that are expected to increase site runoff rates;
- The requirements for stormwater management including compliance with Chapter 500 flooding standards (**A waiver is being requested from the flooding standard due to the site's proximity to the Fore River: A waiver was previously granted by the MDEP and the City during the Phase 1 permitting period)**;
- Storm drainage requirements for parking areas, roof areas and other improvements; and
- Requirements for water quality measures.

12.5 METHODS OF ANALYSIS – STORMWATER QUANTITY

The hydrologic analyses for predevelopment and post development conditions have been conducted based upon the methodology contained in the USDA Soil Conservation Service's Technical Releases No. 20 and 55 (SCS TR-20 and TR-55) as modified for special site conditions. For this section of Cumberland County, Maine, a 24-hour SCS Type III Storm distribution was used for the analysis using the following storm frequencies and rainfall amounts:

Storm Event	24-Hour Rainfall (Post 2014)
2-Year Storm	3.10
10-Year Storm	4.60
25-Year Storm	5.80
100-Year Storm	8.10

The HydroCAD computer program was used in the analysis. This program determines the critical points of the project watershed and uses SCS TR-20 methodology for evaluation of the anticipated conditions at these points.

Land use, cover, delineation of watershed subcatchments, hydraulic flow paths, and hydrologic soil types were obtained using the following data:

1. Portland West, Maine USGS 7.5-minute Quadrangle Maps.
2. Cumberland County, USDA Medium Intensity Soils Survey.
3. Onsite Topographic Survey with 1-foot contour intervals prepared by Owen Haskell, field reconnaissance by former Deluca-Hoffman Associates Inc, staff now with Gorrill Palmer.
4. The Class C Medium Intensity Soil Survey for the watershed areas.

12.6 DESCRIPTION OF SITE WATERSHED MODEL

The watershed model was developed to predict peak discharge rates emanating from one point of analysis for the post development condition. The post development condition includes the developed area of the building expansion, ASC building, and associated parking.

12.7 PRE-DEVELOPMENT CONDITIONS

The existing impervious area within the limit of Phase 2 work is approximately 1.25 acres. The existing developed area is approximately 1.9 acres.

There are no lakes located on, adjacent to or downstream of the project site and the project site is adjacent to the tidal Fore River. An existing manmade pond occurs onsite. The existing basin resulted when the Railroad excavated the pit for the extraction of gravels and borrow, beginning in the 1950's. Mercy Hospital received approval from the MDEP and US ACOE to fill the pond and adjacent wetlands upon payment of an in-lieu fee which was paid in 2013. Excavation activity

extended to below the groundwater table, thus the basin has had a permanent pool for greater than 30 years. Prior to the development of the Fore River Parkway, the basin had a ditch outlet that connected to a culvert that passed under multiple rail tracks[2], within the area now occupied by the Parkway Road. The culvert discharged into the river, thus the basin has always had an outlet to the river.

The existing pond receives runoff from existing vegetated developed area and existing impervious area consisting of roof, access drives, loading areas, and mechanical pads. The Existing Conditions Plan shows the edge of the pond between elevation 8 and 9. The existing pond outlet consists of a 15" diameter storm drain pipe with an invert elevation of 7.78. The storm drain system increases to an 18" diameter outlet pipe that conveys runoff to the tidal Fore River. The invert of the outlet pipe is at the approximate high tide line (estimated at around elevation 5.0±'). The outlet area consists of a stable area of rip-rap/boulders. There is no wetland area between the existing outlet storm drain and the storm drain system outlet at the Fore River.

Based upon the FEMA maps, a Zone A 100- year floodplain is associated with the Fore River. No part of the proposed development is located within the Zone A 100-year floodplain. To the best of our understanding, there is no salt water intrusion into the basin, either from backwater effects from the River or thru the groundwater/saltwater interface[3].

12.8 POST DEVELOPMENT CONDITION

The overall proposed impervious area for Phase 2 is 3.88 acres, and the overall proposed developed area is 4.77 acres.

The development will be required to meet the MDEP's water quality standards. In order to meet the water quality standard, the project will utilize a wet pond. The wet pond, with additional detention above the water quality volume elevation, will be utilized to control the post development runoff for larger storm events. Although the Flooding Standard is asked to be waived for this project, the pond's performance during larger storms was analyzed to assess the effects on the existing infrastructure including the closed drainage system that conveys flow across the Parkway and discharges into the River.

The proposed storm drain system consists of multiple catch basins, manholes, and storm drain piping which conveys the site runoff to stable outlet locations. Most of the stormwater runoff within the project's limit of work is conveyed to the proposed wet pond for water quality treatment. Stormwater runoff from the developed area adjacent to the existing Medical Office Building will be conveyed to the existing storm drain system. By inspection, it can be seen that the runoff to the existing system will be reduced since the existing parking lot of the Hospital Building will be redeveloped, and the runoff will be redirected to the wet pond.

The flow to the proposed storm drain system was calculated using the Rational Method for the 25-year storm event based on the Portland rainfall intensity curves. The storm drain performance while

[2] The site was used as a railyard with numerous sidetracks up until the 1960's. Remnants of the tracks remain along the site's waterfront zone.
[3]MDEP records indicate a Highest Annual Tide of elevation 7.4'.

conveying runoff from the 25-year storm was calculated using Autodesk Storm and Sanitary Analysis 2019. The proposed piping has capacity to convey the runoff to the wet pond. The calculations are included in Attachment C.

A proposed swale that will also convey runoff to the wet pond was analyzed for capacity using the FHWA Hydraulic Toolbox, which calculates the swale capacity, based upon the Manning Equation. The results for the two sections of the swale analyzed are included in Attachment C.

12.9 APPROACH AND ANALYSIS FOR QUALITY AND QUANTITY

The proposed development will be required to meet the Basic Standard and the BMP Standard under the General Standards for a Site Law project. Based upon our review of the four recommended and approved methods for mitigating the increased frequency and duration of channel erosive flows, as required by the BMP Standards, Mercy Hospital is proposing to use a wet pond. The existing pond area will be modified to provide the required stormwater quality treatment. As part of the previous SLDA permit, the existing pond area was approved for filling. We believe that the current Phase 2 proposal is well suited to using a portion of the existing basin area as a wet pond, since the outlet is already in place and the amount of retrofit work is limited.

Since the project is an amendment to an existing SLODA Permit, the Basic Standard, General Standard, and Flooding Standard apply. The stormwater runoff from the project site is directly tributary to the Fore River that is tidal at this location. Since the site is tributary to the tidal river and as previously approved in the existing SLODA Permit, **the Applicant is requesting a waiver from the Flooding Standard.** Although the Applicant is requesting this waiver, a HydroCAD model has been prepared and attached that analyses the storm drain network and wet pond for peak discharge conditions.

The project site contains developed area as well as undeveloped area. The portion of the project within the previously developed area will be analyzed as a redevelopment project. The portion of the project within the undeveloped area of the site will be analyzed as new construction. The new construction will require treatment of no less than 95% of the impervious area and 80% of the developed area. The portion of the project categorized as redevelopment is summarized below.

In order to determine the treatment required for the project, the addition to the existing building and adjacent parking lot has been analyzed as redevelopment. Chapter 500 uses a pollutant ranking to determine the required treatment for a redevelopment project. The required treatment has been calculated based upon the pollutant ranking system presented in Section 4.C.d.1 of Chapter 500. A redevelopment boundary encompassing 1.9 acres was used to determine the pre and post development pollutant ranking as shown on the Watershed Maps included in Attachment A.

The following tables present the pollutant ranking calculation as outlined in Section 4.C.2.d of Chapter 500.

TABLE 1 PRE-DEVELOPMENT POLLUTANT				
Type	**SF**	**Acres**	**Pollutant Ranking**	**Total (acres x pollutant)**
Roads/High Use Parking	0	0	5	0.00
Other Roads/Medium Use Parking	45,395	1.04	4	4.17
Other Parking/Driveways	2,575	0.06	3	0.18
Other Roof/Walkways/Grassed Areas mowed more than twice per year	26,600	0.61	2	1.22
Non-Grassed Landscape	6,875	0.16	1	0.16
Forest/Meadow mowed no more than twice per year	0	0	0	0.00
			Total	5.72
			Redevelopment Area (ac)	1.90
			Total/Redevelopment	3.06

TABLE 2 POST-DEVELOPMENT POLLUTANT				
Type	**SF**	**Acres**	**Pollutant Ranking**	**Total (acres x pollutant)**
Roads/High Use Parking	26,823	0.62	5	3.08
Other Roads/Medium Use Parking	0	0	4	0.00
Other Parking/Driveways	13953	0.32	3	0.96
Other Roof/Walkways/Grassed Areas mowed more than twice per year	37,402	0.86	2	1.72
Non-Grassed Landscape	3,267	0.08	1	0.08
Forest/Meadow mowed no more than twice per year	0	0	0	0.00
			Total	5.83
			Redevelopment Area (ac)	1.90
			Total/Redevelopment	3.12

The impact change = 3.12 - 3.06 = 0.06 from Table 3 of Chapter 500 Section 4.C.2.d the Percentage of Developed Area that must be treated is **60%**.

Watershed Maps W1 and W2 depict the cover type used for the pollutant ranking calculation and are included in Attachment A of this report.

12.10 STORMWATER MANAGEMENT SUMMARY

Under the General Standard, the project is required to meet the BMP Standards, as the development site is not tributary to a lake watershed. The project contains new construction as well as redevelopment and will be required to meet the treatment standards based upon the pollutant impact ratings for redeveloped areas and the standard treatment requirements as presented in

Chapter 500. The following section summarizes the Wet Pond that serves as the central Stormwater BMP being utilized for the proposed development.

12.10.1 Wet Pond

Water Quality Measures

The wet pond requires a permanent pool volume with a minimum storage volume of 2.0 inches times the pond's tributary impervious area plus 0.8 inches times the pond's tributary non-impervious developed area. The permanent pool should have a minimum mean depth of 3 feet. The mean depth is defined as the pond volume measured at one foot below the permanent pool elevation, divided by the surface area at that elevation.

The wet pond must provide a channel protection volume of 1-inch times the pond's tributary impervious area plus 0.4-inch times the pond's tributary non-impervious developed area. The channel protection volume is released over a 24 to 48-hour time period. When the outflow of the pond is to a tidal water, an underdrained gravel trench is not required. The wet pond BMP appears to require Channel Protection storage when the outflow is tributary to a tidal waterbody while Chapter 500 does not appear to require the Channel Protection storage. In order to be conservative, Channel Protection storage has been provided.

Wet ponds are not typically located within a wetland. The MDEP previously approved the filling of the existing pond/wetland; therefore, the pond site is no longer a regulated wetland. The existing water elevation of 8 to 9 feet is the approximate groundwater elevation as this was established when the existing outlet culvert was installed. This level also coincides with the generally groundwater table as it is noted that the basin was formed as result of historic excavation activity for the extraction of gravel and borrow material by the railroad many years ago. The BMP Chapter 4 states that a wet pond with its pool surface at the elevation of the groundwater table can be acceptable if the discharge outlet is an acceptable receiving channel and is stable under a constant discharge. The current and proposed pond outlet is a storm drain which conveys the runoff to the tidal river. The existing storm drain outlet is stabilized with riprap. The proposed wet pond pool elevation is 9.5 which is slightly higher than it is today.

The majority of the pond's tributary runoff will enter the pond at the north end through a sediment forebay consisting of a stone bermed level lip spreader. The outlet structure is located at the south end of the pond resulting in a length to width ratio greater than 3:1. Runoff from the southerly access drive is tributary to the southerly end of the wet pond. The tributary impervious area of the access drive is approximately 1.6% of the total tributary impervious area. The runoff is directed away from the pond outlet. Since the access drive area is a small percentage of the total tributary impervious area, it is the opinion of Gorrill Palmer that having less than a 2:1 length to width ratio for this contributing runoff quantity is insignificant.

The channel protection volume will be provided above the permanent pool elevation. The channel protection outlet will consist of an orifice set at the permanent pool elevation and designed to release the channel protection volume in 24 to 48-hours. The existing 15-inch

diameter culvert will be connected to the outlet control structure and will control runoff from the larger storms. A weir will be set at the channel protection elevation to ensure that the channel protection volume passes solely through the outlet orifice.

Subcatchment 1 is tributary to the wet pond and consists of existing roof, pavement, and vegetated area, as well as pavement, roof, and vegetated area from the proposed development. Approximately 73% of the runoff enters the pond at the northerly end through a sediment forebay. A sediment forebay is not proposed at the southerly inlet since the catch basin within the access drive will have a sump and outlet hood, and the runoff will flow through a 140' vegetated channel, which will allow for sediment deposition prior to entering the pond.

Since the wet pond will be located within the site of the existing pond, which is a low point within the landscape, there is not a defined berm, or emergency spillway. The proposed emergency outlet will consist of a trash rack over the open top of the outlet control structure, which will allow for flow through the outlet pipe assuming the inlet weir to the outlet control structure is clogged.

The following table presents the wet pond performance:

TABLE 3
WET POND

Description	Required	Provided
Impervious Area		234,288 SF
Vegetated Developed Area		159,660 SF
Channel Protection Volume	24,846 CF	25,121 CF
Elevation at Channel Protection Volume		10.36 FT
Pond Base Elevation		4.5 FT
Permanent Pool Elevation		9.5 FT
Permanent Pool Volume	49,692 CF	82,236 CF
Pond Volume at Elev. 8.5		61,396 CF.
Surface Area at Elev. 8.5		19,723 SF.
Mean Depth	3 FT	3.11 FT
UD trench Length	N/A Tidal Outlet	
Channel Protection Outflow		0.25 CFS
Release Time	24-48 hours	28 hours

The wet pond storage table is included in Appendix B.

The Water Quality Map depicting the treated area is included in Appendix A.

The building addition and parking area at the northerly end of the site is a redevelopment project. Based upon Section 4.C.2.d of Chapter 500, the redeveloped portion of the project is required to treat 60% of the Developed Area. The total developed area is approximately 81,445 SF (1.9 acres). The approximate impervious area within the developed area is 70,213 SF (1.6 acres). Treatment is required for 48,867 SF (1.12 acres) of the developed area.

Existing developed area that is not within the limit of work is tributary to the proposed wet pond. Since the existing pond does not conform to MDEP BMP's, it is assumed that there is no water quality treatment for the existing runoff. The proposed wet pond will provide treatment for these existing impervious and vegetated areas.

The following table summarizes the proposed treatment.

TABLE 4
STORMWATER TREATMENT

	Impervious	Developed (Impervious + Landscaped)
Redeveloped Area Treated by the Wet Pond (SF)	47,961	58,788
Total Redeveloped Area (SF)	70,213	81,445
Untreated Redeveloped Area (SF)	22,252	22,657
Percent of Redeveloped area treated	68.3%	72.2%
New Construction treated by the Wet Pond (SF)	100,656	128,334
Total New Construction Area (SF)	101,160	128,838
Untreated New Construction Area (SF)	504	504
Percent of New Construction Treated (SF)	99.5%	99.6%
Total Area Treated by Wet Pond Including Existing Area (SF)	234,288	393,948
Total Area of Redevelopment and New Construction (SF)	168,798	207,708
Percent Treated Relative to Proposed Construction (SF)	139%	190%

The wet pond treats 72.2% of the developed redevelopment area, which exceeds the required 60% treatment.

The wet pond treats 99.5% of the new construction impervious area and 99.6% of the new construction developed area, which exceeds the required treatment of 95% of the impervious area and 80% of the developed area.

The wet pond also treats existing developed area, which results in an excess treatment of 44% of the impervious area and 110% of the developed area.

Water Quantity Measures

The proposed project will generate stormwater runoff that is directly tributary to the Fore River. Since the Applicant is requesting a waiver from the flooding standard, the analysis of post-development flow from the current project has been limited to determining the capacity of the existing storm drain outlet from the pond and storm drain system performance during peak tide and storm events.

The storm drain system consists of a 15-inch diameter pond outlet pipe that conveys runoff to 18-inch diameter pipes linking manholes and catch basins, before discharging the runoff at the high-water line of the Fore River.

The soil types are shown on the watershed map included in Attachment A were obtained from the NRCS Cumberland County Medium Intensity Soil Survey. The proposed development occurs over previously developed area labeled as Hinckley soil or over gravel pit, cut, and fill soil types. Post-development vegetated area is assumed to be hydrologic Group C soil for this analysis.

The permanent pool surface area has been assumed to have a CN of 98 with a time of concentration of zero, which results in instantaneous runoff from the pond surface.

The developed portion of the site tributary to the wet pond was modelled as one subcatchment with an assumed time of concentration of 6 minutes due to the large percentage of impervious surface. The post-development watershed map is included in Attachment A.

The wet pond outlet structure was modelled with an orifice outlet for the channel protection volume, and a weir to convey the larger storms. The orifice and weir convey the runoff to the existing 15-inch diameter culvert.

The low point in the drainage system connected to the wet pond is an existing catch basin to the west of the wet pond located in the loading/utility pad area adjacent to the existing building. The catch basin rim elevation is 13.07. The lowest point in the outlet storm drain system is a catch basin adjacent to the Fore River Parkway. The catch basin rim elevation is 15.02.

The wet pond performance for the various storm return periods is presented in the following table.

TABLE 5
WET POND

	Storm Event			
	2 Year	**10 Year**	**25 Year**	**100 Year**
Peak Inflow (CFS)	21.07	35.60	47.24	69.37
Peak Outflow (CFS)	1.23	3.78	6.20	11.85
Stage (Max. Elevation)	10.83	11.41	11.82	12.46
Storage (cf)	41,980	65,264	85,665	122,092
Depth Above Permanent Pool (ft)	1.33	1.91	2.32	2.96

As can be seen from the table above, the maximum stage within the wet pond is 12.46 for the 100-year storm, which is below the existing catch basin rim of 13.07.

The wet pond outlet storm drain is modelled as a series of ponds with insignificant storage with culvert outlets. In order to take into account the effect of the tidal Fore River at the outflow, the highest astronomical tide from the Maine Geologic Survey was set as a fixed tail water within the system. The highest astronomical tide is listed as elevation 6.7 (NAVD 88) at the Fore River. Converting elevation 6.7 to the project datum of NGVD 29 results in an

elevation of 7.4 for the highest astronomical tide. As can be seen in the HydroCAD printouts contained in Attachment B, the peak elevation of the stormwater outflow for the 100-year storm within the outlet storm drain system is below the existing catch basin rims.

The location of the proposed wet pond is within a depression on the project site, so there is not a berm that would be vulnerable to an overflow of the stormwater runoff. There is no overland emergency spillway proposed, since the area surrounding the pond is currently developed. The proposed outlet control structure will consist of a 6-foot diameter manhole with an open top. The top will be protected by a trash rack as shown on the Wet Pond detail sheet included with this report. The maximum opening size of the trash rack is 4 ¾ inches. The trash rack will prevent the outlet pipe from becoming clogged with debris; therefore, it is unlikely that the pond outlet will become plugged and require an emergency spillway to convey the runoff from the pond. In addition to the unlikely clogging of the outlet structure, Attachment B contains a routing of the wet pond with no outflow. The routing shows that the pond is capable of storing the entire volume of runoff from the 25-year storm without exceeding the existing catch basin rim of 13.07. The calculated peak stage of the 25-year storm routed to the wet pond with no outlet is 13.00.

The stormwater runoff is tributary to the Fore River; therefore, **a waiver from the Flooding Standard is requested**. The wet pond is capable of conveying runoff from the 100-year storm without exceeding the elevation of the low point in the existing storm drain system. The existing storm drain outlet will discharge at a stable riprapped location. A trash rack over the outlet control structure will ensure that the outlet pipe will not be clogged. The proposed wet pond has the capacity to store the entire runoff from a 25-year storm without exceeding the low point elevation. Based upon the factors stated, Gorrill Palmer is of the opinion that the project construction will not result in adverse effects to downstream conditions.

12.11 MAINTENANCE OF FACILITIES

The stormwater management facilities will be maintained by the Applicant or their assigns after construction is completed. The general contractor will be responsible for maintenance during construction. The contract documents will require that the contractor designate a person for maintenance of the facilities during construction as required by this application. Long-term operation/maintenance schedules for the facilities are provided in the updated O&M Manual included in Attachment D of this report.

12.12 CONCLUSION

The Stormwater Management Plan for this project is anticipated to mitigate any impacts of development on stormwater runoff rates and to provide treatment of pollutants in the runoff. The majority of the proposed development will be tributary to a closed wet pond with one point of discharge.

Based on the proposed design, the runoff from the proposed development will be captured and conveyed in a manner that will not have an adverse impact to the surrounding stormwater systems or the environment.

ATTACHMENT A

WATERSHED MAPS

PAN AM RAILWAY

N/F
ST. JOHN STREET ASSOCIATES
LIMITED PARTNERSHIP
6864/210

EXISTING PERIMETER
ACCESS ROAD

S16°57'07"E
290.08'

NEW MMC SURFACE
PARKING LOT

PARCEL A TRACT TWO
UTILITY AREA
23723/214 & 5738/60
22764/166 & 17783/296

S09°29'00"E
197.09'

S17°04'47"E
150.16'

S19°55'25"E
41.28'

EX. WATER MAIN TO
ST. JOHN STREET

S17°00'00"E
186.50'

42" SEWER 29175/262

R=4749'
3°45'05"ΔIN

N/F
UNION STATION
LIMITED PARTNERSHIP
10144/23

PARCEL A TRACT THREE
LICENSE AGREEMENT
17783/322
LICENSE AGREEMENT
14203/252

L=384.91'

COUNTY WAY

R=988.37'
66.00' R/W
N49°17'54"E

L=1102.20'

R=922.37'
L=522.60'

N/F
INHABITANTS
CUMBERLAND COUNTY
STATE OF MAINE
9382/61
9820/263

CUMBERLAND
COUNTY JAIL

GAS FACILITIES
EASEMENT
25696/212

UNDERGROUND UTILITY
LINE EASEMENT MAIN LINE

PORTLAND WATER DISTRICT
WATER LINE EASEMENT
25624/210

RECREATIONAL TRAIL EASEMENT
25855/253
26346/137

(SEE NOTE 7)
EDGE OF POND

EDGE OF POND
POND EASEMENT AREA
25591/149

THIS AREA INCLUDED IS
VOLUME CALCULATION
(SEE NOTE 7)

REDEVELOPMENT BOUNDARY

UNDERGROUND UTILITY
LINE EASEMENT SOUR
25971/306

GENERATOR

OXYGEN

CHILLER

PIPELINE PER
19154/555

LOAD DOCK

CONC.
RAMP

EX. SMOKE
PIT

EX. GREASE
TANK

EX. LIFT STA.

EX. 4" FM (CONNECTS
TO TERMINUS MANHOLE
AT FRONT OF BLDG.

MERCY HOSPITAL
4 STORY BRICK BUILDING
FOOTPRINT - 37,566 GSF
TOTAL AREA - 138,099 GSF

MEDICAL OFFICE BUILDING
4 STORY BRICK
FOOTPRINT - 20,047 GSF
TOTAL AREA - 82,186 GSF

OVERHANG
BRICK

CONCRETE

EX. RAISED CROSSWALK

EX. CONC.

TRANS. PAD
W/GENERATOR

PAVED WALK

EX. FIRE LINE
SUPPLY
METER PIT

STORM SEWER OUTLET
22266/52

L=185.42'
R=197.50'
N18°18'41"W
252.78'

N62°48'26"E
13.12'
(S)

L=197.60'
R=1184.38'

N56°45'03"W
472.62'

I-295 CONNECTOR
(FORE RIVER PARKWAY)
19154/555

EX. FORE RIVER
TRAIL - 10' WIDE,
SHARED USE

AREA BETWEEN
HIGH & LOW WATER
OWNED BY MERCY HOSPITAL

HIGH WATER LINE OF FORE RIVER

FORE RIVER

FORE RIVER
MUD FLATS

LEGEND

- OTHER ROADS, MEDIUM USE PARKING
- OTHER ROOFS, BIKEWAYS, GRASS MOWED MORE THAN 2x / YR, WALKWAYS / FOOT TRAFFIC ONLY PAVEMENT
- NON-GRASS LANDSCAPE, STORMWATER TREATMENT / STORAGE

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 inch = 40 ft.

STATE OF MAINE
STEPHEN R.
BUSHEY
08.30.19
LICENSED
PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB | Draft: CDD | Date: AUG. 2019
Checked: SRB | Scale: | Job No.: 3257.04
File Name: 325704–existing.dwg

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207.772.2515

Drawing Name: Current Conditions Landcover Map
Project: Fore River Campus Consolidation
Portland, Maine
Client: Northern Light Mercy Hospital
144 State Street, Portland, Maine 04101

Drawing No. W–1

U:\3257.04_Mercy Hospital_Expansion_DD_Permits\STANTEC\civil\cadd\permit\dwg\325704–existing.dwg 8/30/2019 12:12 PM

ST. JOHN STREET ASSOCIATES
LIMITED PARTNERSHIP
6864/210

EXISTING PERIMETER
ACCESS ROAD

EX. WATER MAIN TO
ST. JOHN STREET

N/F
UNION STATION
LIMITED PARTNERSHIP
10144/23

COUNTY WAY

N/F
INHABITANTS
ERLAND COUNTY
TE OF MAINE
9382/61
9820/263

CUMBERLAND
COUNTY JAIL

MERCY HOSPITAL
4 STORY BRICK BUILDING
FOOTPRINT - 37,566 GSF
TOTAL AREA - 138,099 GSF

MEDICAL OFFICE BUILDING
4 STORY BRICK
FOOTPRINT - 20,047 GSF
TOTAL AREA - 82,186 GSF

GENERATOR

I-295 CONNECTOR
(FORE RIVER PARKWAY)
1915/1735

FORE RIVER
MUD FLATS

FORE RIVER

REDEVELOPMENT BOUNDARY

LEGEND

- ROADS WITH IDLING, HIGH USE PARKING
- OTHER PARKING AND DRIVEWAYS, FLAT ASPHALT ROOFS, IND. ROOFS
- OTHER ROOFS, BIKEWAYS, GRASS MOWED MORE THAN 2x / YR, WALKWAYS / FOOT TRAFFIC ONLY PAVEMENT
- NON-GRASS LANDSCAPE, STORMWATER TREATMENT / STORAGE

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
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(IN FEET)
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Design: SRB	Draft: CDD	Date: AUG. 2019
Checked: SRB	Scale:	Job No.: 3257.04
File Name: 3257.04-WSHED-POST.dwg		

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Drawing Name: Post–Development Landcover Map
Project: Fore River Campus Consolidation
Portland, Maine
Client: Northern Light Mercy Hospital
144 State Street, Portland, Maine 04101

Drawing No. W–2

U:\3257.04_Mercy Hospital_Expansion_DD_Permits\STANTEC\civil\cadd\permit\dwg\3257.04-WSHED-POST.dwg 8/30/2019 12:40 PM

WATERSHED LEGEND

- WATERSHED BOUNDARY
- A — B: WATERSHED FLOW PATH
- 999: SUBCATCHMENT
- 999: REACH
- SF: SHEET FLOW
- SCF: SHALLOW CONCENTRATED FLOW
- CF: CHANNEL FLOW
- CC: CIRCULAR CHANNEL
- POI: POINT OF INTEREST
- 999: POND

PAN AM RAILWAY

N/F
ST. JOHN STREET ASSOCIATES
LIMITED PARTNERSHIP
6864/210

EXISTING PERIMETER ACCESS ROAD

OUTLET CONTROL STRUCTURE

EXISTING DOWNSTREAM DEFENDER

FORE RIVER MUD FLATS

STORM DRAIN OUTLET LOCATION

WET POND

FORE RIVER MUD FLATS

N/F
UNION STATION
LIMITED PARTNERSHIP
10144/23

COUNTY WAY

MERCY HOSPITAL
4 STORY BRICK
FOOTPRINT - 37,566 GSF
TOTAL AREA - 138,099 GSF

MEDICAL OFFICE BUILDING
4 STORY BRICK
FOOTPRINT - 20,047 GSF
TOTAL AREA - 82,186 GSF

I-295 CONNECTOR
(FORE RIVER PARKWAY)

FORE RIVER

N/F
INHABITANTS
CUMBERLAND COUNTY
STATE OF MAINE
9382/61
9820/263

CUMBERLAND COUNTY JAIL

WATERSHED BOUNDARY

EXISTING DOWNSTREAM DEFENDER

NOTE:
TIME OF CONCENTRATION AT SUBCATCHMENT 7S IS ASSUMED TO BE 0 MINUTES. TIME OF CONCENTRATION AT ALL OTHER SUBCATCHMENTS IS ASSUMED TO BE 5 MINUTES.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 inch = 40 ft.

STATE OF MAINE
STEPHEN R. BUSHEY
08.30.19
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
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PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB | Draft: CDD | Date: AUG. 2019
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Drawing Name: Post–Development Watershed Map
Project: Fore River Campus Consolidation, Portland, Maine
Client: Northern Light Mercy Hospital, 144 State Street, Portland, Maine 04101

Drawing No. W–3

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STORMWATER QUALITY TREATMENT

	IMPERVIOUS					DEVELOPED				TREATMENT
SUBCATCHMENT	COVER TYPE	AREA (SF)	AMOUNT TREATED	% AREA	% TREATED	AREA (SF)	AMOUNT TREATED	% AREA	% TREATED	
1	PROPOSED/REDEVELOPED PAVE/ROOF	148,617	100%	*	*	187,122	100%	*	*	WET POND
2	EXISTING PAVE/ROOF	85,671	100%	*	*	206,826	100%	*	*	WET POND
3	PAVE	22,756	0%	*	*	23,161	0%	*	*	UNTREATED
TOTAL % TREATMENT					*	TOTAL % TREATMENT			*	

*SEE TREATMENT TABLE BELOW

LEGEND

- AREA UNTREATED
- EXISTING AREA TREATED BY WET POND
- AREA TREATED BY WET POND
- (1) SUBCATCHMENT

Table 4 – Stormwater Treatment

	IMPERVIOUS	DEVELOPED (Impervious + Landscaped)
Redeveloped area treated by the Wet Pond (sf)	47,961	58,788
Total Redeveloped Area (sf)	70,213	81,445
Untreated Redeveloped Area (sf)	22,252	22,657
Percent of Redeveloped area treated	68.3%	72.2%
New Construction treated by the Wet Pond (sf)	100,656	128,334
Total New Construction Area (sf)	101,160	128,838
Untreated New Construction Area (sf)	504	504
Percent of New Construction treated (sf)	99.5%	99.6%
Total Area Treated by Wet Pond Including existing area (sf)	234,288	393,948
Total Area of Redevelopment and New Construction (sf)	168,798	207,708
Percent Treated relative to proposed construction (sf)	139%	190%

REQUIRED TREATMENT:
REDEVELOPED: 60% OF DEVELOPED AREA
NEW CONSTRUCTION: 95% OF IMPERVIOUS AREA
80% OF DEVELOPED AREA

PAN AM RAILWAY

N/F
ST. JOHN STREET ASSOCIATES
LIMITED PARTNERSHIP
6864/210

EXISTING PERIMETER ACCESS ROAD

N/F
UNION STATION
LIMITED PARTNERSHIP
10144/23

COUNTY WAY

N/F
INHABITANTS
CUMBERLAND COUNTY
STATE OF MAINE
9382/61
9820/263

CUMBERLAND COUNTY JAIL

MERCY HOSPITAL
4 STORY W/BASEMENT
FOOTPRINT - 37,566 GSF
TOTAL AREA - 138,099 GSF

MEDICAL OFFICE BUILDING
4 STORY BRICK
FOOTPRINT - 20,047 GSF
TOTAL AREA - 82,186 GSF

EX. FORE RIVER TRAIL - 10' WIDE, SHARED USE

WET POND

FORE RIVER MUD FLATS

I-295 CONNECTOR (FORE RIVER PARKWAY)

FORE RIVER

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 inch = 40 ft.

STATE OF MAINE
STEPHEN R. BUSHEY
08.30.19
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

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PERMIT APPROVAL SUBMISSION	08.30.19	SRB
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Design: SRB	Draft: CDD	Date: AUG. 2019	
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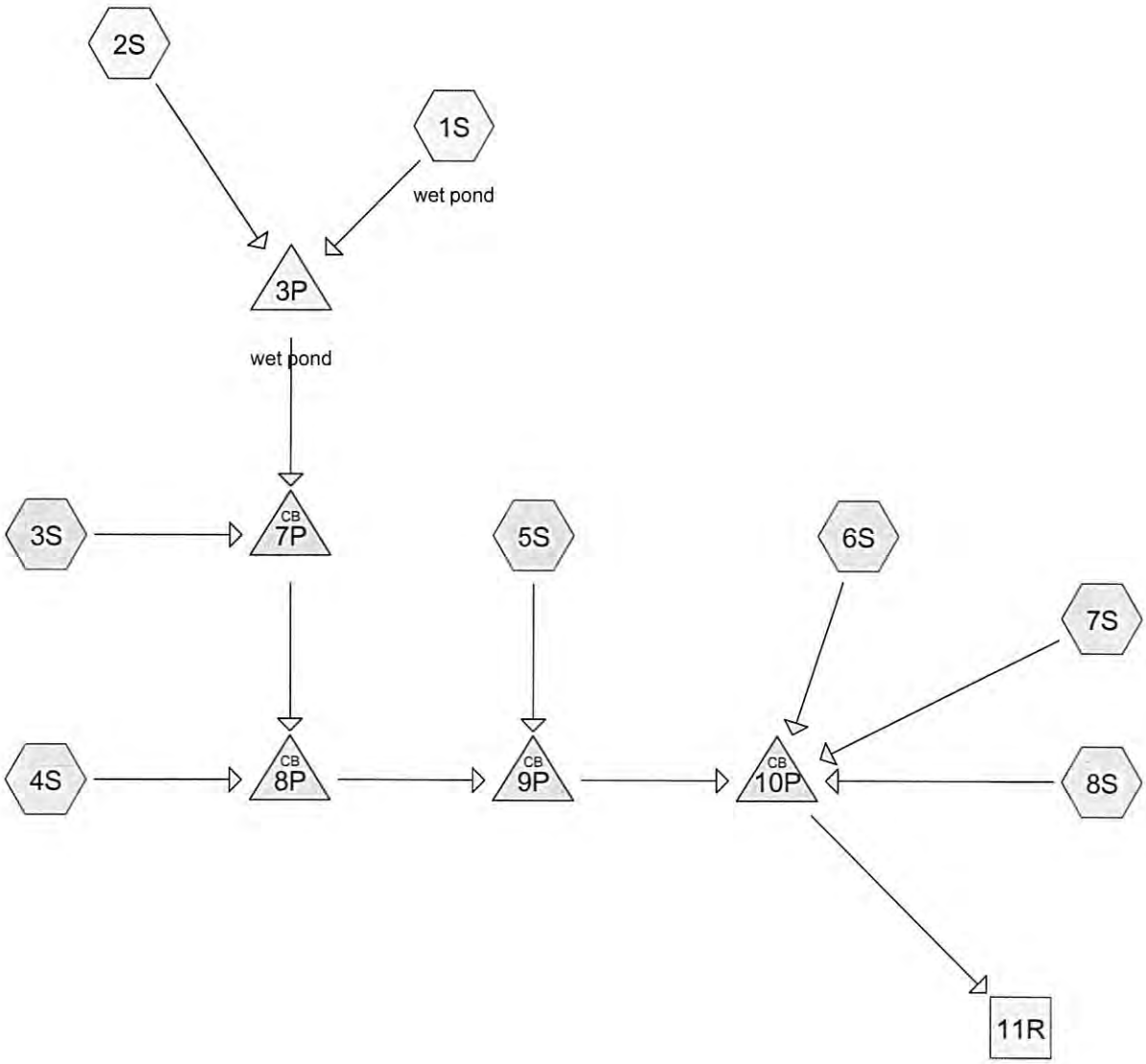
Drawing Name:	Water Quality Map
Project:	Fore River Campus Consolidation Portland, Maine
Client:	Northern Light Mercy Hospital 144 State Street, Portland, Maine 04101

Drawing No. WQ

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ATTACHMENT B

POST DEVELOPMENT HYDROCAD MODEL



Subcat Reach Pond Link

Routing Diagram for wet pond
Prepared by Gorrill Palmer, Printed 8/2/2019
HydroCAD® 10.00-22 s/n 01265 © 2018 HydroCAD Software Solutions LLC

Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: wet pond Runoff Area=21,798 sf 100.00% Impervious Runoff Depth=5.56"
Tc=0.0 min CN=98 Runoff=3.47 cfs 0.232 af

Subcatchment 2S: Runoff Area=393,948 sf 59.47% Impervious Runoff Depth=4.43"
Tc=6.0 min CN=88 Runoff=45.51 cfs 3.341 af

Subcatchment 3S: Runoff Area=22,488 sf 60.03% Impervious Runoff Depth=4.43"
Tc=6.0 min CN=88 Runoff=2.60 cfs 0.191 af

Subcatchment 4S: Runoff Area=14,264 sf 92.54% Impervious Runoff Depth=5.33"
Tc=6.0 min CN=96 Runoff=1.84 cfs 0.145 af

Subcatchment 5S: Runoff Area=6,504 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=0.85 cfs 0.069 af

Subcatchment 6S: Runoff Area=11,944 sf 0.00% Impervious Runoff Depth=3.02"
Tc=6.0 min CN=74 Runoff=0.97 cfs 0.069 af

Subcatchment 7S: Runoff Area=16,308 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=2.13 cfs 0.174 af

Subcatchment 8S: Runoff Area=11,220 sf 100.00% Impervious Runoff Depth=5.56"
Tc=6.0 min CN=98 Runoff=1.46 cfs 0.119 af

Reach 11R: Inflow=12.89 cfs 3.906 af
Outflow=12.89 cfs 3.906 af

Pond 3P: wet pond Peak Elev=11.82' Storage=167,902 cf Inflow=47.24 cfs 3.573 af
Outflow=6.20 cfs 3.139 af

Pond 7P: Peak Elev=8.43' Inflow=6.68 cfs 3.329 af
18.0" Round Culvert n=0.013 L=110.0' S=0.0065 '/' Outflow=6.68 cfs 3.329 af

Pond 8P: Peak Elev=8.20' Inflow=7.63 cfs 3.475 af
18.0" Round Culvert n=0.013 L=40.0' S=0.0113 '/' Outflow=7.63 cfs 3.475 af

Pond 9P: Peak Elev=8.38' Inflow=8.43 cfs 3.544 af
18.0" Round Culvert n=0.013 L=35.0' S=0.0020 '/' Outflow=8.43 cfs 3.544 af

Pond 10P: Peak Elev=10.60' Inflow=12.89 cfs 3.906 af
18.0" Round Culvert n=0.013 L=130.0' S=0.0050 '/' Outflow=12.89 cfs 3.906 af

Total Runoff Area = 11.443 ac Runoff Volume = 4.340 af Average Runoff Depth = 4.55"
36.44% Pervious = 4.170 ac 63.56% Impervious = 7.273 ac

Summary for Subcatchment 1S: wet pond

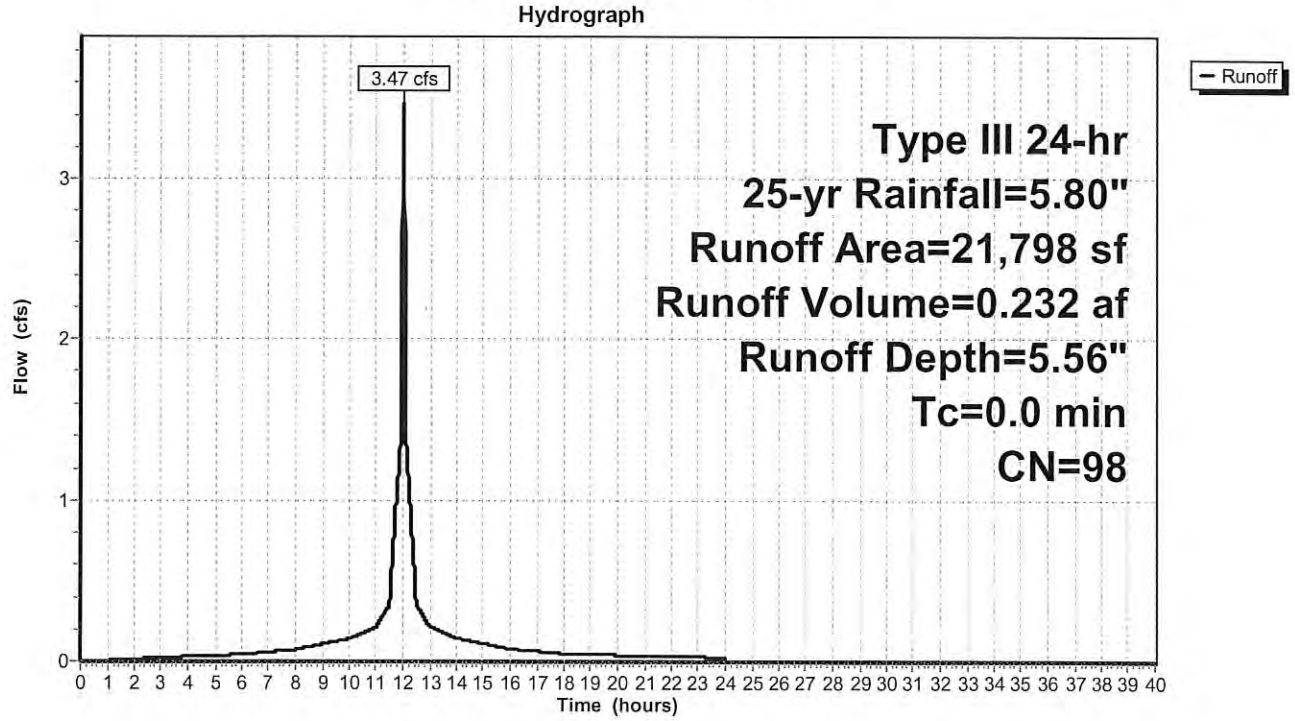
Runoff = 3.47 cfs @ 12.00 hrs, Volume= 0.232 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
21,798	98	Water Surface, HSG A
21,798		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment 1S: wet pond



Summary for Subcatchment 2S:

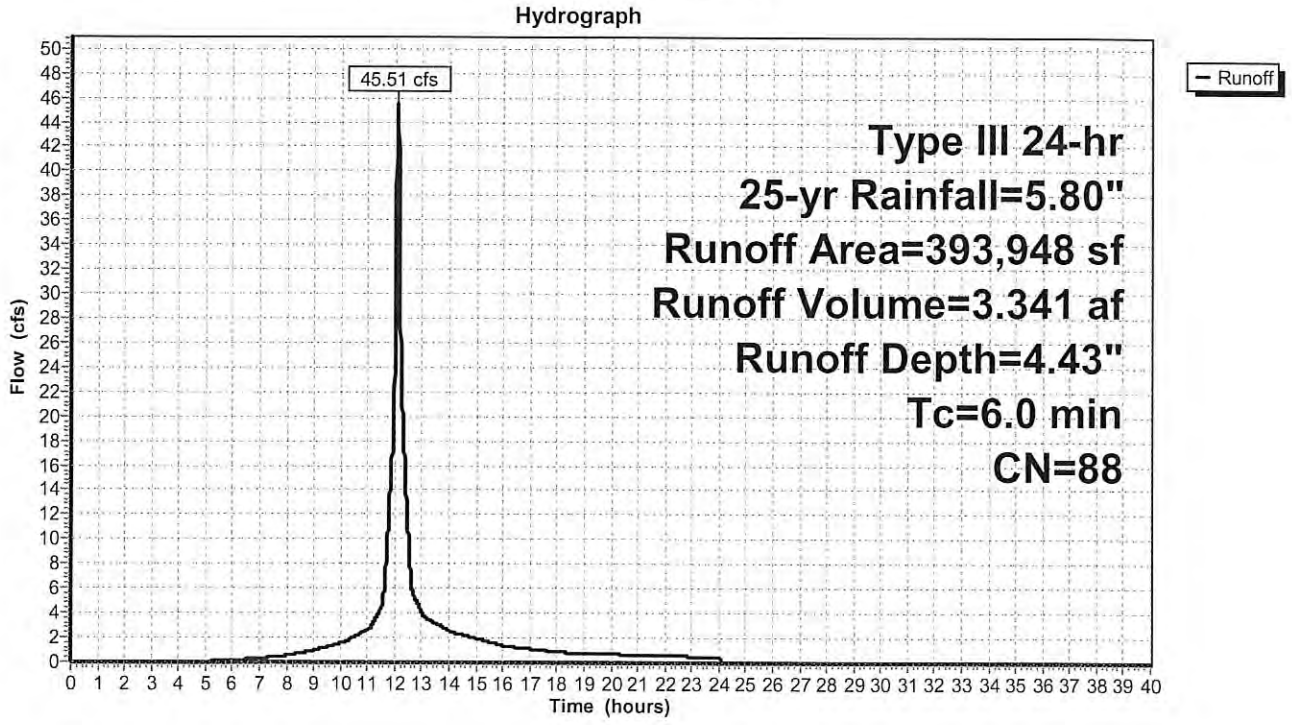
Runoff = 45.51 cfs @ 12.09 hrs, Volume= 3.341 af, Depth= 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
234,288	98	Paved parking, HSG A
159,660	74	>75% Grass cover, Good, HSG C
393,948	88	Weighted Average
159,660		40.53% Pervious Area
234,288		59.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 2S:



Summary for Subcatchment 3S:

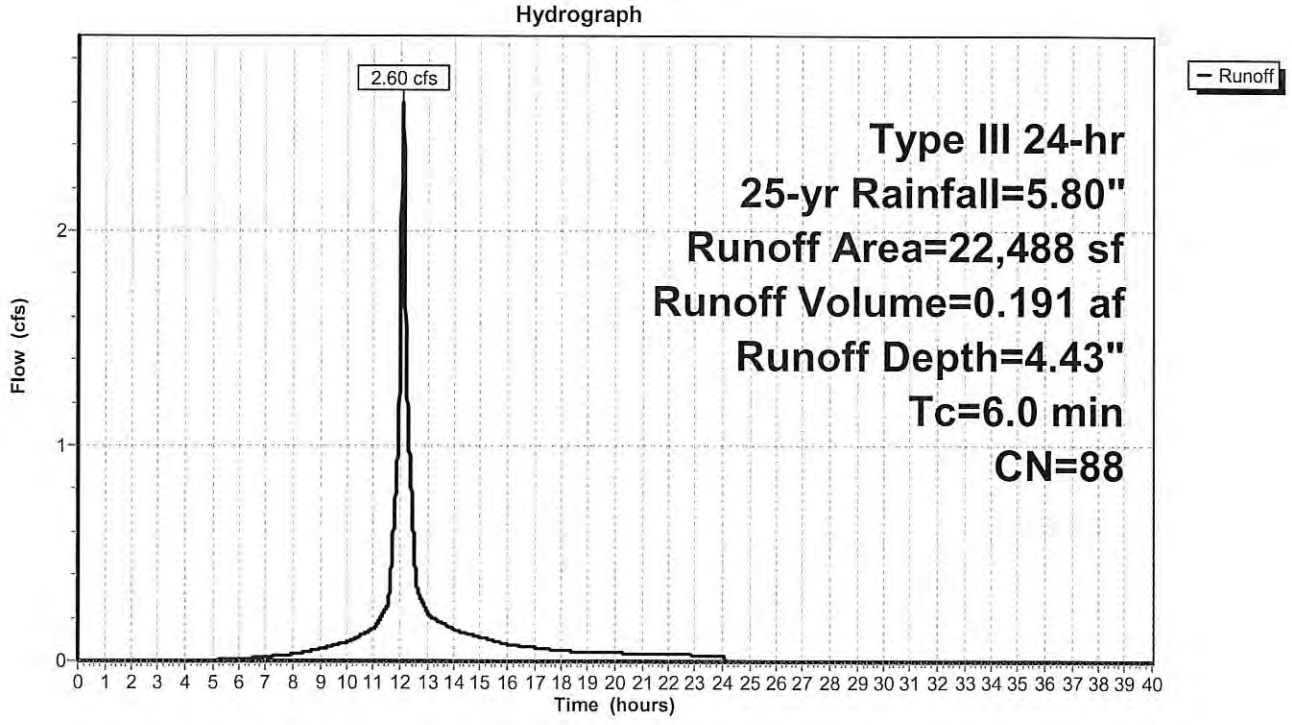
Runoff = 2.60 cfs @ 12.09 hrs, Volume= 0.191 af, Depth= 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
13,500	98	Paved parking, HSG A
8,988	74	>75% Grass cover, Good, HSG C
22,488	88	Weighted Average
8,988		39.97% Pervious Area
13,500		60.03% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 3S:



Summary for Subcatchment 4S:

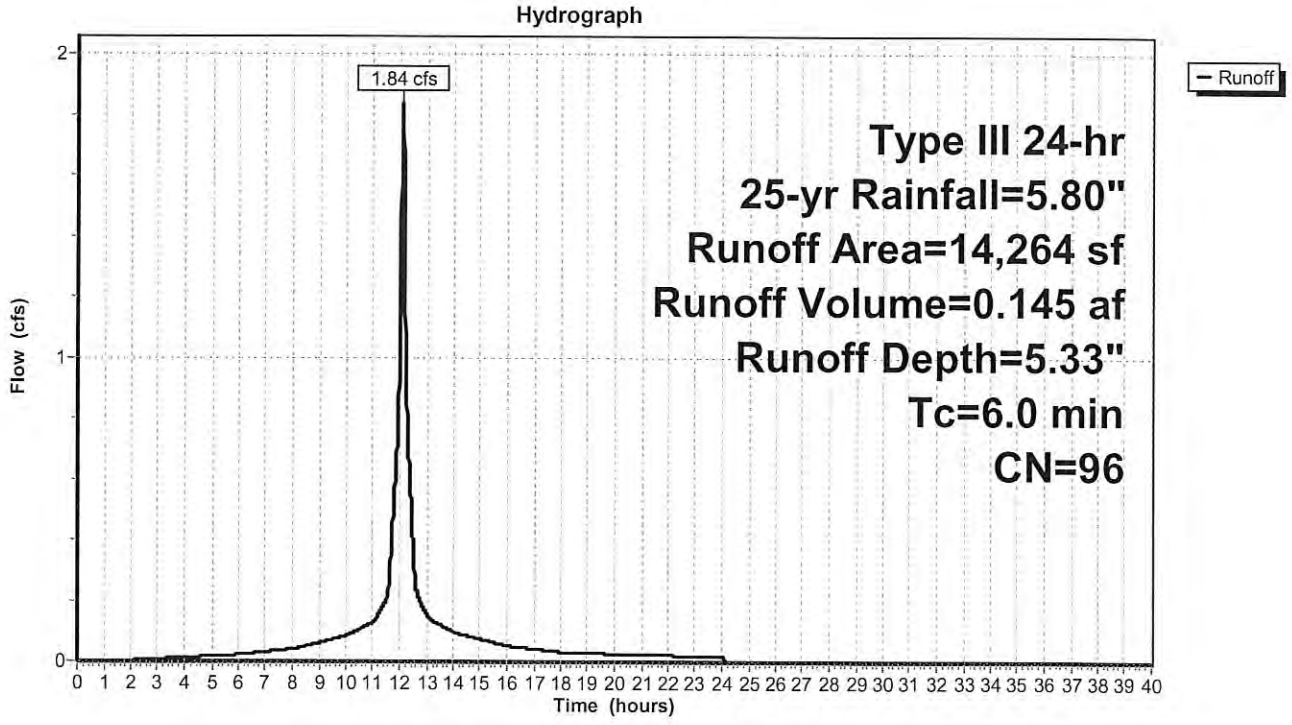
Runoff = 1.84 cfs @ 12.08 hrs, Volume= 0.145 af, Depth= 5.33"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
13,200	98	Paved parking, HSG A
1,064	74	>75% Grass cover, Good, HSG C
14,264	96	Weighted Average
1,064		7.46% Pervious Area
13,200		92.54% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 4S:



Summary for Subcatchment 5S:

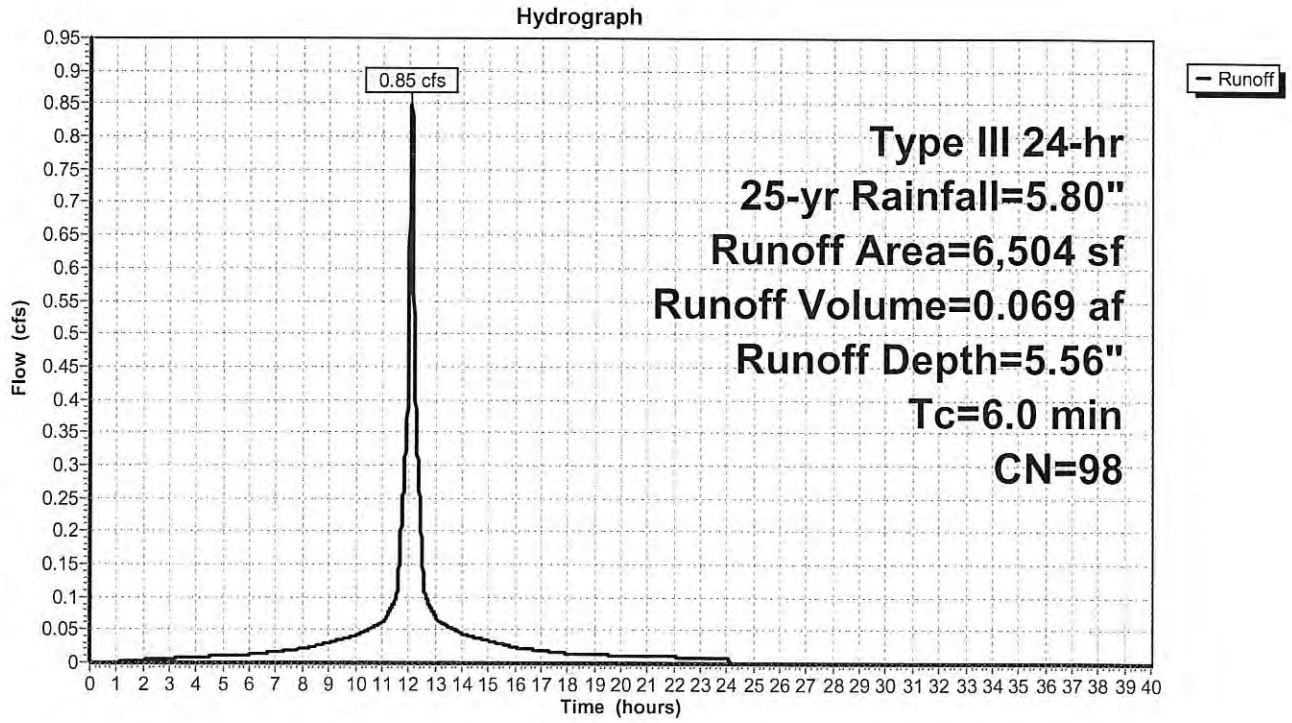
Runoff = 0.85 cfs @ 12.08 hrs, Volume= 0.069 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
6,504	98	Paved parking, HSG A
6,504		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 5S:



Summary for Subcatchment 6S:

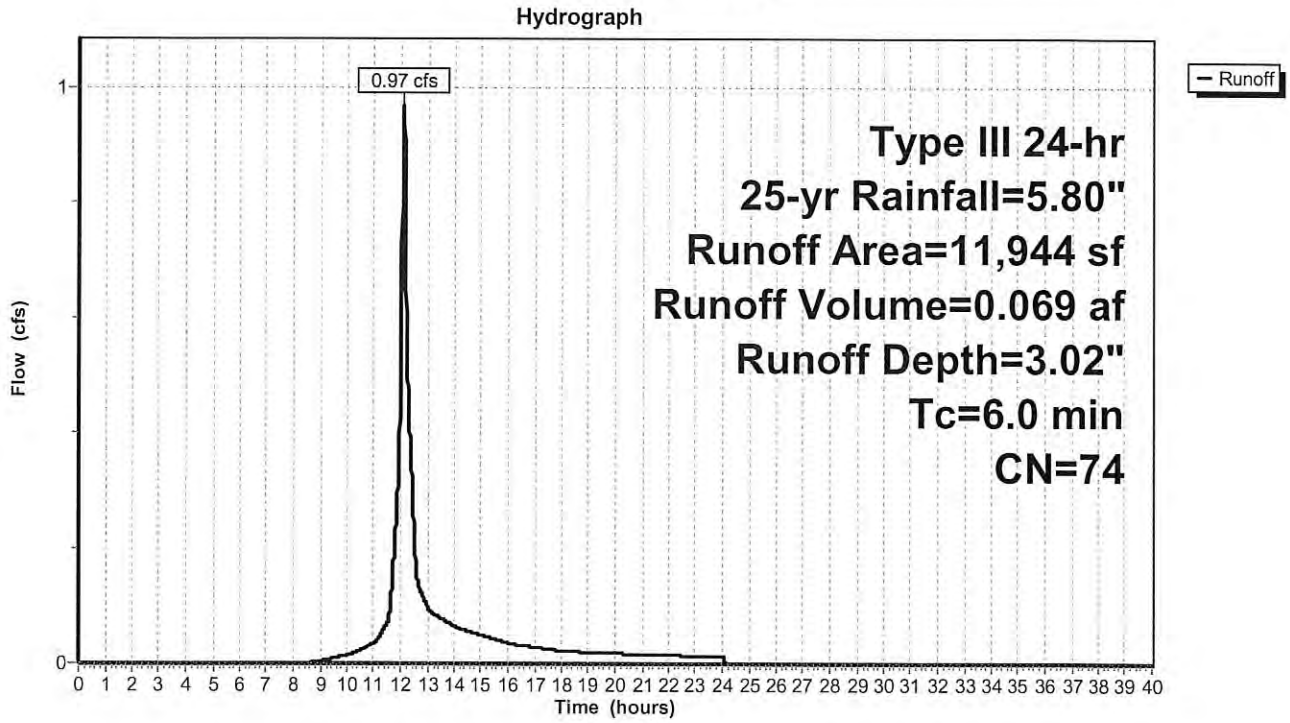
Runoff = 0.97 cfs @ 12.09 hrs, Volume= 0.069 af, Depth= 3.02"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
11,944	74	>75% Grass cover, Good, HSG C
11,944		100.00% Pervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 6S:



Summary for Subcatchment 7S:

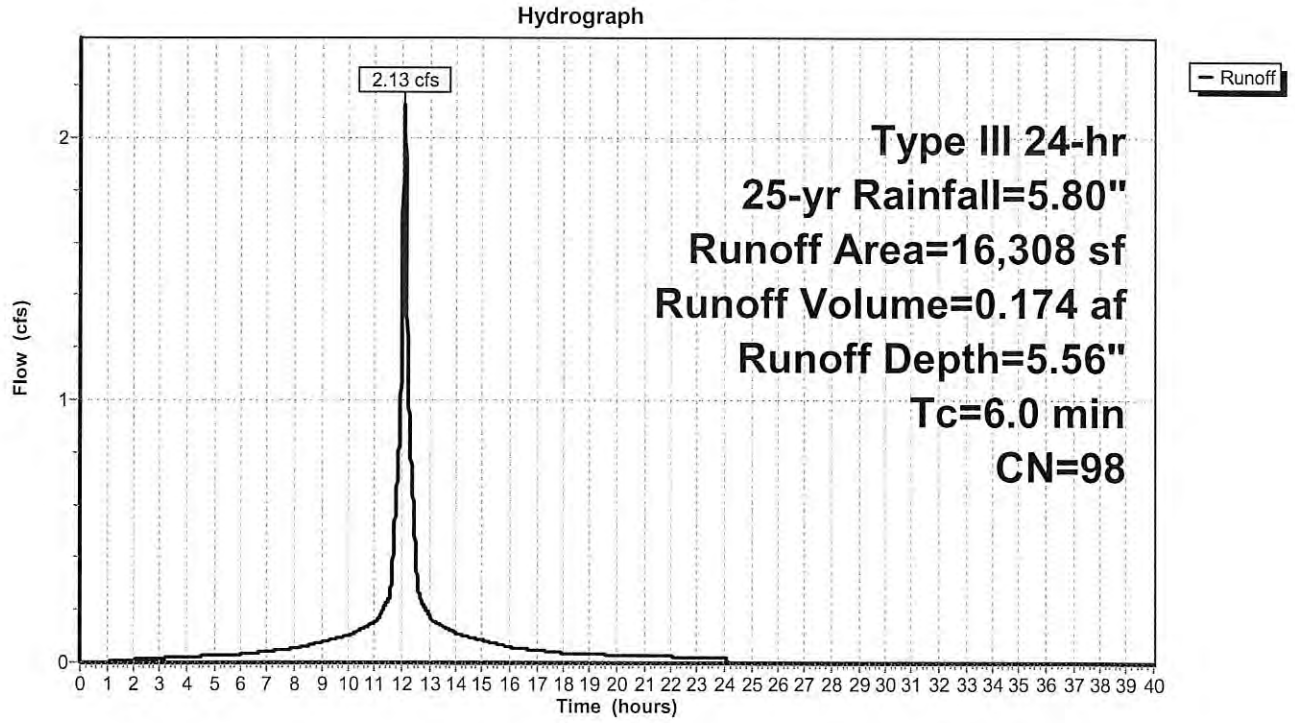
Runoff = 2.13 cfs @ 12.08 hrs, Volume= 0.174 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
16,308	98	Paved parking, HSG A
16,308		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 7S:



Summary for Subcatchment 8S:

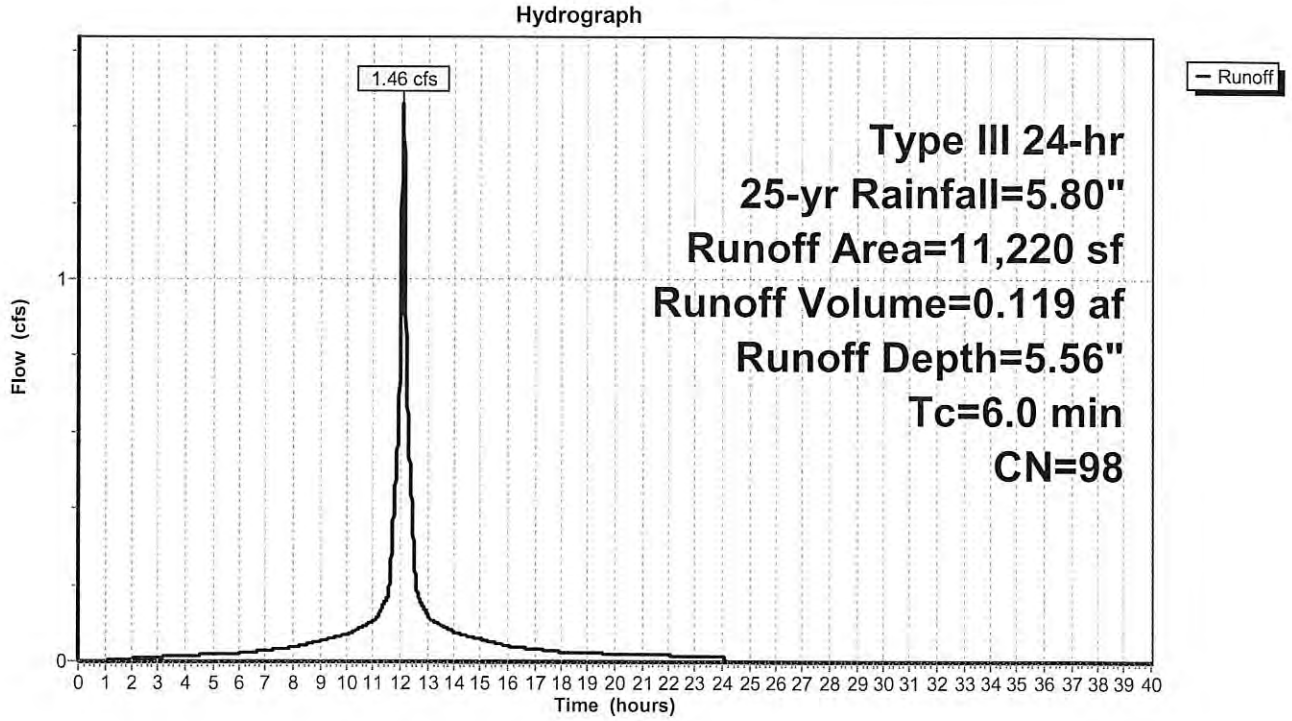
Runoff = 1.46 cfs @ 12.08 hrs, Volume= 0.119 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
11,220	98	Paved parking, HSG A
11,220		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
6.0					**Direct Entry,**

Subcatchment 8S:

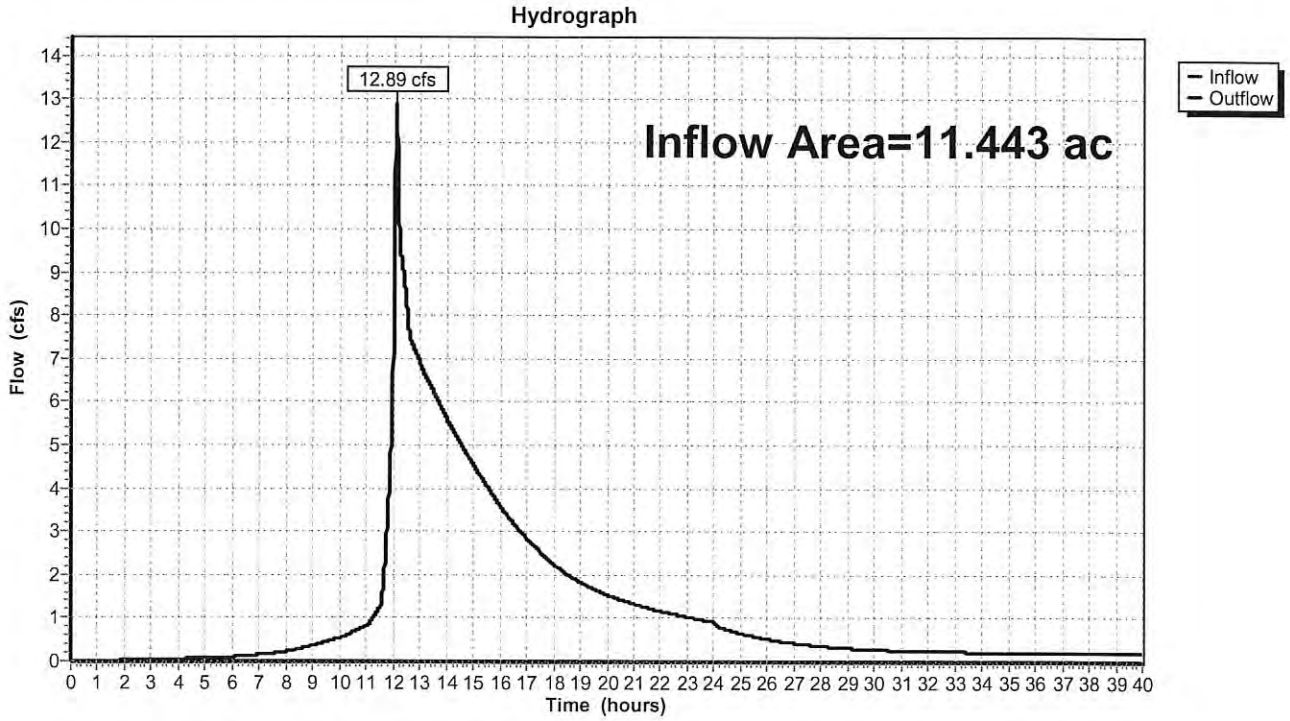


Summary for Reach 11R:

Inflow Area = 11.443 ac, 63.56% Impervious, Inflow Depth > 4.10" for 25-yr event
Inflow = 12.89 cfs @ 12.10 hrs, Volume= 3.906 af
Outflow = 12.89 cfs @ 12.10 hrs, Volume= 3.906 af, Atten= 0%, Lag= 0.0 min

Routing by Stor-Ind+Trans method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs

Reach 11R:



Summary for Pond 3P: wet pond

Inflow Area = 9.544 ac, 61.60% Impervious, Inflow Depth = 4.49" for 25-yr event
Inflow = 47.24 cfs @ 12.08 hrs, Volume= 3.573 af
Outflow = 6.20 cfs @ 12.64 hrs, Volume= 3.139 af, Atten= 87%, Lag= 33.2 min
Primary = 6.20 cfs @ 12.64 hrs, Volume= 3.139 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Starting Elev= 9.50' Surf.Area= 21,798 sf Storage= 82,236 cf
Peak Elev= 11.82' @ 12.64 hrs Surf.Area= 53,220 sf Storage= 167,902 cf (85,665 cf above start)

Plug-Flow detention time= 740.8 min calculated for 1.251 af (35% of inflow)
Center-of-Mass det. time= 273.4 min (1,062.7 - 789.2)

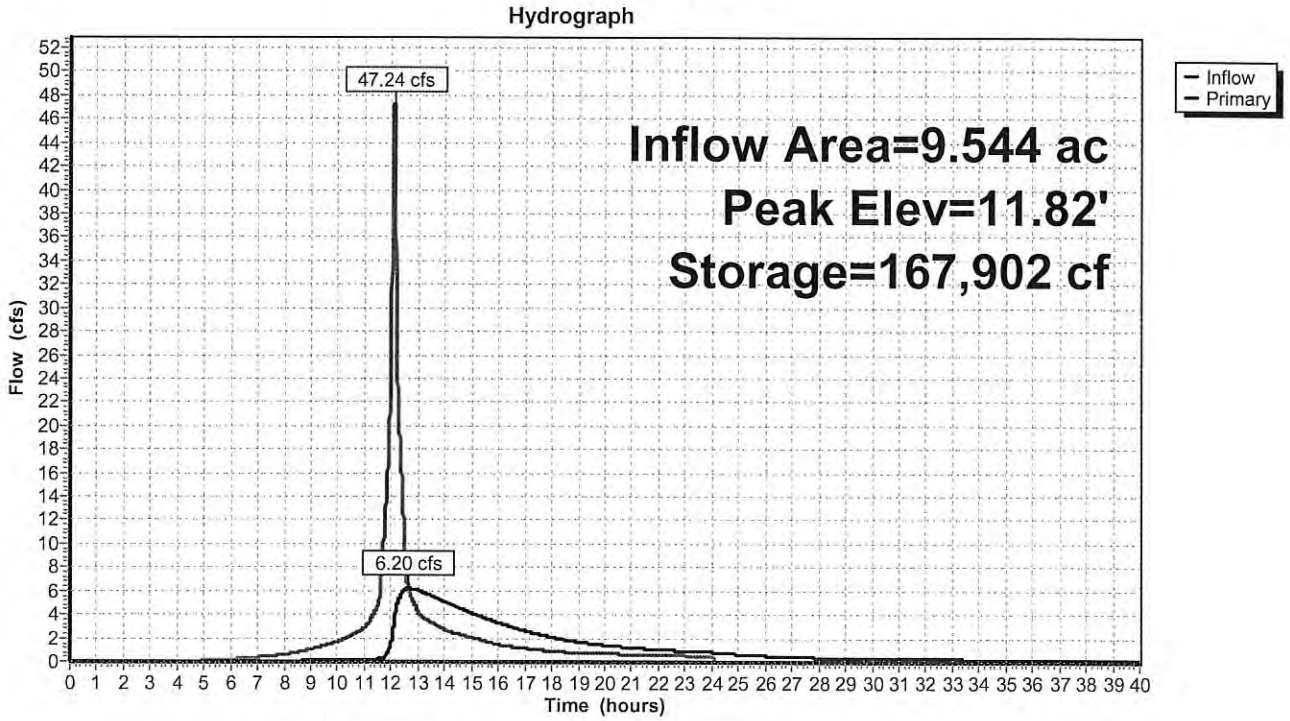
Volume	Invert	Avail.Storage	Storage Description
#1	4.50'	238,036 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
4.50	11,142	540.0	0	0	11,142
5.00	12,303	580.0	5,859	5,859	14,718
9.00	20,925	665.0	65,697	71,556	23,500
9.50	21,798	720.0	10,680	82,236	29,571
10.00	31,707	920.0	13,299	95,535	55,676
11.00	38,223	1,495.0	34,914	130,450	166,186
12.00	56,772	1,700.0	47,193	177,642	218,332
13.00	64,089	1,470.0	60,394	238,036	276,373

Device	Routing	Invert	Outlet Devices
#1	Primary	7.78'	**15.0" Round Culvert** L= 60.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 7.78' / 7.01' S= 0.0128 '/' Cc= 0.900 n= 0.013, Flow Area= 1.23 sf
#2	Device 1	12.00'	**14.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#3	Device 1	10.36'	**1.0' long x 0.7' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 1.20 1.40 1.60 1.80 2.00 2.50 Coef. (English) 2.76 2.82 2.93 3.09 3.18 3.22 3.27 3.30 3.32 3.31 3.32
#4	Device 1	9.50'	**3.2" Vert. Orifice/Grate** C= 0.600
#5	Device 4	9.50'	**1.0' long x 0.5' breadth Broad-Crested Rectangular Weir** Head (feet) 0.20 0.40 0.60 0.80 1.00 Coef. (English) 2.80 2.92 3.08 3.30 3.32

Primary OutFlow Max=6.20 cfs @ 12.64 hrs HW=11.82' TW=7.40' (Fixed TW Elev= 7.40')
- **1=Culvert** (Passes 6.20 cfs of 10.92 cfs potential flow)
  - **2=Broad-Crested Rectangular Weir** (Controls 0.00 cfs)
  - **3=Broad-Crested Rectangular Weir** (Weir Controls 5.80 cfs @ 3.97 fps)
  - **4=Orifice/Grate** (Orifice Controls 0.40 cfs @ 7.12 fps)
    - **5=Broad-Crested Rectangular Weir** (Passes 0.40 cfs of 11.75 cfs potential flow)

Pond 3P: wet pond



Summary for Pond 7P:

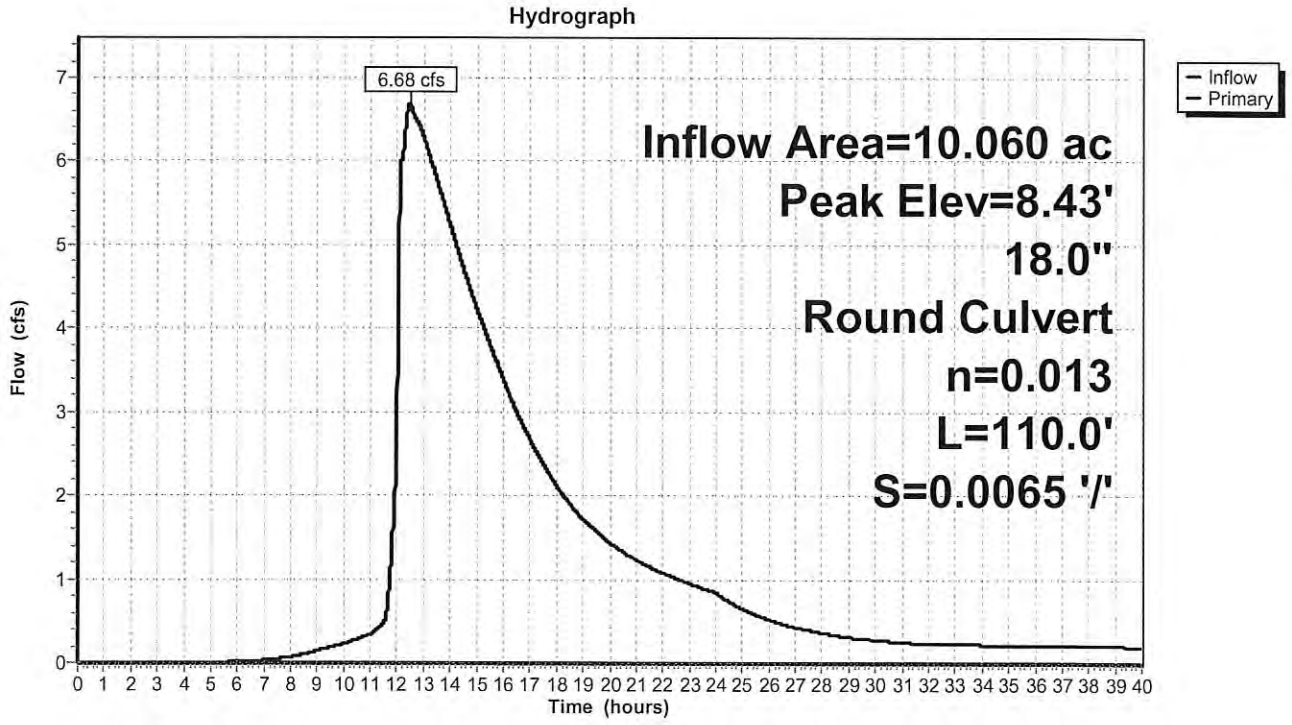
Inflow Area = 10.060 ac, 61.52% Impervious, Inflow Depth > 3.97" for 25-yr event
Inflow = 6.68 cfs @ 12.47 hrs, Volume= 3.329 af
Outflow = 6.68 cfs @ 12.47 hrs, Volume= 3.329 af, Atten= 0%, Lag= 0.0 min
Primary = 6.68 cfs @ 12.47 hrs, Volume= 3.329 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 8.43' @ 12.47 hrs
Flood Elev= 18.71'

Device	Routing	Invert	Outlet Devices
#1	Primary	6.91'	**18.0" Round Culvert** L= 110.0' CPP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 6.91' / 6.19' S= 0.0065 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=6.68 cfs @ 12.47 hrs HW=8.43' TW=7.40' (Fixed TW Elev= 7.40')
↑—**1=Culvert** (Outlet Controls 6.68 cfs @ 4.65 fps)

Pond 7P:



Summary for Pond 8P:

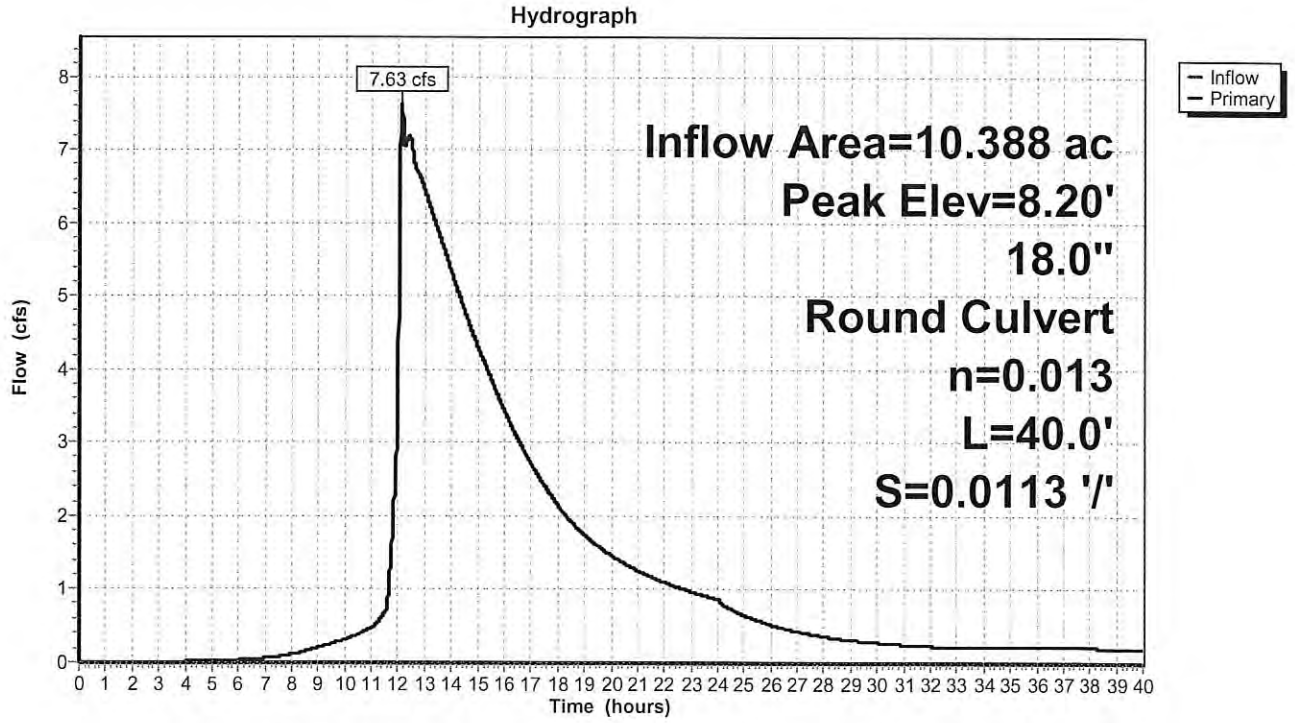
Inflow Area = 10.388 ac, 62.49% Impervious, Inflow Depth > 4.01" for 25-yr event
Inflow = 7.63 cfs @ 12.11 hrs, Volume= 3.475 af
Outflow = 7.63 cfs @ 12.11 hrs, Volume= 3.475 af, Atten= 0%, Lag= 0.0 min
Primary = 7.63 cfs @ 12.11 hrs, Volume= 3.475 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 8.20' @ 12.11 hrs
Flood Elev= 16.29'

Device	Routing	Invert	Outlet Devices
#1	Primary	5.99'	**18.0" Round Culvert** L= 40.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 5.99' / 5.54' S= 0.0113 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=7.63 cfs @ 12.11 hrs HW=8.20' TW=7.40' (Fixed TW Elev= 7.40')
↑—**1=Culvert** (Inlet Controls 7.63 cfs @ 4.32 fps)

Pond 8P:



Summary for Pond 9P:

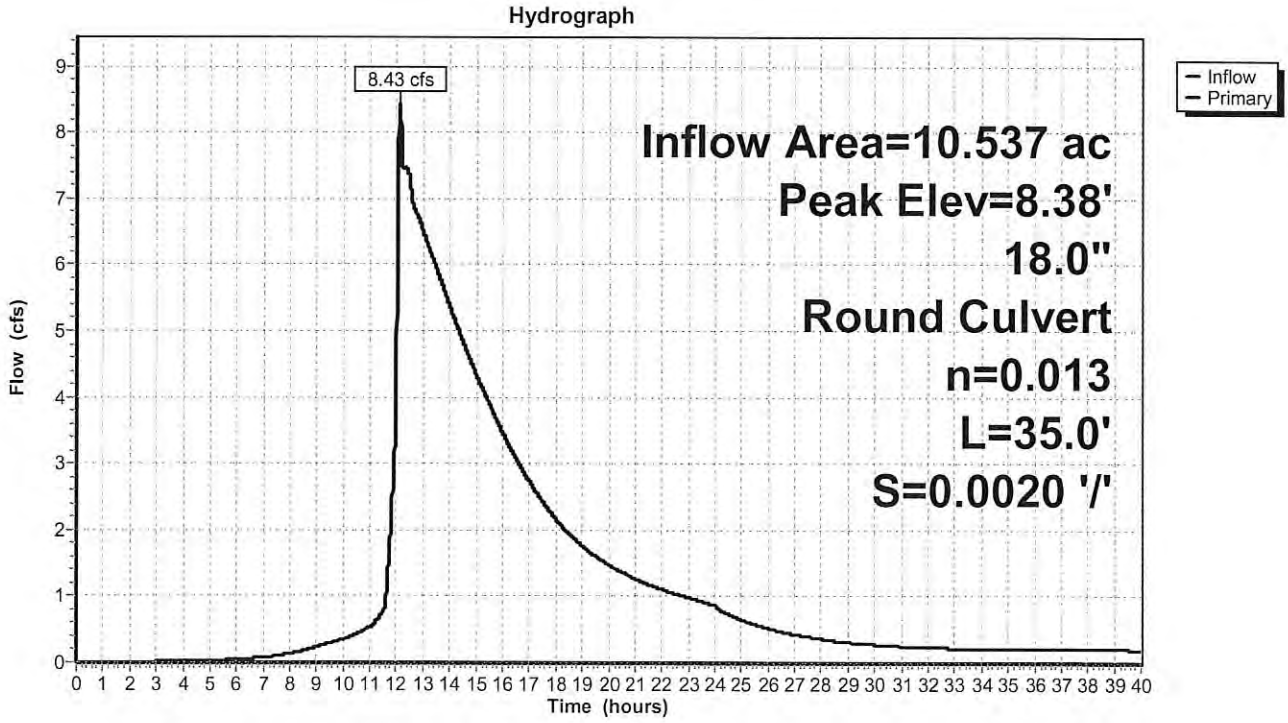
Inflow Area = 10.537 ac, 63.03% Impervious, Inflow Depth > 4.04" for 25-yr event
Inflow = 8.43 cfs @ 12.11 hrs, Volume= 3.544 af
Outflow = 8.43 cfs @ 12.11 hrs, Volume= 3.544 af, Atten= 0%, Lag= 0.0 min
Primary = 8.43 cfs @ 12.11 hrs, Volume= 3.544 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 8.38' @ 12.11 hrs
Flood Elev= 15.84'

Device	Routing	Invert	Outlet Devices
#1	Primary	5.34'	**18.0" Round Culvert** L= 35.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 5.34' / 5.27' S= 0.0020 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=8.43 cfs @ 12.11 hrs HW=8.38' TW=7.40' (Fixed TW Elev= 7.40')
↑—**1=Culvert** (Inlet Controls 8.43 cfs @ 4.77 fps)

Pond 9P:



Summary for Pond 10P:

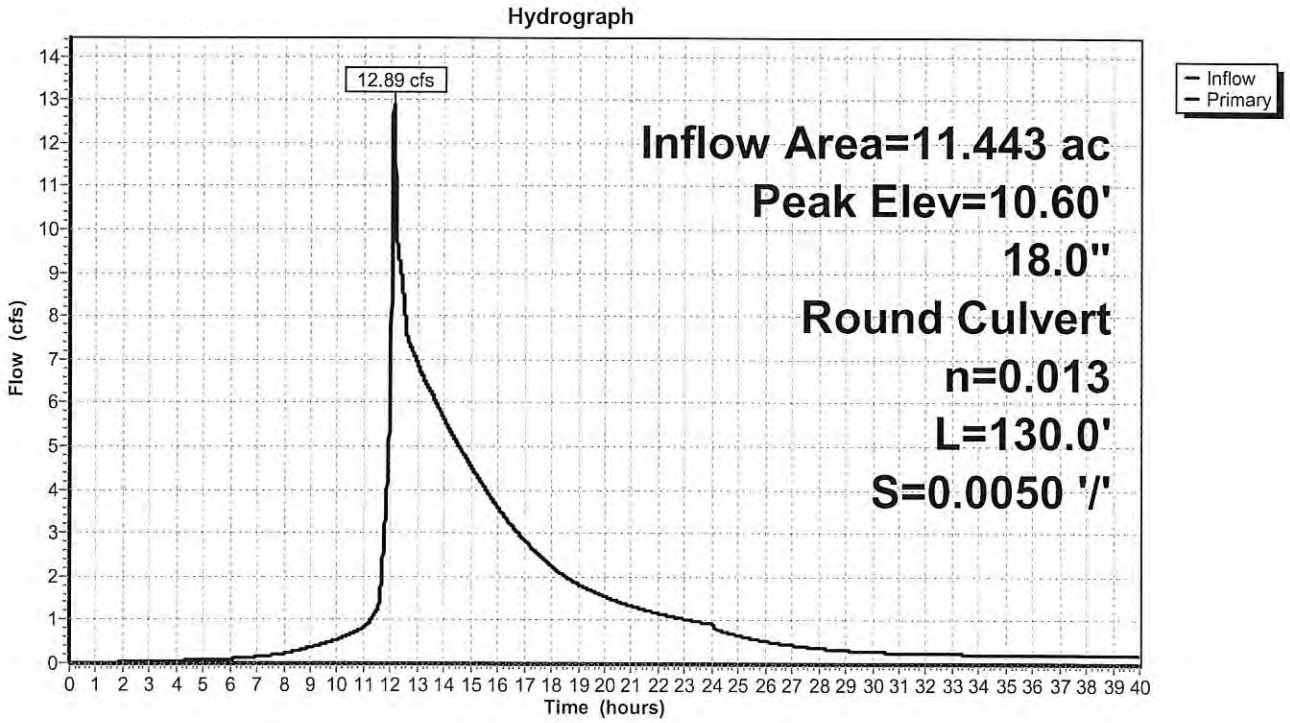
Inflow Area = 11.443 ac, 63.56% Impervious, Inflow Depth > 4.10" for 25-yr event
Inflow = 12.89 cfs @ 12.10 hrs, Volume= 3.906 af
Outflow = 12.89 cfs @ 12.10 hrs, Volume= 3.906 af, Atten= 0%, Lag= 0.0 min
Primary = 12.89 cfs @ 12.10 hrs, Volume= 3.906 af

Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Peak Elev= 10.60' @ 12.10 hrs
Flood Elev= 16.57'

Device	Routing	Invert	Outlet Devices
#1	Primary	4.77'	**18.0" Round Culvert** L= 130.0' RCP, square edge headwall, Ke= 0.500 Inlet / Outlet Invert= 4.77' / 4.12' S= 0.0050 '/' Cc= 0.900 n= 0.013, Flow Area= 1.77 sf

Primary OutFlow Max=12.88 cfs @ 12.10 hrs HW=10.60' TW=7.40' (Fixed TW Elev= 7.40')
↑—**1=Culvert** (Outlet Controls 12.88 cfs @ 7.29 fps)

Pond 10P:



Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: wet pond Runoff Area=21,798 sf 100.00% Impervious Runoff Depth=2.87"
Tc=0.0 min CN=98 Runoff=1.84 cfs 0.120 af

Subcatchment 2S: Runoff Area=393,948 sf 59.47% Impervious Runoff Depth=1.91"
Tc=6.0 min CN=88 Runoff=20.18 cfs 1.437 af

Subcatchment 3S: Runoff Area=22,488 sf 60.03% Impervious Runoff Depth=1.91"
Tc=6.0 min CN=88 Runoff=1.15 cfs 0.082 af

Subcatchment 4S: Runoff Area=14,264 sf 92.54% Impervious Runoff Depth=2.65"
Tc=6.0 min CN=96 Runoff=0.95 cfs 0.072 af

Subcatchment 5S: Runoff Area=6,504 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.45 cfs 0.036 af

Subcatchment 6S: Runoff Area=11,944 sf 0.00% Impervious Runoff Depth=0.97"
Tc=6.0 min CN=74 Runoff=0.29 cfs 0.022 af

Subcatchment 7S: Runoff Area=16,308 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=1.13 cfs 0.089 af

Subcatchment 8S: Runoff Area=11,220 sf 100.00% Impervious Runoff Depth=2.87"
Tc=6.0 min CN=98 Runoff=0.77 cfs 0.062 af

Reach 11R: Inflow=4.96 cfs 1.528 af
Outflow=4.96 cfs 1.528 af

Pond 3P: wet pond Peak Elev=10.83' Storage=124,216 cf Inflow=21.07 cfs 1.557 af
Outflow=1.23 cfs 1.165 af

Pond 7P: Peak Elev=7.69' Inflow=1.37 cfs 1.247 af
18.0" Round Culvert n=0.013 L=110.0' S=0.0065 '/' Outflow=1.37 cfs 1.247 af

Pond 8P: Peak Elev=7.49' Inflow=2.32 cfs 1.319 af
18.0" Round Culvert n=0.013 L=40.0' S=0.0113 '/' Outflow=2.32 cfs 1.319 af

Pond 9P: Peak Elev=7.51' Inflow=2.76 cfs 1.355 af
18.0" Round Culvert n=0.013 L=35.0' S=0.0020 '/' Outflow=2.76 cfs 1.355 af

Pond 10P: Peak Elev=7.87' Inflow=4.96 cfs 1.528 af
18.0" Round Culvert n=0.013 L=130.0' S=0.0050 '/' Outflow=4.96 cfs 1.528 af

Total Runoff Area = 11.443 ac Runoff Volume = 1.920 af Average Runoff Depth = 2.01"
36.44% Pervious = 4.170 ac 63.56% Impervious = 7.273 ac

Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: wet pond Runoff Area=21,798 sf 100.00% Impervious Runoff Depth=4.36"
Tc=0.0 min CN=98 Runoff=2.74 cfs 0.182 af

Subcatchment 2S: Runoff Area=393,948 sf 59.47% Impervious Runoff Depth=3.29"
Tc=6.0 min CN=88 Runoff=34.24 cfs 2.480 af

Subcatchment 3S: Runoff Area=22,488 sf 60.03% Impervious Runoff Depth=3.29"
Tc=6.0 min CN=88 Runoff=1.95 cfs 0.142 af

Subcatchment 4S: Runoff Area=14,264 sf 92.54% Impervious Runoff Depth=4.14"
Tc=6.0 min CN=96 Runoff=1.44 cfs 0.113 af

Subcatchment 5S: Runoff Area=6,504 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=0.67 cfs 0.054 af

Subcatchment 6S: Runoff Area=11,944 sf 0.00% Impervious Runoff Depth=2.05"
Tc=6.0 min CN=74 Runoff=0.65 cfs 0.047 af

Subcatchment 7S: Runoff Area=16,308 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.68 cfs 0.136 af

Subcatchment 8S: Runoff Area=11,220 sf 100.00% Impervious Runoff Depth=4.36"
Tc=6.0 min CN=98 Runoff=1.16 cfs 0.094 af

Reach 11R: Inflow=8.82 cfs 2.826 af
Outflow=8.82 cfs 2.826 af

Pond 3P: wet pond Peak Elev=11.41' Storage=147,501 cf Inflow=35.60 cfs 2.662 af
Outflow=3.78 cfs 2.241 af

Pond 7P: Peak Elev=8.10' Inflow=4.05 cfs 2.382 af
18.0" Round Culvert n=0.013 L=110.0' S=0.0065 '/' Outflow=4.05 cfs 2.382 af

Pond 8P: Peak Elev=7.71' Inflow=4.73 cfs 2.495 af
18.0" Round Culvert n=0.013 L=40.0' S=0.0113 '/' Outflow=4.73 cfs 2.495 af

Pond 9P: Peak Elev=7.80' Inflow=5.38 cfs 2.549 af
18.0" Round Culvert n=0.013 L=35.0' S=0.0020 '/' Outflow=5.38 cfs 2.549 af

Pond 10P: Peak Elev=8.90' Inflow=8.82 cfs 2.826 af
18.0" Round Culvert n=0.013 L=130.0' S=0.0050 '/' Outflow=8.82 cfs 2.826 af

Total Runoff Area = 11.443 ac Runoff Volume = 3.247 af Average Runoff Depth = 3.41"
36.44% Pervious = 4.170 ac 63.56% Impervious = 7.273 ac

Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: wet pond Runoff Area=21,798 sf 100.00% Impervious Runoff Depth=7.86"
Tc=0.0 min CN=98 Runoff=4.85 cfs 0.328 af

Subcatchment 2S: Runoff Area=393,948 sf 59.47% Impervious Runoff Depth=6.67"
Tc=6.0 min CN=88 Runoff=66.94 cfs 5.024 af

Subcatchment 3S: Runoff Area=22,488 sf 60.03% Impervious Runoff Depth=6.67"
Tc=6.0 min CN=88 Runoff=3.82 cfs 0.287 af

Subcatchment 4S: Runoff Area=14,264 sf 92.54% Impervious Runoff Depth=7.62"
Tc=6.0 min CN=96 Runoff=2.59 cfs 0.208 af

Subcatchment 5S: Runoff Area=6,504 sf 100.00% Impervious Runoff Depth=7.86"
Tc=6.0 min CN=98 Runoff=1.19 cfs 0.098 af

Subcatchment 6S: Runoff Area=11,944 sf 0.00% Impervious Runoff Depth=5.02"
Tc=6.0 min CN=74 Runoff=1.61 cfs 0.115 af

Subcatchment 7S: Runoff Area=16,308 sf 100.00% Impervious Runoff Depth=7.86"
Tc=6.0 min CN=98 Runoff=2.98 cfs 0.245 af

Subcatchment 8S: Runoff Area=11,220 sf 100.00% Impervious Runoff Depth=7.86"
Tc=6.0 min CN=98 Runoff=2.05 cfs 0.169 af

Reach 11R: Inflow=20.86 cfs 6.021 af
Outflow=20.86 cfs 6.021 af

Pond 3P: wet pond Peak Elev=12.46' Storage=204,328 cf Inflow=69.37 cfs 5.352 af
Outflow=11.85 cfs 4.900 af

Pond 7P: Peak Elev=10.88' Inflow=13.51 cfs 5.187 af
18.0" Round Culvert n=0.013 L=110.0' S=0.0065 '/' Outflow=13.51 cfs 5.187 af

Pond 8P: Peak Elev=10.47' Inflow=14.91 cfs 5.395 af
18.0" Round Culvert n=0.013 L=40.0' S=0.0113 '/' Outflow=14.91 cfs 5.395 af

Pond 9P: Peak Elev=10.80' Inflow=15.68 cfs 5.493 af
18.0" Round Culvert n=0.013 L=35.0' S=0.0020 '/' Outflow=15.68 cfs 5.493 af

Pond 10P: Peak Elev=15.79' Inflow=20.86 cfs 6.021 af
18.0" Round Culvert n=0.013 L=130.0' S=0.0050 '/' Outflow=20.86 cfs 6.021 af

Total Runoff Area = 11.443 ac Runoff Volume = 6.473 af Average Runoff Depth = 6.79"
36.44% Pervious = 4.170 ac 63.56% Impervious = 7.273 ac

WET POND VOLUMES

Stage-Area-Storage for Pond 3P: wet pond

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
4.50	11,142	0
4.52	11,187	223
4.54	11,233	447
4.56	11,278	673
4.58	11,324	899
4.60	11,370	1,126
4.62	11,415	1,353
4.64	11,461	1,582
4.66	11,507	1,812
4.68	11,553	2,042
4.70	11,599	2,274
4.72	11,646	2,506
4.74	11,692	2,740
4.76	11,739	2,974
4.78	11,785	3,209
4.80	11,832	3,446
4.82	11,878	3,683
4.84	11,925	3,921
4.86	11,972	4,160
4.88	12,019	4,400
4.90	12,066	4,640
4.92	12,113	4,882
4.94	12,161	5,125
4.96	12,208	5,369
4.98	12,255	5,613
5.00	12,303	5,859
5.02	12,340	6,105
5.04	12,378	6,352
5.06	12,416	6,600
5.08	12,453	6,849
5.10	12,491	7,099
5.12	12,529	7,349
5.14	12,566	7,600
5.16	12,604	7,851
5.18	12,642	8,104
5.20	12,680	8,357
5.22	12,718	8,611
5.24	12,756	8,866
5.26	12,794	9,121
5.28	12,832	9,378
5.30	12,871	9,635
5.32	12,909	9,892
5.34	12,947	10,151
5.36	12,986	10,410
5.38	13,024	10,670
5.40	13,063	10,931
5.42	13,101	11,193
5.44	13,140	11,455
5.46	13,179	11,718
5.48	13,217	11,982
5.50	13,256	12,247
5.52	13,295	12,513
5.54	13,334	12,779
5.56	13,373	13,046
5.58	13,412	13,314
5.60	13,451	13,583
5.62	13,490	13,852
5.64	13,530	14,122
5.66	13,569	14,393
5.68	13,608	14,665
5.70	13,648	14,937
5.72	13,687	15,211
5.74	13,726	15,485
5.76	13,766	15,760
5.78	13,806	16,036
5.80	13,845	16,312
5.82	13,885	16,589
5.84	13,925	16,868
5.86	13,965	17,146
5.88	14,005	17,426
5.90	14,044	17,707
5.92	14,085	17,988
5.94	14,125	18,270
5.96	14,165	18,553
5.98	14,205	18,837
6.00	14,245	19,121
6.02	14,285	19,406
6.04	14,326	19,692
6.06	14,366	19,979
6.08	14,407	20,267
6.10	14,447	20,556
6.12	14,488	20,845
6.14	14,528	21,135
6.16	14,569	21,426
6.18	14,610	21,718
6.20	14,651	22,011
6.22	14,691	22,304
6.24	14,732	22,598
6.26	14,773	22,893
6.28	14,814	23,189
6.30	14,855	23,486
6.32	14,897	23,783
6.34	14,938	24,082
6.36	14,979	24,381
6.38	15,020	24,681
6.40	15,062	24,982
6.42	15,103	25,283
6.44	15,145	25,586
6.46	15,186	25,889
6.48	15,228	26,193
6.50	15,270	26,498
6.52	15,311	26,804
6.54	15,353	27,111
6.56	15,395	27,418

Stage-Area-Storage for Pond 3P: wet pond (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
6.58	15,437	27,726
6.60	15,479	28,036
6.62	15,521	28,346
6.64	15,563	28,656
6.66	15,605	28,968
6.68	15,647	29,281
6.70	15,689	29,594
6.72	15,732	29,908
6.74	15,774	30,223
6.76	15,816	30,539
6.78	15,859	30,856
6.80	15,901	31,174
6.82	15,944	31,492
6.84	15,986	31,811
6.86	16,029	32,131
6.88	16,072	32,452
6.90	16,115	32,774
6.92	16,157	33,097
6.94	16,200	33,421
6.96	16,243	33,745
6.98	16,286	34,070
7.00	16,329	34,396
7.02	16,373	34,724
7.04	16,416	35,051
7.06	16,459	35,380
7.08	16,502	35,710
7.10	16,546	36,040
7.12	16,589	36,372
7.14	16,633	36,704
7.16	16,676	37,037
7.18	16,720	37,371
7.20	16,763	37,706
7.22	16,807	38,041
7.24	16,851	38,378
7.26	16,895	38,715
7.28	16,939	39,054
7.30	16,983	39,393
7.32	17,027	39,733
7.34	17,071	40,074
7.36	17,115	40,416
7.38	17,159	40,759
7.40	17,203	41,102
7.42	17,247	41,447
7.44	17,292	41,792
7.46	17,336	42,138
7.48	17,381	42,486
7.50	17,425	42,834
7.52	17,470	43,183
7.54	17,514	43,532
7.56	17,559	43,883
7.58	17,604	44,235
7.60	17,648	44,587
7.62	17,693	44,941
7.64	17,738	45,295
7.66	17,783	45,650
7.68	17,828	46,006
7.70	17,873	46,363
7.72	17,918	46,721
7.74	17,963	47,080
7.76	18,009	47,440
7.78	18,054	47,800
7.80	18,099	48,162
7.82	18,145	48,524
7.84	18,190	48,888
7.86	18,236	49,252
7.88	18,281	49,617
7.90	18,327	49,983
7.92	18,373	50,350
7.94	18,418	50,718
7.96	18,464	51,087
7.98	18,510	51,457
8.00	18,556	51,827
8.02	18,602	52,199
8.04	18,648	52,572
8.06	18,694	52,945
8.08	18,740	53,319
8.10	18,787	53,695
8.12	18,833	54,071
8.14	18,879	54,448
8.16	18,926	54,826
8.18	18,972	55,205
8.20	19,019	55,585
8.22	19,065	55,966
8.24	19,112	56,347
8.26	19,158	56,730
8.28	19,205	57,114
8.30	19,252	57,498
8.32	19,299	57,884
8.34	19,346	58,270
8.36	19,393	58,658
8.38	19,440	59,046
8.40	19,487	59,435
8.42	19,534	59,825
8.44	19,581	60,217
8.46	19,628	60,609
8.48	19,675	61,002
8.50	19,723	61,396 ← MEAN DEPTH
8.52	19,770	61,791
8.54	19,818	62,186
8.56	19,865	62,583
8.58	19,913	62,981
8.60	19,960	63,380
8.62	20,008	63,779
8.64	20,056	64,180

Stage-Area-Storage for Pond 3P: wet pond (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
8.66	20,104	64,582
8.68	20,151	64,984
8.70	20,199	65,388
8.72	20,247	65,792
8.74	20,295	66,198
8.76	20,343	66,604
8.78	20,392	67,011
8.80	20,440	67,420
8.82	20,488	67,829
8.84	20,536	68,239
8.86	20,585	68,650
8.88	20,633	69,063
8.90	20,682	69,476
8.92	20,730	69,890
8.94	20,779	70,305
8.96	20,828	70,721
8.98	20,876	71,138
9.00	20,925	71,556
9.02	20,960	71,975
9.04	20,994	72,394
9.06	21,029	72,815
9.08	21,063	73,236
9.10	21,098	73,657
9.12	21,133	74,080
9.14	21,168	74,503
9.16	21,202	74,926
9.18	21,237	75,351
9.20	21,272	75,776
9.22	21,307	76,202
9.24	21,342	76,628
9.26	21,377	77,055
9.28	21,412	77,483
9.30	21,447	77,912
9.32	21,482	78,341
9.34	21,517	78,771
9.36	21,552	79,202
9.38	21,587	79,633
9.40	21,622	80,065
9.42	21,657	80,498
9.44	21,692	80,931
9.46	21,728	81,366
9.48	21,763	81,801
9.50	21,798	82,236
9.52	22,159	82,676
9.54	22,523	83,122
9.56	22,889	83,577
9.58	23,259	84,038
9.60	23,632	84,507
9.62	24,007	84,983
9.64	24,386	85,467
9.66	24,767	85,959
9.68	25,152	86,458
9.70	25,539	86,965
9.72	25,930	87,480
9.74	26,323	88,002
9.76	26,720	88,533
9.78	27,119	89,071
9.80	27,521	89,617
9.82	27,927	90,172
9.84	28,335	90,734
9.86	28,746	91,305
9.88	29,160	91,884
9.90	29,577	92,472
9.92	29,997	93,067
9.94	30,420	93,672
9.96	30,846	94,284
9.98	31,275	94,905
10.00	31,707	95,535
10.02	31,831	96,171
10.04	31,956	96,808
10.06	32,081	97,449
10.08	32,206	98,092
10.10	32,331	98,737
10.12	32,457	99,385
10.14	32,583	100,035
10.16	32,709	100,688
10.18	32,835	101,344
10.20	32,962	102,002
10.22	33,088	102,662
10.24	33,215	103,325
10.26	33,343	103,991
10.28	33,470	104,659
10.30	33,598	105,330
10.32	33,726	106,003
10.34	33,854	106,679
10.36	33,983	107,357
10.38	34,111	108,038
10.40	34,240	108,721
10.42	34,370	109,408
10.44	34,499	110,096
10.46	34,629	110,788
10.48	34,759	111,481
10.50	34,889	112,178
10.52	35,019	112,877
10.54	35,150	113,579
10.56	35,281	114,283
10.58	35,412	114,990
10.60	35,544	115,699
10.62	35,675	116,412
10.64	35,807	117,126
10.66	35,939	117,844
10.68	36,072	118,564
10.70	36,204	119,287
10.72	36,337	120,012

PERM POOL →

← CHANNEL PROTECTION

107,357 − 82,236 = 25,121

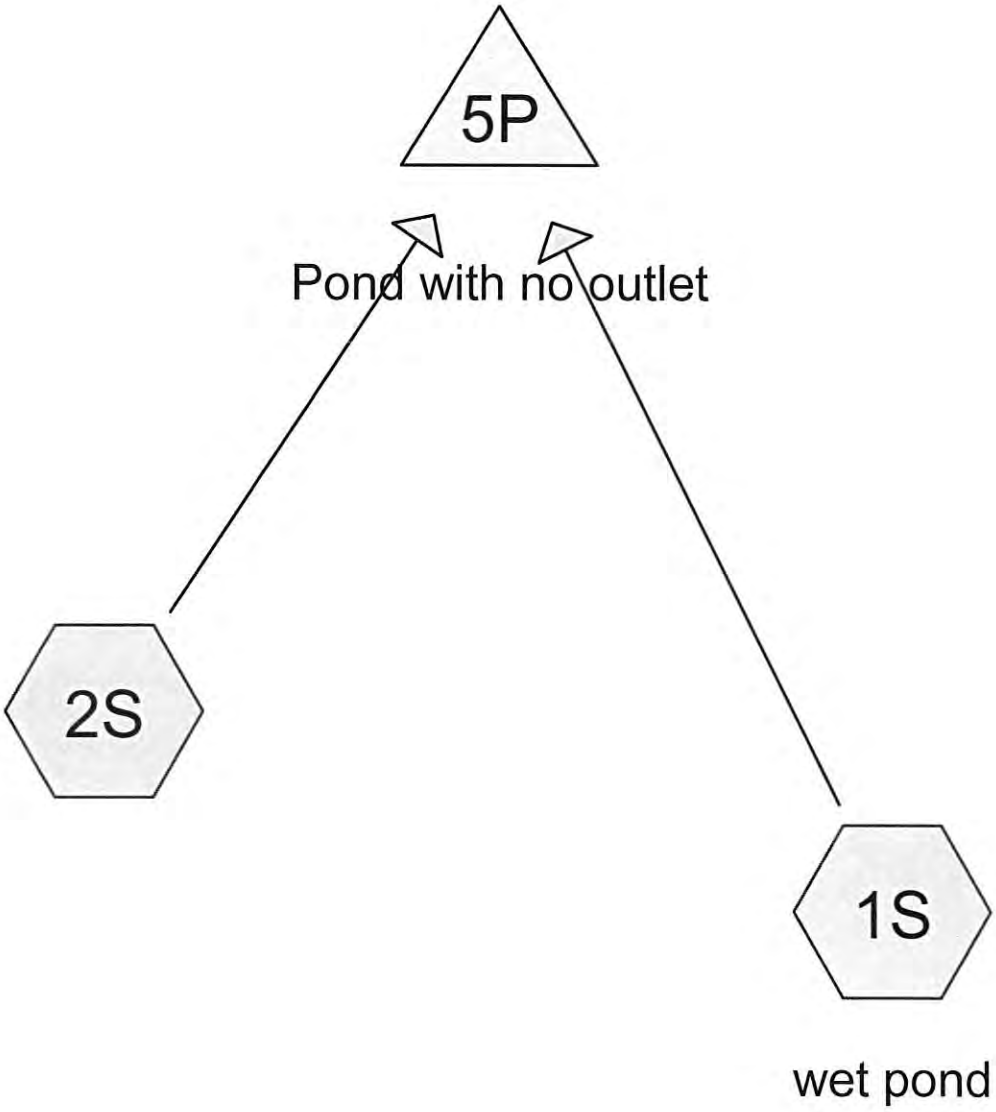
Stage-Area-Storage for Pond 3P: wet pond (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
10.74	36,470	120,740
10.76	36,604	121,471
10.78	36,737	122,204
10.80	36,871	122,941
10.82	37,005	123,679
10.84	37,140	124,421
10.86	37,274	125,165
10.88	37,409	125,912
10.90	37,544	126,661
10.92	37,679	127,413
10.94	37,815	128,168
10.96	37,951	128,926
10.98	38,087	129,686
11.00	38,223	130,450
11.02	38,558	131,217
11.04	38,895	131,992
11.06	39,233	132,773
11.08	39,572	133,561
11.10	39,913	134,356
11.12	40,256	135,158
11.14	40,600	135,966
11.16	40,945	136,782
11.18	41,292	137,604
11.20	41,640	138,433
11.22	41,990	139,270
11.24	42,341	140,113
11.26	42,694	140,963
11.28	43,048	141,821
11.30	43,404	142,685
11.32	43,761	143,557
11.34	44,119	144,436
11.36	44,479	145,322
11.38	44,841	146,215
11.40	45,204	147,115
11.42	45,568	148,023
11.44	45,934	148,938
11.46	46,301	149,860
11.48	46,670	150,790
11.50	47,040	151,727
11.52	47,412	152,672
11.54	47,785	153,624
11.56	48,160	154,583
11.58	48,536	155,550
11.60	48,914	156,525
11.62	49,293	157,507
11.64	49,673	158,496
11.66	50,055	159,494
11.68	50,438	160,499
11.70	50,823	161,511
11.72	51,210	162,532
11.74	51,597	163,560
11.76	51,987	164,595
11.78	52,377	165,639
11.80	52,770	166,691
11.82	53,163	167,750
11.84	53,558	168,817
11.86	53,955	169,892
11.88	54,353	170,975
11.90	54,753	172,066
11.92	55,153	173,165
11.94	55,556	174,273
11.96	55,960	175,388
11.98	56,365	176,511
12.00	56,772	177,642
12.02	56,914	178,779
12.04	57,056	179,919
12.06	57,199	181,061
12.08	57,341	182,207
12.10	57,484	183,355
12.12	57,627	184,506
12.14	57,770	185,660
12.16	57,913	186,817
12.18	58,056	187,977
12.20	58,200	189,139
12.22	58,344	190,305
12.24	58,488	191,473
12.26	58,632	192,644
12.28	58,776	193,818
12.30	58,921	194,995
12.32	59,065	196,175
12.34	59,210	197,358
12.36	59,355	198,543
12.38	59,500	199,732
12.40	59,646	200,923
12.42	59,791	202,118
12.44	59,937	203,315
12.46	60,083	204,515
12.48	60,229	205,718
12.50	60,375	206,924
12.52	60,522	208,133
12.54	60,668	209,345
12.56	60,815	210,560
12.58	60,962	211,778
12.60	61,109	212,999
12.62	61,256	214,222
12.64	61,404	215,449
12.66	61,551	216,678
12.68	61,699	217,911
12.70	61,847	219,146
12.72	61,996	220,385
12.74	62,144	221,626
12.76	62,292	222,871
12.78	62,441	224,118
12.80	62,590	225,368

Stage-Area-Storage for Pond 3P: wet pond (continued)

Elevation (feet)	Surface (sq-ft)	Storage (cubic-feet)
12.82	62,739	226,621
12.84	62,888	227,878
12.86	63,038	229,137
12.88	63,188	230,399
12.90	63,337	231,665
12.92	63,487	232,933
12.94	63,637	234,204
12.96	63,788	235,478
12.98	63,938	236,756
13.00	**64,089**	**238,036**

WET POND WITHOUT OUTLET



Subcat Reach Pond Link

Routing Diagram for wet pond
Prepared by Gorrill Palmer, Printed 8/2/2019
HydroCAD® 10.00-22 s/n 01265 © 2018 HydroCAD Software Solutions LLC

Time span=0.00-40.00 hrs, dt=0.01 hrs, 4001 points
Runoff by SCS TR-20 method, UH=SCS, Weighted-CN
Reach routing by Stor-Ind+Trans method - Pond routing by Stor-Ind method

Subcatchment 1S: wet pond Runoff Area=21,798 sf 100.00% Impervious Runoff Depth=5.56"
Tc=0.0 min CN=98 Runoff=3.47 cfs 0.232 af

Subcatchment 2S: Runoff Area=393,948 sf 59.47% Impervious Runoff Depth=4.43"
Tc=6.0 min CN=88 Runoff=45.51 cfs 3.341 af

Pond 5P: Pond with no outlet Peak Elev=13.00' Storage=237,886 cf Inflow=47.24 cfs 3.573 af
Outflow=0.00 cfs 0.000 af

Total Runoff Area = 9.544 ac Runoff Volume = 3.573 af Average Runoff Depth = 4.49"
38.40% Pervious = 3.665 ac 61.60% Impervious = 5.879 ac

Summary for Subcatchment 1S: wet pond

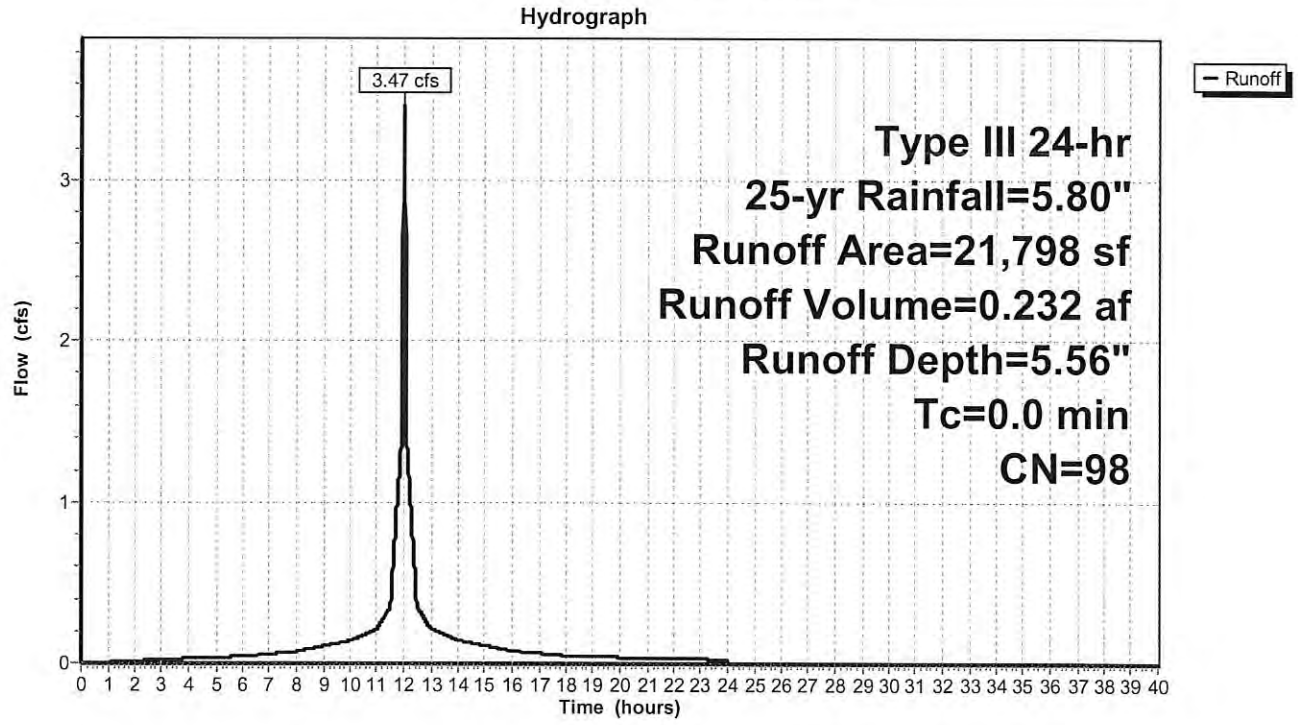
Runoff = 3.47 cfs @ 12.00 hrs, Volume= 0.232 af, Depth= 5.56"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
21,798	98	Water Surface, HSG A
21,798		100.00% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
0.0					**Direct Entry,**

Subcatchment 1S: wet pond



Summary for Subcatchment 2S:

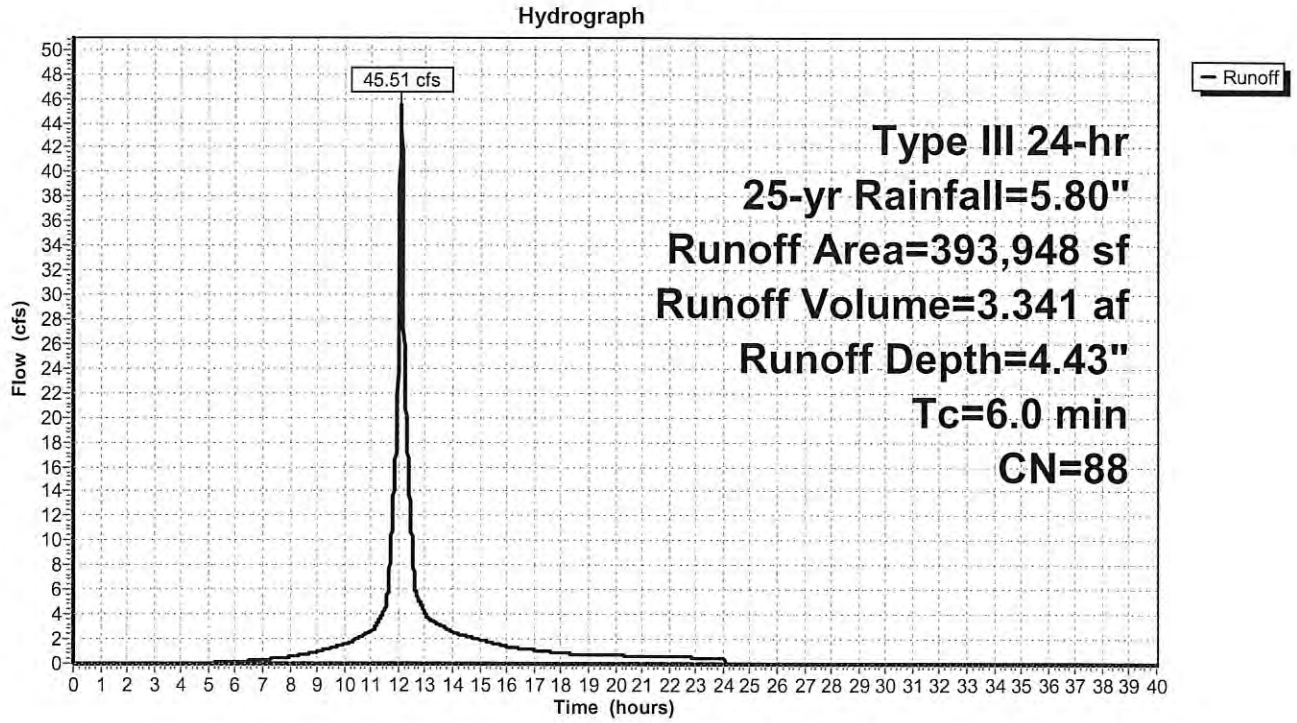
Runoff = 45.51 cfs @ 12.09 hrs, Volume= 3.341 af, Depth= 4.43"

Runoff by SCS TR-20 method, UH=SCS, Weighted-CN, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Type III 24-hr 25-yr Rainfall=5.80"

Area (sf)	CN	Description
234,288	98	Paved parking, HSG A
159,660	74	>75% Grass cover, Good, HSG C
393,948	88	Weighted Average
159,660		40.53% Pervious Area
234,288		59.47% Impervious Area

Tc (min)	Length (feet)	Slope (ft/ft)	Velocity (ft/sec)	Capacity (cfs)	Description
5.0					**Direct Entry,**
5.0	0	Total, Increased to minimum Tc = 6.0 min			

Subcatchment 2S:



Summary for Pond 5P: Pond with no outlet

Inflow Area = 9.544 ac, 61.60% Impervious, Inflow Depth = 4.49" for 25-yr event
Inflow = 47.24 cfs @ 12.08 hrs, Volume= 3.573 af
Outflow = 0.00 cfs @ 0.00 hrs, Volume= 0.000 af, Atten= 100%, Lag= 0.0 min

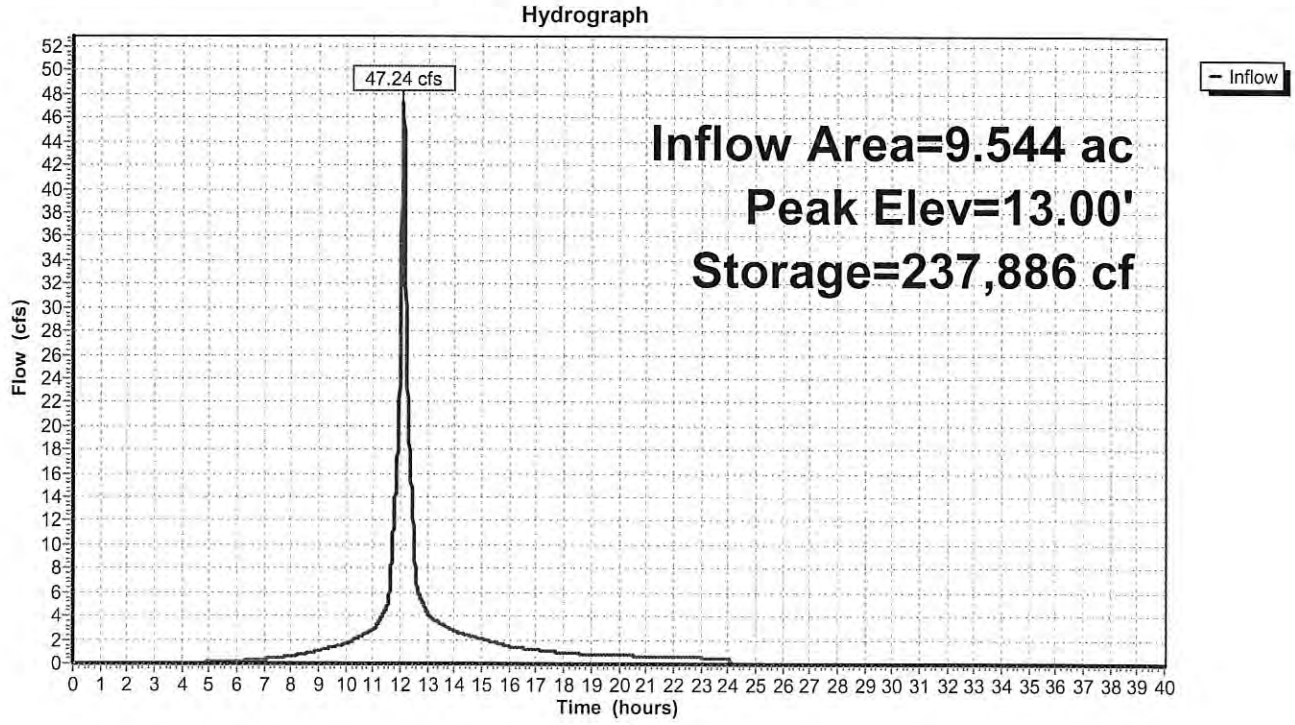
Routing by Stor-Ind method, Time Span= 0.00-40.00 hrs, dt= 0.01 hrs
Starting Elev= 9.50' Surf.Area= 21,798 sf Storage= 82,236 cf
Peak Elev= 13.00' @ 24.34 hrs Surf.Area= 64,071 sf Storage= 237,886 cf (155,650 cf above start)

Plug-Flow detention time= (not calculated: initial storage exceeds outflow)
Center-of-Mass det. time= (not calculated: no outflow)

Volume	Invert	Avail.Storage	Storage Description
#1	4.50'	238,036 cf	**Custom Stage Data (Irregular)** Listed below (Recalc)

Elevation (feet)	Surf.Area (sq-ft)	Perim. (feet)	Inc.Store (cubic-feet)	Cum.Store (cubic-feet)	Wet.Area (sq-ft)
4.50	11,142	540.0	0	0	11,142
5.00	12,303	580.0	5,859	5,859	14,718
9.00	20,925	665.0	65,697	71,556	23,500
9.50	21,798	720.0	10,680	82,236	29,571
10.00	31,707	920.0	13,299	95,535	55,676
11.00	38,223	1,495.0	34,914	130,450	166,186
12.00	56,772	1,700.0	47,193	177,642	218,332
13.00	64,089	1,470.0	60,394	238,036	276,373

Pond 5P: Pond with no outlet



ATTACHMENT C

STORM DRAIN CALCULATIONS

SN	Element ID	Description	Length	Inlet Invert Elevation	Outlet Invert Elevation	Total Drop	Average Slope	Pipe Shape	Pipe Diameter or Height	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Peak Flow	Time of Peak Flow Occurrence	Max Flow Velocity	Travel Time	Design Flow Capacity	Max Flow / Design Flow Ratio	Max Flow Depth / Total Depth Ratio	Total Time Surcharged	Max Flow Depth	Reported Condition
			(ft)	(ft)	(ft)	(ft)	(%)		(inches)				(cfs)	(days hh:mm)	(ft/sec)	(min)	(cfs)			(min)	(ft)	
1	Link-01	inlet - cb 11	44.00	13.00	12.50	0.50	1.1400	CIRCULAR	12.000	0.0130	0.9000	0.6000	1.18	0 00:05	5.29	0.14	3.80	0.31	0.38	0.00	0.38	Calculated
2	Link-02	cb 11 - outlet	37.00	12.40	12.00	0.40	1.0800	CIRCULAR	12.000	0.0130	0.5000	0.5000	1.64	0 00:05	4.59	0.13	3.70	0.44	0.47	0.00	0.47	Calculated

SN	Element ID	X Coordinate	Y Coordinate	Description	Invert Elevation	Boundary Type	Flap Gate	Fixed Water Elevation	Peak Inflow	Peak Lateral Inflow	Maximum HGL Depth Attained	Maximum HGL Elevation Attained
					(ft)			(ft)	(cfs)	(cfs)	(ft)	(ft)
1	Out-01	2140.65	4945.90		12.00	NORMAL	NO		1.64	0.00	0.47	12.47

SN	Element ID	Description	Catchbasin Invert Elevation (ft)	Max (Rim) Elevation (ft)	Initial Water Elevation (ft)	Peak Flow (cfs)	Peak Lateral Inflow (cfs)
1	Inlet-01	CB11	12.40	17.80	12.40	0.47	0.47

SN	Element ID	Description	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Minimum Pipe Cover (inches)	Peak Inflow (cfs)	Peak Lateral Inflow (cfs)	Maximum HGL Elevation Attained (ft)	Maximum HGL Depth Attained (ft)	Maximum Surcharge Depth Attained (ft)	Average HGL Elevation Attained (ft)	Time of Maximum HGL Occurrence (days hh:mm)
1	Inlet-02	culvert inlet	13.00	18.98	13.00	59.76	1.19	1.19	13.38	0.38	0.00	13.00	0 00:05

SN	Element ID	Description	Area (acres)	Drainage Node ID	Weighted Runoff Coefficient	Accumulated Precipitation (inches)	Total Runoff (inches)	Peak Runoff (cfs)	Rainfall Intensity (inches/hr)	Time of Concentration (days hh:mm:ss)
1	Sub-01	to culvert inlet	0.64	Inlet-02	0.3000	0.52	0.16	1.19	6.200	0 00:05:00
2	Sub-02	to cb 11	0.08	Inlet-01	0.9500	0.52	0.49	0.47	6.200	0 00:05:00

SN	Element ID	Description	Length	Inlet Invert Elevation	Outlet Invert Elevation	Total Drop	Average Slope	Pipe Shape	Pipe Diameter or Height	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Peak Flow	Time of Peak Flow Occurrence	Max Flow Velocity	Travel Time	Design Flow Capacity	Max Flow / Design Flow Ratio	Max Flow Depth / Total Depth Ratio	Total Time Surcharged	Max Flow Depth	Reported Condition
			(ft)	(ft)	(ft)	(ft)	(%)		(inches)				(cfs)	(days hh:mm)	(ft/sec)	(min)	(cfs)			(min)	(ft)	
1	Link-01	cb 10-cb 9	59.00	13.30	12.72	0.58	0.9800	CIRCULAR	12.000	0.0130	0.5000	0.5000	2.27	0 00:05	5.13	0.19	3.53	0.64	0.58	0.00	0.58	Calculated
2	Link-02	cb 9 - cb 8	54.00	12.62	12.08	0.54	1.0000	CIRCULAR	12.000	0.0130	0.5000	0.6000	3.85	0 00:05	5.33	0.17	3.56	1.08	0.92	0.00	0.92	> CAPACITY
3	Link-03	cb 8 - outlet	81.00	11.83	9.00	2.83	3.4900	CIRCULAR	12.000	0.0130	0.5000	0.5000	4.62	0 00:05	9.35	0.14	6.66	0.69	0.61	0.00	0.61	Calculated

SN	Element ID	X Coordinate	Y Coordinate	Description	Invert Elevation	Boundary Type	Flap Gate	Fixed Water Elevation	Peak Inflow	Peak Lateral Inflow	Maximum HGL Depth Attained	Maximum HGL Elevation Attained
					(ft)			(ft)	(cfs)	(cfs)	(ft)	(ft)
1	Out-01	1097.37	6306.03		9.00	NORMAL	NO		4.62	0.00	0.61	9.61

SN	Element ID	Description	Catchbasin Invert Elevation	Max (Rim) Elevation	Initial Water Elevation	Peak Flow
			(ft)	(ft)	(ft)	(cfs)
1	Inlet-01	CB10	13.30	17.30	13.30	2.30
2	Inlet-02	CB9	12.62	17.30	12.62	1.47
3	Inlet-03	CB8	11.83	17.29	11.83	0.94

SN	Element ID	Description	Area	Drainage Node ID	Weighted Runoff Coefficient	Accumulated Precipitation	Total Runoff	Peak Runoff	Rainfall Intensity	Time of Concentration
			(acres)			(inches)	(inches)	(cfs)	(inches/hr)	(days hh:mm:ss)
1	Sub-01	to cb 10	0.39	Inlet-01	0.9500	0.52	0.49	2.30	6.200	0 00:05:00
2	Sub-02	to cb 9	0.25	Inlet-02	0.9500	0.52	0.49	1.47	6.200	0 00:05:00
3	Sub-03	to cb 8	0.16	Inlet-03	0.9500	0.52	0.49	0.94	6.200	0 00:05:00

SN	Element ID	Description	Length	Inlet Invert Elevation	Outlet Invert Elevation	Total Drop	Average Slope	Pipe Shape	Pipe Diameter or Height	Manning's Roughness	Entrance Losses	Exit/Bend Losses	Peak Flow	Time of Peak Flow Occurrence	Max Flow Velocity	Travel Time	Design Flow Capacity	Max Flow / Design Flow Ratio	Max Flow Depth / Total Depth Ratio	Total Time Surcharged	Max Flow Depth	Reported Condition
			(ft)	(ft)	(ft)	(ft)	(%)		(inches)				(cfs)	(days hh:mm)	(ft/sec)	(min)	(cfs)			(min)	(ft)	
1	Link-01	cb 6 - cb 5	38.00	24.00	23.62	0.38	1.0000	CIRCULAR	12.000	0.0130	0.5000	0.5000	0.70	0 00:05	3.97	0.16	3.56	0.20	0.30	0.00	0.30	Calculated
2	Link-02	cb 5 - cb 4	44.00	23.52	23.08	0.44	1.0000	CIRCULAR	15.000	0.0130	0.5000	0.6000	4.61	0 00:05	5.74	0.13	6.46	0.71	0.62	0.00	0.78	Calculated
3	Link-03	cb 4 - dmh 3	59.00	22.98	22.39	0.59	1.0000	CIRCULAR	15.000	0.0130	0.5000	0.6000	6.01	0 00:05	6.03	0.16	6.46	0.93	0.76	0.00	0.95	Calculated
4	Link-04	dmh 3 - dmh 1	149.00	16.24	14.75	1.49	1.0000	CIRCULAR	15.000	0.0130	0.5000	0.8000	5.95	0 00:05	6.12	0.41	6.46	0.92	0.75	0.00	0.94	Calculated
5	Link-05	dmh 4 - dmh 1	60.00	14.78	14.18	0.60	1.0000	CIRCULAR	15.000	0.0130	0.5000	0.8000	2.61	0 00:05	6.43	0.16	6.46	0.40	0.44	0.00	0.55	Calculated
6	Link-06	dmh 1 - cb 2	121.00	13.93	12.60	1.33	1.1000	CIRCULAR	18.000	0.0130	0.5000	0.8000	8.34	0 00:05	6.92	0.29	11.01	0.76	0.65	0.00	0.97	Calculated
7	Link-07	dmh 2 - cb 2	104.00	14.13	13.08	1.05	1.0100	CIRCULAR	12.000	0.0130	0.5000	0.8000	2.95	0 00:05	7.58	0.23	3.58	0.82	0.69	0.00	0.69	Calculated
8	Link-08	cb 2 - cb 1	32.00	12.50	11.85	0.65	2.0300	CIRCULAR	18.000	0.0130	0.5000	0.5000	12.66	0 00:05	9.50	0.06	14.97	0.85	0.71	0.00	1.06	Calculated
9	Link-09	cb 1 - outlet	28.00	11.75	11.00	0.75	2.6800	CIRCULAR	18.000	0.0130	0.5000	0.5000	16.39	0 00:05	11.07	0.04	17.19	0.95	0.78	0.00	1.17	Calculated
10	Link-10	bldg - cb 5	133.00	28.00	23.62	4.38	3.2900	CIRCULAR	12.000	0.0130	0.5000	0.8000	2.67	0 00:05	10.91	0.20	6.47	0.41	0.45	0.00	0.45	Calculated

SN	Element ID	X Coordinate	Y Coordinate	Description	Invert Elevation	Boundary Type	Flap Gate	Fixed Water Elevation	Peak Inflow	Peak Lateral Inflow	Maximum HGL Depth Attained	Maximum HGL Elevation Attained
					(ft)			(ft)	(cfs)	(cfs)	(ft)	(ft)
1	Out-01	2241.11	5680.06		11.00	NORMAL	NO		16.39	0.00	1.17	12.17

SN	Element ID	Description	Catchbasin Invert Elevation	Max (Rim) Elevation	Initial Water Elevation	Peak Flow
			(ft)	(ft)	(ft)	(cfs)
1	Inlet-01	cb 6	24.00	28.00	24.00	0.71
2	Inlet-02	cb 5	23.52	27.78	23.52	1.30
3	Inlet-03	cb 4	22.98	28.34	22.98	1.47
4	Inlet-04	cb 2	12.50	17.10	12.50	1.77
5	Inlet-05	cb 1	11.75	16.35	11.75	4.12

SN	Element ID	Description	Invert Elevation (ft)	Ground/Rim (Max) Elevation (ft)	Initial Water Elevation (ft)	Minimum Pipe Cover (inches)	Peak Inflow (cfs)	Maximum HGL Elevation Attained (ft)	Maximum HGL Depth Attained (ft)	Maximum Surcharge Depth Attained (ft)	Time of Maximum HGL Occurrence (days hh:mm)
1	64	dmh 3	16.24	29.47	16.24	69.96	6.01	23.34	7.10	0.00	0 00:05
2	64	dmh 1	13.93	20.10	13.93	49.20	8.37	15.70	1.77	0.00	0 00:05
3	64	dmh 4	14.78	21.40	14.78	64.44	2.65	15.34	0.56	0.00	0 00:05
4	64	dmh 2	14.13	19.30	14.13	50.04	3.00	14.83	0.70	0.00	0 00:05
5	64	roof	28.00	32.00	28.00	36.00	2.71	28.45	0.45	0.00	0 00:05

SN	Element ID	Description	Area	Drainage Node ID	Weighted Runoff Coefficient	Accumulated Precipitation	Total Runoff	Peak Runoff	Rainfall Intensity	Time of Concentration
			(acres)			(inches)	(inches)	(cfs)	(inches/hr)	(days hh:mm:ss)
1	Sub-01	roof	0.46	64	0.9500	0.52	0.49	2.71	6.200	0 00:05:00
2	Sub-02	to cb 6	0.12	Inlet-01	0.9500	0.52	0.49	0.71	6.200	0 00:05:00
3	Sub-03	to cb 5	0.22	Inlet-02	0.9500	0.52	0.49	1.30	6.200	0 00:05:00
4	Sub-04	to cb 4	0.25	Inlet-03	0.9500	0.52	0.49	1.47	6.200	0 00:05:00
5	Sub-05	to dmh 4	0.45	64	0.9500	0.52	0.49	2.65	6.200	0 00:05:00
6	Sub-06	to dmh 2	0.51	64	0.9500	0.52	0.49	3.00	6.200	0 00:05:00
7	Sub-07	to cb 2	0.30	Inlet-04	0.9500	0.52	0.49	1.77	6.200	0 00:05:00
8	Sub-08	to cb 1	0.70	Inlet-05	0.9500	0.52	0.49	4.12	6.200	0 00:05:00

Hydraulic Analysis Report

Project Data

Project Title:
Designer:
Project Date: Thursday, August 1, 2019
Project Units: U.S. Customary Units
Notes:

Channel Analysis: Channel Analysis

Notes:

Input Parameters

Channel Type: Trapezoidal
Side Slope 1 (Z1): 3.0000 ft/ft
Side Slope 2 (Z2): 3.0000 ft/ft
Channel Width: 2.0000 ft
Longitudinal Slope: 0.0200 ft/ft
Manning's n: 0.0350
Lining Type: Rock Riprap - 150 mm (6-inch)
Flow: 16.4000 cfs

Result Parameters

Depth: 0.8836 ft
Area of Flow: 4.1092 ft^2
Wetted Perimeter: 7.5881 ft
Hydraulic Radius: 0.5415 ft
Average Velocity: 3.9911 ft/s
Top Width: 7.3014 ft
Froude Number: 0.9375
Critical Depth: 0.8554 ft
Critical Velocity: 4.1986 ft/s
Critical Slope: 0.0230 ft/ft
Critical Top Width: 7.13 ft
Calculated Max Shear Stress: 1.1027 lb/ft^2
Calculated Avg Shear Stress: 0.6758 lb/ft^2

Channel Analysis: Channel Analysis 2

Notes:

Input Parameters

Channel Type: Trapezoidal
Side Slope 1 (Z1): 3.0000 ft/ft
Side Slope 2 (Z2): 3.0000 ft/ft
Channel Width: 2.0000 ft
Longitudinal Slope: 0.0050 ft/ft
Manning's n: 0.0350
Lining Type: Rock Riprap - 150 mm (6-inch)
Flow: 16.4000 cfs

Result Parameters

Depth: 1.2165 ft
Area of Flow: 6.8728 ft^2
Wetted Perimeter: 9.6940 ft
Hydraulic Radius: 0.7090 ft
Average Velocity: 2.3862 ft/s
Top Width: 9.2991 ft
Froude Number: 0.4891
Critical Depth: 0.8554 ft
Critical Velocity: 4.1985 ft/s
Critical Slope: 0.0230 ft/ft
Critical Top Width: 7.13 ft
Calculated Max Shear Stress: 0.3796 lb/ft^2
Calculated Avg Shear Stress: 0.2212 lb/ft^2

ATTACHMENT D

OPERATION & MAINTENANCE MANUAL

NORTHERN LIGHT℠ MERCY HOSPITAL
FORE RIVER CAMPUS
PORTLAND, MAINE

STORMWATER MANAGEMENT SYSTEM OPERATION AND MAINTENANCE MANUAL FOR STORMWATER FACILITIES

Prepared for

Northern Light℠
Mercy Hospital

43 Whiting Hill Road
Brewer, ME 04412

Prepared by

Gorrill Palmer
707 Sable Oaks Drive – Suite 30
South Portland, Maine 04106
207.772.2515

AUGUST 2019

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APPENDICES

Appendix A – Summary Checklist for Inspection and Maintenance

Appendix B – Inspection Logs

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I. INTRODUCTION

Runoff from developed areas, may contain a number of contaminants especially when emanating from rooftops, paved or lawn areas. This runoff can contain a significant amount of non-point contaminants, which can have an adverse impact on the receiving waters. The installation of wet ponds, many times combined with soil media filters, vegetated buffer strips and other measures can significantly reduce the non-point pollution discharge from the developed area.

The effectiveness of ponds and other components of the system are dependent on their upkeep and maintenance to assure they meet their design function over an extended period of years. It is critical that the stormwater management facilities are inspected on a regularly scheduled basis, and that maintenance is performed on an as needed basis. It must also be recognized that the effectiveness of these facilities, and their maintenance requirements, are related to the stormwater drainage facilities that transport the flow to the ponds or treatment measures. Thus, maintenance should be directed to the total system, not just the ponds.

The purpose of this document is to define in detail the inspection and maintenance requirements deemed necessary to assure that the stormwater management facilities function as intended on a long-term basis for Phase 2 at Mercy Hospital. This Operations and Maintenance Manual is specific to the existing and proposed stormwater measures utilized to execute a successful stormwater management plan. Subsequent sections identify individual maintenance items, give a brief commentary of the function and need of the item, a description of the work required, and a suggested frequency of accomplishment. While the suggested programs and schedules must be adapted to specific projects, the material presented should provide guidance for a successful long-term program.

A. Guidelines Overview

A summary of the individual components of stormwater management facilities for this project has been prepared. The format used in the summary is as follows:

Preface: A general description of what function/benefit the element is intended to provide. This is a short summary and not intended to provide the design basis, which can be found in other sources.

Inspection: This section provides the inspection requirements for the individual component.

Maintenance: The section provides general information on the routine maintenance requirements of this element.

Frequency: This section outlines the best judgment of the designer on the system to the frequency of maintenance.

Comments: This section provides any particular comment on the site-specific features of this element. This is a summary only. The owner/operator should review the design drawings and documents carefully to understand the particular elements of the project. The end of this section should allow the owner/operator to make notes on the specific

program. This may include the selected maintenance procedure, cross-references to applicable design drawings, etc.

A list of the individual inspection/maintenance elements is provided in the table of contents. The guidelines are proposed for initial use with adjustments made as appropriate based upon specific project experience.

This report includes the Operation and Maintenance requirements for any potential BMP identified in the Stormwater Management Report for this project.

B. Responsible Party

The responsible party for operation and maintenance of the stormwater and other site infrastructure will be the applicant or their agents or assigns.

II. PROJECT OVERVIEW

Key permits issued (or applied for) on the project include:

- City of Portland Level III Site Plan Approval
- MaineDEP Amended Site Location of Development Permit
- MaineDEP Tier III Natural Resource Protection Act Permit
- ACOE Section 404 Wetland Permit
- Maine Construction General Permit Stormwater General Permit

A copy of the permits and Stormwater Management Report should be appended to this manual as Appendix C. The Owner/Operator of the stormwater management system should review these permits for a general description and background of the project, as well as any specific permit conditions or requirements of the project.

The applicant has retained Gorrill Palmer for civil engineering for the development project. Gorrill Palmer has prepared the design for the stormwater management facilities and may be contacted at:

Gorrill Palmer
707 Sable Oaks Drive – Suite 30
South Portland, Maine 04106
207.772.2515

The applicable plans and design documents which apply to the project are:

1. Civil Site Plans Prepared by Gorrill Palmer
2. The Erosion Control/Sedimentation Control Plan for the project
3. The Stormwater Management Plan for the project

A copy of these documents should be retained with this manual.

The proposed design includes inlets, stormwater conveyance lines, and a wet pond with an outlet control structure.

The key receiving waters for this project is the Fore River that is located south of the project site.

The manual is intended for general guidance; however, any substituted deviations from the manual should be reviewed with respect to provisions of Appendix C.

III. STANDARD INSPECTION/MAINTENANCE DESCRIPTIONS

The following narratives describe the inspection/maintenance provisions for the Stormwater Management system. These O&M procedures will complement scheduled vacuuming of the parking lots which is anticipated to occur at least twice per year. Proper O&M is necessary to make sure the system will provide its intended purpose of conveying runoff, removing a substantial amount of the suspended solids, and other contaminants in the stormwater runoff. Routine vacuuming of the porous areas is critical to their successful functioning.

A. Stormwater Inlets

Preface: The success of any stormwater facility relies on the ability to intercept stormwater runoff at the design locations. Stormwater inlets include catch basins, open culverts, and field inlets. Inlets exist throughout the Mercy Hospital – Fore River Campus system.

Inspection: The inspection of inlet points will need to be coordinated with other maintenance items, these include:

- Building maintenance areas
- Grounds maintenance

The key elements of the inspection are to assure the inlet entry point is clear of debris and will allow the intended water entry.

Maintenance: The key maintenance is the removal of any blockage which restricts the entry of stormwater to the inlet. The removed material should be taken out of the area of the inlet and placed where it will not reenter the runoff collection system. Snow should be removed from inlets on parking lots. Grass clippings and leaves should be bagged and removed particularly near the yard inlets near the buildings.

Frequency: All inlets should be inspected on a quarterly basis, and after/during significant storm events i.e. >1" rainfall).

Maintenance Personnel: The maintenance personnel will perform the normal maintenance/ inspections of the inlets and tributary drainage system.

Comments: Maintenance of inlets is critical on this project.

B. Tributary Drainage System

Preface: Stormwater from most of the project will be directed through a conveyance (tributary) system which transports the flow to the wet pond and ultimately to the Fore

River. This conveyance system will be principally overland flow discharging to piped drain systems. Most of the sediment carried by the drainage system is intended to be trapped in structures. Maintenance of this system can play a major role in the long-term maintenance costs and the effectiveness of the onsite systems. The primary pretreatment measure for the Mercy Hospital site will be through deep sumped catch basins with hooded outlets.

Inspection: The tributary drainage system should be periodically inspected to assure that it is operating as intended, and that the carrying capacity has not been diminished by accumulations of debris and sediment or other hydraulic impediments. On piped systems, the inlets must be inspected to ensure the rims are set at the proper elevation to optimize flow entry and are not clogged with debris.

The level of sediment in the sumps should be checked to assure their effectiveness. Pipelines connecting the inlets should be checked to determine if siltation is occurring. This will be most critical on drain lines laid at minimal slopes. This can usually be accomplished by a light and mirror procedure.

Maintenance: Maintenance of the storm drainage system must assure that it continues to serve its design function on a long-term basis, and that its operation does not transport excessive sediments to any downstream treatment device or the receiving waters. Elevations on the rim of catch basins should be adjusted as needed to assure optimal water entry. Depending on the frost susceptibility of the soil, the rims may become elevated over time causing flow to circumvent the inlet. If a temporary filter bag has been designated for the inlet during construction, silt or other deleterious materials, can significantly reduce capacity and the bags should be removed with the sediment and replaced during construction. Catch basin cleaning would normally be accomplished with vacuum trucks contracted as a maintenance service for the Development. The removed material must be disposed of at an approved site for such materials.

If sediment in the pipeline is observed, it should be removed. This may be accomplished by hydraulic flushing, or by mechanical means. If hydraulic flushing is used the downstream conditions should be analyzed.

Frequency: The tributary drainage system should be inspected on an annual basis. Adjustment of inlet rim elevations should be on an as needed basis. Cleaning catch basin sumps and pipelines will depend on the rate of accumulation.

F. Vegetation in Pond

Preface: Typically, ponds constructed for stormwater management will have an earthen bottom as is the case for the Mercy Hospital wet pond. Aquatic vegetation will often become established in such ponds. It will be more prevalent in ponds with silty soils and ponds with relatively impermeable liners and less prevalent in granular soils. This vegetation is beneficial as it assists in nutrient removal, provides wildlife habitat, and assists in side slope stability through its root structure.

Proper maintenance is important because, if the vegetation proliferates beyond acceptable levels, it can become a detriment to the pond function. Dying vegetation may

also accumulate on the pond bottom where it will release nutrients back in the water, and may lower oxygen levels. If allowed to accumulate it will lessen pond volumes over time.

Inspection/Monitoring: The extent of aquatic vegetation associated with the wet pond should be monitored. A photographic record of growth may be useful.

Maintenance: Judgment must be used to determine a proper balance between desirable growth levels and excessive growth. This will be gained by experience. If excessive growth is observed it should be cut back and removed on an annual basis.

Removal of excessive growth should be accomplished in the late fall or early winter. When ice forms sufficiently to walk on, the vegetation extending above the ice level should be cut and removed from the pond. The material should be disposed of in accordance with applicable ordinances.

Frequency: Inspect and document aquatic vegetation growth and wildlife use annually in late summer or early fall at the end of the growing season. Cutting and removal of growth will depend on its density. Removal on a 1-to-3 year frequency will be typical. Activity associated with burrowing wildlife, including muskrat and groundhogs must be monitored to avoid holes within the berms that may give way to erosion or water loss.

Removal of Cutting: Cuttings of undesirable excessive vegetation should be removed from the pond areas and composted or otherwise disposed.

Comments: Care should be taken when performing work around and on ice.

H. Sediment Monitoring/Wet Ponds

Preface: It is important to monitor sediment build-up in wet ponds to assure that capacity remains to accomplish its intended water quality function. This is true for both the wet pond at Mercy Hospital.

Inspection: Measuring sediment build-up in a pond with a permanent pool, which cannot be readily dewatered, must rely on recorded differential elevation. In such an installation, it is important to have accurate "As Built" elevations on the pond bottom prior to its being placed in operation. This should be a requirement of the construction contract.

The build-up of sediment requires establishing the elevation of the top of the sediment layer for comparison with original bottom elevations. To accomplish this, a permanent benchmark should be established at the site that is not subject to frost action. The elevation of the water surface at the time of survey can thus be established. Measurement should then be taken from the water surface to the top of the sediment layer. This should be done at sufficient locations to cover the total pond area. It is noted that sediment build-up will be more rapid near the inlet of the pond.

The depth measurements can be taken in the summer utilizing a small boat, or in the winter through the ice. The depth measuring staff should have a flat plate attached to the bottom so it will not sink substantially into the sediment layer.

By comparing the measured elevations with the as-built elevations of the pond bottom it will be possible to compute sediment build-up levels.

Maintenance: If sediment build-up in the pond becomes sufficient to diminish its treatment function it will have to be removed. This may be accomplished by dewatering and removal. If the pond cannot be dewatered, hydraulic dredging should be utilized. When pond sediment removal is planned, record drawings should be reviewed for special linings or other special features, which may influence removal techniques, or may have to concurrently be maintained.

Frequency: The sediment buildup measurements should be accomplished at 5- year intervals. Removal of sediment should be accomplished when it occupies 15% of the effective pond volume.

Options to sediment removal will vary on each project, but could include enlargement of the pond, or qualitative sampling to examine pond performance. If such options are considered, existing permit conditions, as well as current regulations, should be examined where necessary, and permit amendments should be obtained.

Comments: None.

I. Sediment in Forebay

Preface: The wet pond has been constructed with a small forebay sump at the entrance. The purpose of this sump is to collect and detain larger particles in the sediment, which may enter the pond through the inlet pipe. A secondary benefit of the forebay sump is to achieve better hydraulic flow distribution in the main segment of the pond.

Inspection: During periods of lowest water surface in the pond it should be possible to inspect the forebay sump and to measure the sediment accumulation.

Maintenance: If a significant accumulation of sediment is recorded in the sump, it should be removed. Depending on the size of the sump, the amount of sediment collected, and its location, the sediment may be removed manually, by a vacuum truck or other methods. The material removed from the sump should be disposed of in accordance with local practice for disposing of catch basin cleanings.

Frequency: The forebay sump should be inspected semi-annually if possible, preferably in the early summer after spring runoff, and in the fall. The frequency of sump cleaning will depend on the rate of sediment buildup. Cleaning on a 1 to 2 year basis is likely. It is noted that cleaning of the forebay sump will lengthen the time between pond cleanings.

The rate of sediment buildup will depend on the tributary drainage facilities, i.e., faster buildup with open ditch transport systems and buildup from pipe systems with sumped

catch basins. Maintenance practiced for the tributary drainage system will also impact sediment buildups.

Comments: None.

I. Litter

Litter should be removed as a matter of course by workers and as part of the ground's maintenance contract.

IV. PROGRAM ADMINISTRATION

A. General

A reliable administrative structure must be established to assure implementation of the maintenance programs described in the foregoing section. Key factors that must be considered in establishing a responsive administrative structure include:

1. Administrative body must be responsible for long-term operation and maintenance of the facilities. (Maintenance continues for the lifespan of the development in accordance with this document)

2. Administrative body must have the financial resources to accomplish the inspection and maintenance program over the life of the facility.

3. The administrative body must have a responsible administrator to manage the inspection and maintenance programs.

4. The administrative body must have the staff to accomplish the inspection and maintenance programs or must have authority to contract for the required services.

5. The administrative body must have a management information system sufficient to file, retain, and retrieve all inspection and maintenance records associated with the inspection and maintenance programs.

6. A qualified post construction inspector shall be retained by the Owner. His/her duties shall include preparing schedules for the Owner's maintenance, summarizing the results of this maintenance and preparing an annual report on the operation, maintenance, and repair of the stormwater system which must be copied to the City. (The Owner shall be responsible for retaining a separate entity to perform maintenance which cannot be performed by the management of building and property grounds.) This person shall also participate in troubleshooting of the stormwater management system if a problem develops.

If any of the above criteria cannot be met by the entity assigned inspection and maintenance responsibilities, it is likely that the system will fail to meet its water quality objectives at some point during its life. While each of the above criteria may be met by a variety of formats, it is critical to clearly establish the assigned administrative body in a responsible and sustainable manner.

B. Record Keeping

Records of all inspections and maintenance work accomplished must be kept and maintained to document facility operations. These records should be filed and retained for a minimum 5-year time span. The filing system should be capable of ready retrieval of data for periodic reviews by appropriate regulatory bodies. Where possible, copies of such records should also be filed with the designated primary regulatory agency for their review for compliance with permit conditions. Typical inspection and maintenance record forms are attached hereto as Appendix B.

Beyond the initial 5-year time span of the original approval and maintenance plan, the stormwater management system will need to be recertified through the Department every 5 years to confirm that there is conformance with the original permit documents. This process will ensure all systems function properly over time. This document will remain valid throughout any subsequent recertification processes.

C. Contract Services

In some instances, or at specific times, the Maintenance Personnel may not have the staff to conduct the required inspection and/or maintenance programs as outlined in this document. In such cases, the work should be accomplished on a contractual basis with a firm or organization that has the staff and equipment to accomplish the required work.

The service contract for inspection and maintenance should be formal, well written legal document which clearly defines the services to be provided, the contractual conditions that will apply, and detailed payment schedules. Liability insurance should be required in all contracts.

APPENDIX A

Summary Checklist
Inspection and Maintenance

Stormwater Management System Maintenance Program Summary Checklist						
Item	**Commentary**	**Frequency**				
		Monthly	**Quarterly**	**Semi-Annual**	**Annual**	**Long Term**
Stormwater Inlets	Stormwater inlets allow flow entry from a surface swale to a piped system. Entry may or may not be equipped with a bar rack. Inspect entry for debris accumulation. Remove debris to allow unimpeded entry. Lawn clippings and leaves should be removed from yard areas.		X		X Clearing	
Tributary Drainage System	Inspect to assure that the carrying capacity has not been diminished by debris, sediment or other hydraulic impediments.				X	
Vegetation in Pond	Observe extent of vegetation in fall. Cut above ice level in winter – remove.				X	
Sediment Monitoring in Wet Pond	In larger ponds with permanent water body the sediment can be measured by measuring bottom surface elevations and comparing with record elevations of initial construction. Should occur roughly every 5 years. Remove sediment when it occupies 15% of volume (10-15 years)					X
Sediment in Forebay	Observe sediment accumulation in forebay sumps. Remove sediment from sump.				X	
Litter	Litter should be removed daily.					

APPENDIX B

Sample Inspection Logs

MERCY HOSPITAL – FORE RIVER CAMPUS
PORTLAND, MAINE

STORMWATER MANAGEMENT
SAMPLE STORMWATER INSPECTION & MAINTENANCE LOG

This log is intended to accompany the Operation and Maintenance Manual for Stormwater Management and Related Facilities. All stormwater BMPs shall be maintained in effective operating condition. A person with knowledge of erosion and stormwater control, including the standards and conditions of the DEP Stormwater Permit, shall conduct inspections of the facilities as described in the O&M Manual and on this form, and identified deficiencies must be corrected. This log shall be kept on file for a minimum of five (5) years.

A. General Information			
Project Name:		**Inspection Date:**	
Parcel/Lot:		**Current Weather:**	
BMP Owner:		**Date/Amount Last Precip.:**	
Owner Mailing Address:		**Inspection Company:**	
Owner Phone #:		**Inspection Co. Mailing Address:**	
Owner Email:		**Inspector Name:**	
		Inspector Phone #:	
		Inspector Email:	

B. Stormwater Inlets (Catchbasins)	**Observations**
Frequency: Annually in the spring	
Accumulated sediments from inflow channels and pipes between basins have been removed and legally disposed of	☐ Yes ☐ No ☐ NA
Floating debris and large sediment particles have been removed from inlets.	☐ Yes ☐ No ☐ NA
Stormwater Inlet Notes:	

C. Tributary Drainage System	**Observations**
Frequency: Annually spring or late fall and after heavy rains	
Remove and legally dispose of sediments	☐ Yes ☐ No ☐ NA
Remove floatables and other objects	☐ Yes ☐ No ☐ NA
Check for overgrown vegetation impeding flow	☐ Yes ☐ No ☐ NA
Check pipelines for siltation and clogging	☐ Yes ☐ No ☐ NA
Repair any slumping side slopes or erosion	☐ Yes ☐ No ☐ NA
Replace any riprap on areas where any underlying fabric or underlying gravel is exposed.	☐ Yes ☐ No ☐ NA
Tributary Drainage System Notes:	

G. Vegetation in Pond	Observations
Frequency: Biannually spring and late fall and following heavy rains	
Check for excessive growth of vegetation that could decrease pond volume over time. Do this in late summer early/fall after growing season	☐ Yes ☐ No ☐ NA
Check for signs of wildlife burrowing into berms that could cause failure of pond structure	☐ Yes ☐ No ☐ NA
Vegetation in Pond Notes:	

H. Sediment Watering in Wet Pond	Observations
Frequency: Longterm (5-10 years)	
Clean basin of debris, sediment and hydrocarbons from pretreatment structure	☐ Yes ☐ No ☐ NA
If mowing is desired, use handheld trimmers or push mowers.	☐ Yes ☐ No ☐ NA
Inspect inlets and outlets of obstructions and remove	☐ Yes ☐ No ☐ NA
Inspect slopes for erosions or destabilization; repair as required	☐ Yes ☐ No ☐ NA
Till, Seed and mulch basin if vegetation is sparse	☐ Yes ☐ No ☐ NA
Replace top several inches of soul filter material if water is ponding more than 72 hours	☐ Yes ☐ No ☐ NA
Sediment Watering in Wetpond Notes:	

I. Sediment in Forebay	Observations
Frequency: Annually	
Check for sediment buildup in sump	☐ Yes ☐ No ☐ NA
Check for other debris and large sediment particles in sump	☐ Yes ☐ No ☐ NA
Remove sediment and dispose of properly	☐ Yes ☐ No ☐ NA
Sediment in Forebay Notes:	

APPENDIX C

Permits for Project

(To be Added at a Subsequent Time)

SITE DESIGN

The following statements are provided in accordance with the submission and Section 14-526 of the ordinance.

(d) Site Design Standards.

Massing, Ventilations and Wind Impact (14-526 (d) 1)

- *Wind and ventilation impacts on adjoining structures and/or adjacent public spaces. Wind study, if applicable.*
- *Bulk, location or height impacts on adjoining structures*
- *Identify and locate HVAC equipment and venting away from public spaces and residential properties*
- *Identify screening and manufacturing specifications for noise, if applicable*

1. *Massing, Ventilation and Wind Impact:*

   a. The project proposes construction of a new multi-story ASC building and hospital expansion. The project will not result in any significant changes to the wind environment proximate to the site. There are no abutting structures or uses that might be impacted by the proposed buildings, as the site is somewhat isolated from nearby neighborhoods.

   b. The project will not result in any significant impacts to abutting properties and is consistent with the contract zone and other zoning/city standard considerations. The proposed expansion and ASC will be considerably less in scale when compared to the MMC Parking Garage under construction on the opposite side of the rail tracks to the east of the site.

   c. HVAC venting, if necessary, will be directed through building roof top mounted units and will not impact any adjacent public spaces or residential properties

Shadows (14-526 (d) 2), if applicable

- Shadow analysis of impacts on publicly accessible open space (Technical Manual, Section 11)

2. *Shadows:*

   a. The buildings at the site will not cast significant shadows onto neighboring properties, or block access to direct sunlight for structures utilizing solar energy. The Site Layout Plan and Grading and Drainage Plan show the proposed site improvements and their relationships to property lines. The grading plan shows the relative elevations of the building with respect to elevations along the property lines.

Snow and Ice Loading (14-526 (d) 3)

- *Building design to prevent snow and ice from loading or falling onto adjacent properties or public ways.*

3. Snow and Ice Loading:

a. The buildings has been designed and located such that accumulated snow and ice will not fall onto adjacent properties or public ways. Snow will be removed from the parking lots and stockpiled in the snow dump at the south end of the site.

View Corridors (14-526 (d) 4), if applicable

- *Protection of designated view corridors (Portland Design Manual, Appendix 1)*

4. View Corridors:

a. The project entails construction of a two-story ASC building and four level hospital expansion at the site in manner that is compliant with the Mercy Hospital Contract Zone. The site is considered exemplary for its public view from I-295 and the Veteran's Bridge. The site does not block views from nearby properties. The site is not located within any corridors identified in the Downtown Vision View Corridor Protection Plan. The MMC parking garage construction will introduce a larger building to the background of the Mercy campus, thus detracting from the Mercy visual character to a certain extent.

Historic Resources (14-526 (d) 5), if applicable

- *Identify developments within Historic Districts or affecting Designated Landmarks*
- *Certificate of Appropriateness or other evidence*
- *Identify Developments within 100 feet of Historic Districts or affecting Designated Landmarks. Advisory HP review may be required*
- *Address preservation and documentation of Archaeological Resources*

5. Historic Resources:

a. The development is not located in a historic district, historic landscape district or City designated landmark.

b. The development is not located adjacent to or within 100 feet of a designated landmark, historic district, or historic landscape district.

c. There are no known remaining archaeological resources on the site. The Fore River Parkway was constructed in the areas previously occupied by the Cumberland and Oxford Canal as well as historical rail tracks.

Exterior Lighting (14-526 (d) 6)

- *Cut sheets of on-site light fixtures and any architectural or specialty lights (Technical Manual, Section 12)*
- *Engineered details for any lights proposed in street right-of-way (Technical Manual, Section 10)*

6. Exterior Lighting:

a. Site Lighting

(i) All new exterior lighting at the site will be full cutoff with no light emitted above the horizontal plane, and in accordance with Section 12 of the Technical Manual. A

photometric Lighting Plan is being prepared to demonstrate illumination levels throughout the site will be consistent with City Standards. The plan will be uploaded for review when complete.

b. Architectural and Specialty Lighting

(i) Not applicable to the project.

c. Street Lighting

(i) There are existing area lights along drives within the Campus area. There are no new street lights proposed for the Fore River Parkway.

Noise and Vibration (14-526 (d) 7)

- *Evidence of noise levels for equipment, such as equipment specifications, to demonstrate consistency with zoning requirements*

7. Noise and Vibration:

All heating, ventilation, air conditioning equipment including air handlers and generators are designed to meet local, state, and federal emissions and noise requirements. Most of the HVAC equipment is mounted in the middle of the roofs to minimize visibility. The addition expands the current hospital toward the middle of the site and the new ASC building is also located in the middle of the site. There are no residences with direct views of either roof. The ground mounted equipment for the new ASC will be screened. Any additional ground mounted equipment for the Hospital will be located in the existing screened service yard. Equipment cut sheets can be provided upon request.

Signage and Wayfinding (14-526 (d) 8), if applicable

- *Signage plan showing the location, dimensions, height and setback of all existing and proposed signs. Signs in Historic Districts are reviewed by Historic Preservation staff*
- *Proposed commercial and directional signage on site*

8. Signage and Wayfinding:

a. All street and wayfinding signage shall meet the requirements of the Manual on Uniform Traffic Devices (MUTCD) and Division 22 of the City Code.

(i) The project is not located in a historic district or subject to Article IX.

(ii) Proposed wayfinding signage is identified in the Wayfinding and circulation plan. In addition, Mercy has recently submitted a sign permit application for separate review by the Code Enforcement office. The sign package includes removal and replacement of many of the onsite signs as part of a rebranding of the campus related to the Northern Light Health/Mercy affiliation.

(iii) All street and wayfinding signage shall meet the requirements of the Manual on Uniform Traffic Devices (MUTCD) and Division 22 of the City Code.

Zone Related Design Standards (14-526 (d) 9)

- Address Historic Preservation Design Review, if applicable
- Address any applicable design review standards by zone
- Address submission requirements from Design Manual, page 1, addressing neighborhood context
- Description of exterior materials, color, finish, and samples

9. Zoning Related Design Standards:

The following excerpt of the Contract Zone Agreement Paragraph 10 (g.) outlines the architectural standards pertaining to the site:

"**g**. **Architectural design***: All buildings shall be designed or approved by a registered architect in the State of Maine. The scale, texture, color, and massing of the buildings shall be coordinated. The full range of high-quality, permanent, and traditional or contemporary building materials and technology may be incorporated in a manner so that the development as a whole embodies distinguishing attributes that achieve the developer's desired degree of excellence and are in conformance with the architectural guidelines provided in any private development restrictions. Particular emphasis shall be placed on the appearance of building facades from public streets and highways including the* **CONNECTOR***, from driveway and parking areas, and from other nearby buildings. Building elevation drawings shall be submitted which indicate architectural style, exterior finishes and color, building height and scale, and location and scale of window and door openings. Samples of exterior building materials shall also be submitted."*

Architectural Comments:

The architectural design intent for the Hospital Addition is to complement the existing Phase 1 portion so that when viewed in its entirety it presents one unified composition.

The existing Phase 1 building is essentially a 5-story tall rectangle that steps back on the east and west sides as the building gets higher. The 4-story addition extends the rectangle toward the north and steps back along the west. The Addition also steps back along the longitudinal axis as well with the third floor being half the length of the second.

The new Addition will be clad with the same brick and cast stone components used in Phase 1. The language of the fenestration and cast stone banding draws from the existing using the punched windows with the vertical band from Level 2 as the inspiration. The arcade extends with the same aesthetic for an additional two bays toward the new entrance on the west side.

In order to best address wayfinding needs and to minimize confusion for patients and visitors, the new entry canopies on the north and west purposefully look different from the main, drive-under Harry Davis entrance. The new entrances are only meant to cover a passenger exiting a car so the glass panels are suspended from the wall above.

The Ambulatory Surgery Center (ASC) is a 2-story free standing building that sits to the east of the hospital addition in board from the Parkway. At this point on the site, the first floor of the ASC is at the same level as the ground floor of the Hospital. The ASC will be positioned approximately

Similar to the other buildings on the campus, the ASC is clad in brick with glass storefront with spandrel panels. Taking cues from the existing Medical Office Building, the glass over the front entrance has an arched pattern – which also reflects back to the windows on the fourth floor of the Hospital. The front canopy is glass similar to the canopies on the north and west of the Addition. The rear canopy is much simpler in part due to its utilitarian function but also because it faces the rear of the Hospital, which has a similar simple canopy.

Architectural renderings are included with this section.

MEMO

SMRT Architects and Engineers

p 877.700.7678
w www.smrtinc.com

To	Steve Bushey	**Date**	7 August 19
From	Kristen Damuth	**Project No.**	19002
Subject	Level III site plan application	**Project Name**	Mercy FR campus consolidation

Public Safety & Fire Prevention: "A narrative regarding building code compliance etc addressing the items in 14-526 (c) below"
All three projects (the new Addition, the MOB renovations and the new ASC) will comply with the appropriate edition of MUBEC, IBC, NFPA and ADA. There is a life safety/code compliance drawing in each document set that identifies each code and year along with specific pertinent requirements.

I assume GP has the sentence about emergency vehicular access

Massing, Ventilation, Wind Impact: "A narrative from SMRT to explain the basis of design for both the Expansion and the ASC would be helpful with info we can incorporate into the narrative to address the sections below."

The architectural design intent for the Hospital Addition is to complement the existing Phase 1 portion so that when viewed in its entirety it presents one unified composition.

The existing Phase 1 building is essentially a 5-story tall rectangle that steps back on the east and west sides as the building gets higher. The 4-story addition extends the rectangle toward the north and steps back along the west. The Addition also steps back along the longitudinal axis as well with the third floor being half the length of the second.

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which also reflects back to the windows on the fourth floor of the Hospital. The front canopy is glass similar to the canopies on the north and west of the Addition. The rear canopy is much simpler in part due to its utilitarian function but also because it faces the rear of the Hospital, which has a similar simple canopy.

Noise & Vibration: "See 14-526 (d) 7 below"

All heating, ventilation, air conditioning equipment including air handlers and generators are designed to meet state and federal emissions requirements. Most of the HVAC equipment is mounted in the middle of the roofs to minimize visibility. The addition expands the current hospital toward the middle of the site and the new ASC building is also located in the middle of the site. There are no residences with direct views of either roof. The ground mounted equipment for the new ASC will be screened. Any additional ground mounted equipment for the Hospital will be located in the existing screened service yard.

Zone related design standards: "Narrative describing how the Contract zone is satisfied"
Re item 10g Architectural Design of the Contract Zone Agreement

The architectural design intent described above supports the guidelines regarding scale, texture, color and massing to achieve an aesthetically pleasing and cohesive campus. The new ASC building also enhances the view of the campus from the Parkway.

Architectural Plans: DD floor plans and elevations dated 7/31/19 provided



GROUND FLOOR - FACILITY PLAN (K1)
3/32" = 1'-0"



FIRST FLOOR - FLOOR PLAN AREA A (A1)
3/32" = 1'-0"

A B C D
GROUND FLOOR KEYPLAN 2
1" = 160'-0"

A B C D
FIRST FLOOR KEYPLAN 1
1" = 160'-0"

REV	DESCRIPTION	DATE

DESIGN DEVELOPMENT
7-31-2019
CURRENT ISSUE STATUS:

PROJECT NORTH:

SMRT Architects and Engineers
144 Fore Street/P.O. Box 618
Portland, Maine 04104
ARCHITECTURE | ENGINEERING | PLANNING | INTERIORS | ENERGY

MERCY FORE RIVER CAMPUS CONSOLIDATION
MERCY HOSPITAL - PHASE 2
175 FORE RIVER PARKWAY

GROUND FLOOR AND FIRST FLOOR FACILITY PLANS

SHEET TITLE:

0" 1/4" 1/2" 1" 2" 3"
SCALE: AS NOTED

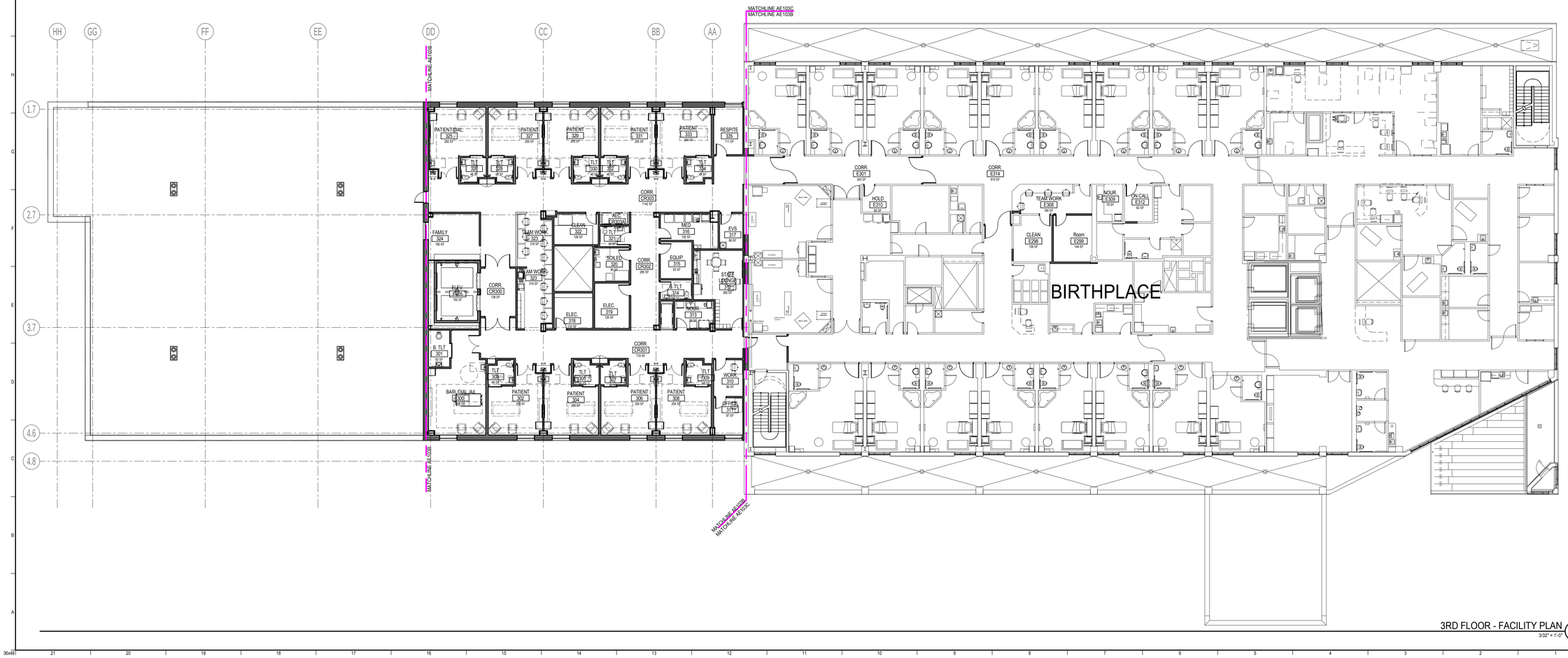
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A/E OF RECORD:	KD		
JOB CAPTAIN:	JCH		A-100
DRAWN BY:	JCH		
SMRT FILE:	A-100-19002	SHEET No.	

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2ND FLOOR - FACILITY PLAN J1
3/32" = 1'-0"



3RD FLOOR - FACILITY PLAN A1
3/32" = 1'-0"

A B C D

SECOND FLOOR KEYPLAN 2
1" = 160'-0"

B C D

THIRD FLOOR KEYPLAN 1
1" = 160'-0"

REV	DESCRIPTION	DATE

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MERCY HOSPITAL - PHASE 2
175 FORE RIVER PARKWAY

SECOND FLOOR AND THIRD FLOOR FACILITY PLANS

SHEET TITLE:

0" 1/4" 1/2" 1" 2" 3"

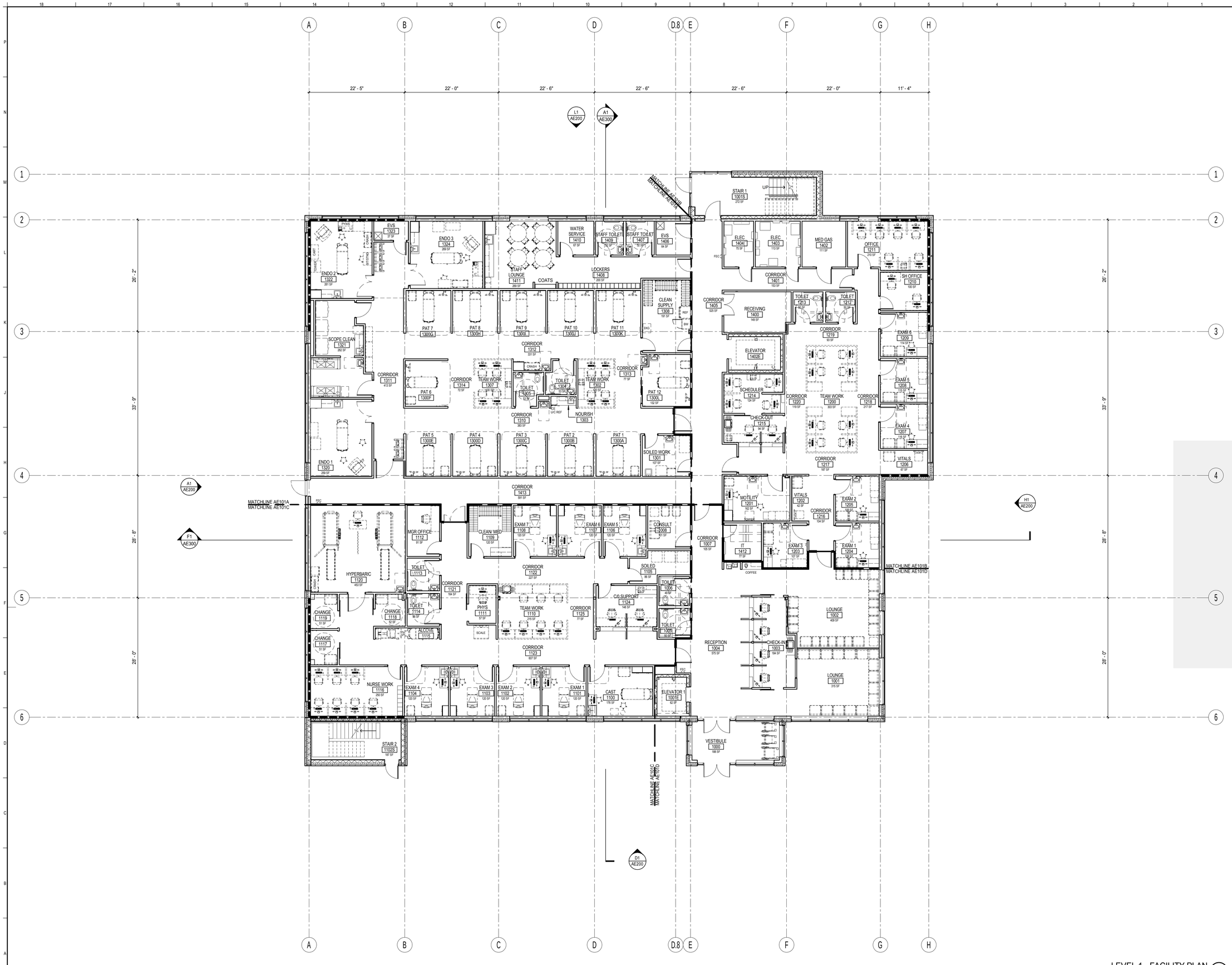
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PROJECT MANAGER:	KD	PROJECT NO:	19002
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LEVEL 1 - FACILITY PLAN (A1)
1/8" = 1'-0"

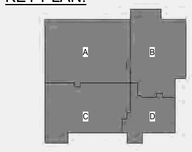
PLAN NOTES:

1. SEE G-001 FOR GENERAL PROJECT NOTES, LEGENDS AND ABBREVIATIONS.
2. SEE G-003 FOR GENERAL TOP OF WALL DETAILS AND PARTITION TYPES.
3. CONTRACTOR IS RESPONSIBLE FOR REVIEWING CODE COMPLIANCE PLANS AND NOTIFYING THE ARCHITECT OF CONFLICTS BETWEEN WHAT IS IN THE FIELD AND ON THE CODE DOCUMENTS.
4. DIMENSIONS ARE FACE OF CONCRETE, FACE OF MASONRY AND CENTERLINE OF STUD, UNLESS NOTED OTHERWISE.
5. DOOR JAMBS (HINGE SIDE) SHALL BE 6" FROM CORNER IN STUD PARTITIONS AND 8" FROM CORNER IN MASONRY PARTITIONS UNLESS NOTED OTHERWISE.
6. REFER TO DETAILS FOR ADDITIONAL DIMENSIONING INFORMATION.
7. REFER TO ENLARGED PLANS FOR PARTITION TYPES AND DIMENSIONS IN AREAS WHICH ARE DETAILED AT A LARGER SCALE.
8. FURNITURE AND OWNER PROVIDED EQUIPMENT ARE INDICATED BY DASHED LINE TYPE.
9. CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF OWNER PROVIDED EQUIPMENT INCLUDING BUT NOT LIMITED TO DIMENSIONAL INFORMATION, AND MECHANICAL, ELECTRICAL AND PLUMBING REQUIREMENTS.

LEGEND:

STRUCTURAL BRACING

KEY PLAN:



REV	DESCRIPTION	DATE

DESIGN DEVELOPMENT
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MERCY HOSPITAL
AMBULATORY SURGERY CENTER

Portland, ME

LEVEL 1 FACILITY PLAN

SHEET TITLE:

SCALE: AS NOTED

PROJECT MANAGER:	KD	PROJECT NO:	19004
A/E OF RECORD:	KD		
JOB CAPTAIN:	CAH		A-101
DRAWN BY:	CAH		
SMRT FILE:	A-101-19004	SHEET No.	

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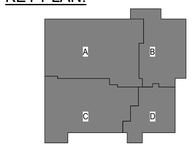
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LEGEND:

STRUCTURAL BRACING

KEY PLAN:



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MERCY HOSPITAL
AMBULATORY SURGERY CENTER

Portland, ME

LEVEL 2 FACILITY PLAN

SHEET TITLE:

SCALE: AS NOTED

PROJECT MANAGER:	KD	PROJECT NO:	19004
A/E OF RECORD:	KD		
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DRAWN BY:	CAH		
SMRT FILE:	A-102-19004	SHEET No.	

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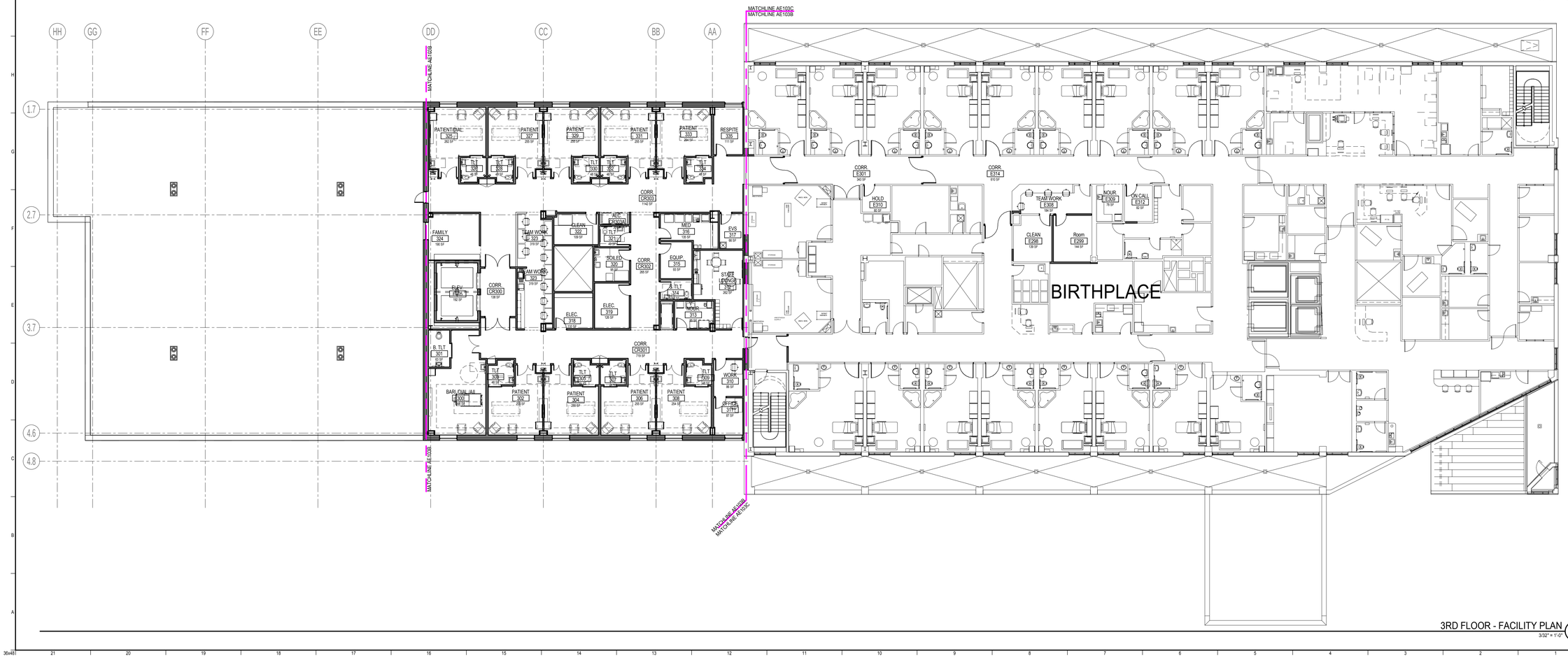
LEVEL 2 - FACILITY PLAN (A1)
1/8" = 1'-0"

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30x42



2ND FLOOR - FACILITY PLAN J1
3/32" = 1'-0"



3RD FLOOR - FACILITY PLAN A1
3/32" = 1'-0"

A B C D

SECOND FLOOR KEYPLAN 2
1" = 160'-0"

B C D

THIRD FLOOR KEYPLAN 1
1" = 160'-0"

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MERCY HOSPITAL - PHASE 2
175 FORE RIVER PARKWAY

SECOND FLOOR AND THIRD FLOOR FACILITY PLANS

SHEET TITLE:

0" 1/4" 1/2" 1" 2" 3"

SCALE: AS NOTED

PROJECT MANAGER:	KD	PROJECT NO:	19002
A/E OF RECORD:	KD		
JOB CAPTAIN:	JCH		
DRAWN BY:	JCH		
SMRT FILE:	A-101-19002	SHEET No.	A-101

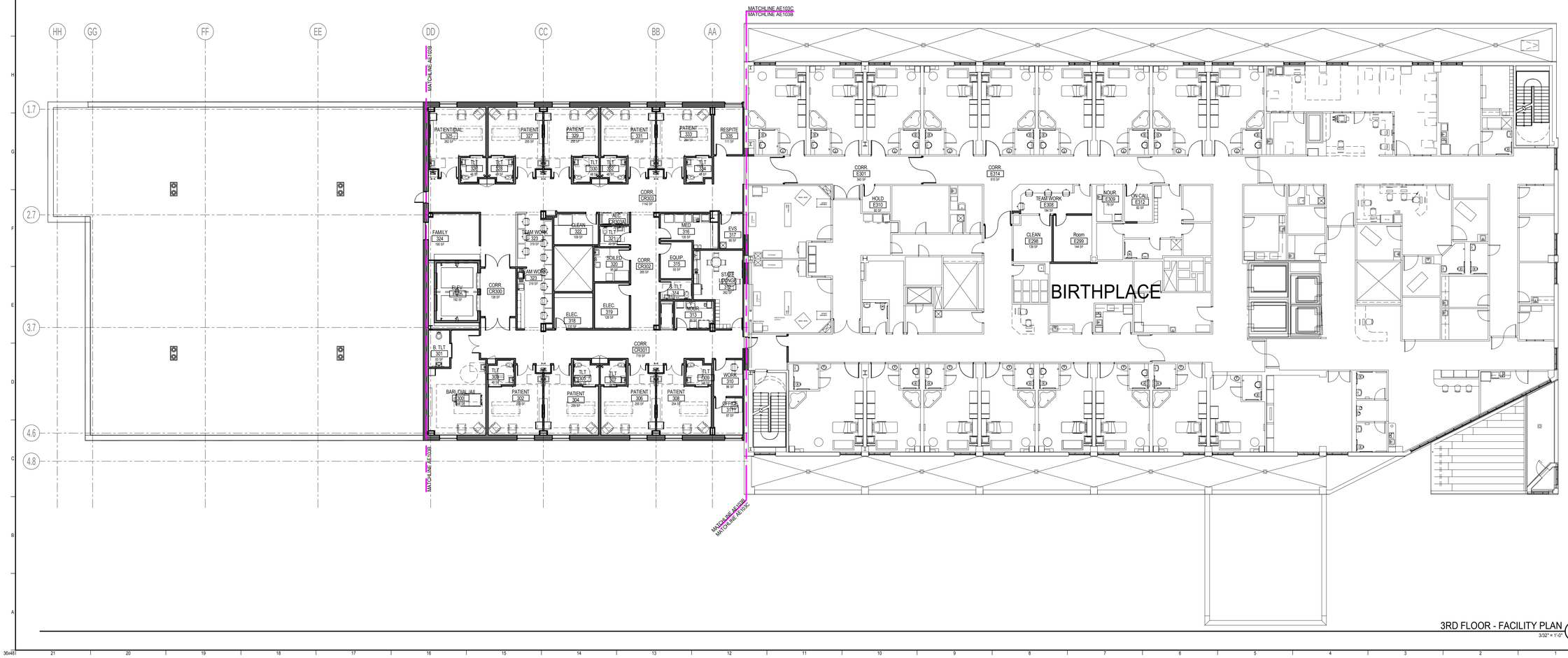
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SCALE: AS NOTED

PROJECT MANAGER:	KD	PROJECT NO:	19002
A/E OF RECORD:	KD		
JOB CAPTAIN:	JCH		A-100
DRAWN BY:	JCH		
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GROUND FLOOR AND FIRST FLOOR FACILITY PLANS

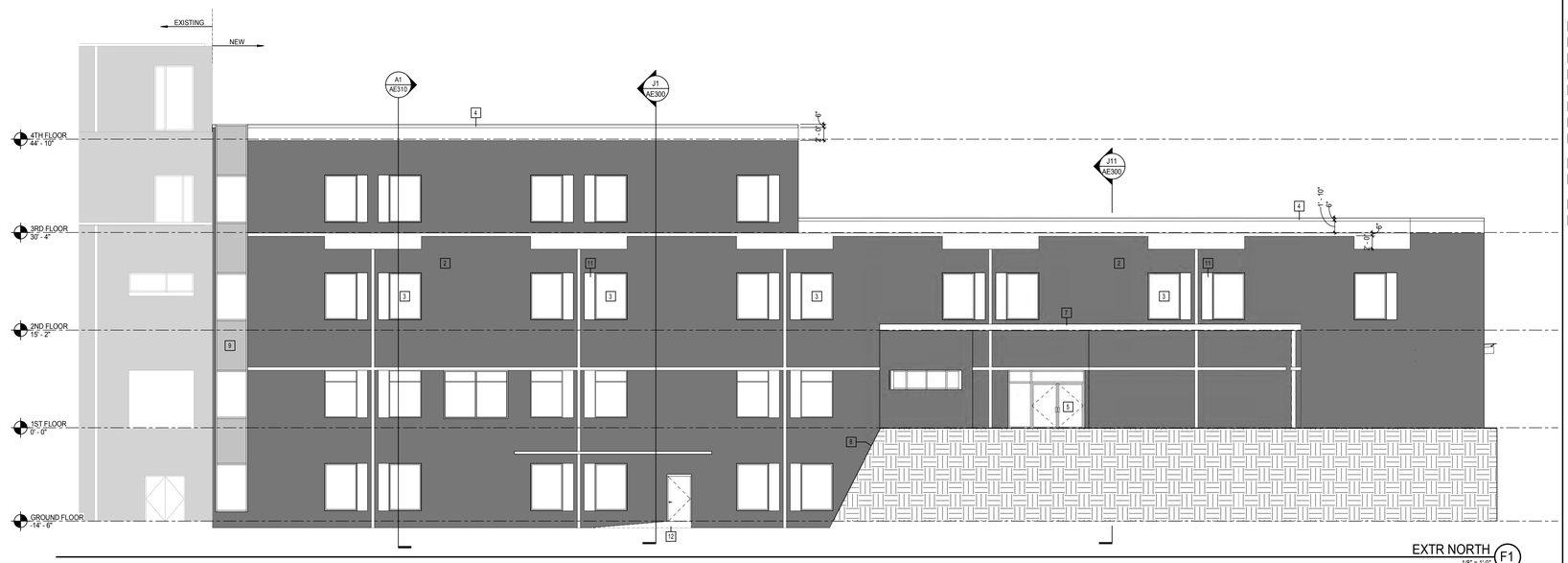
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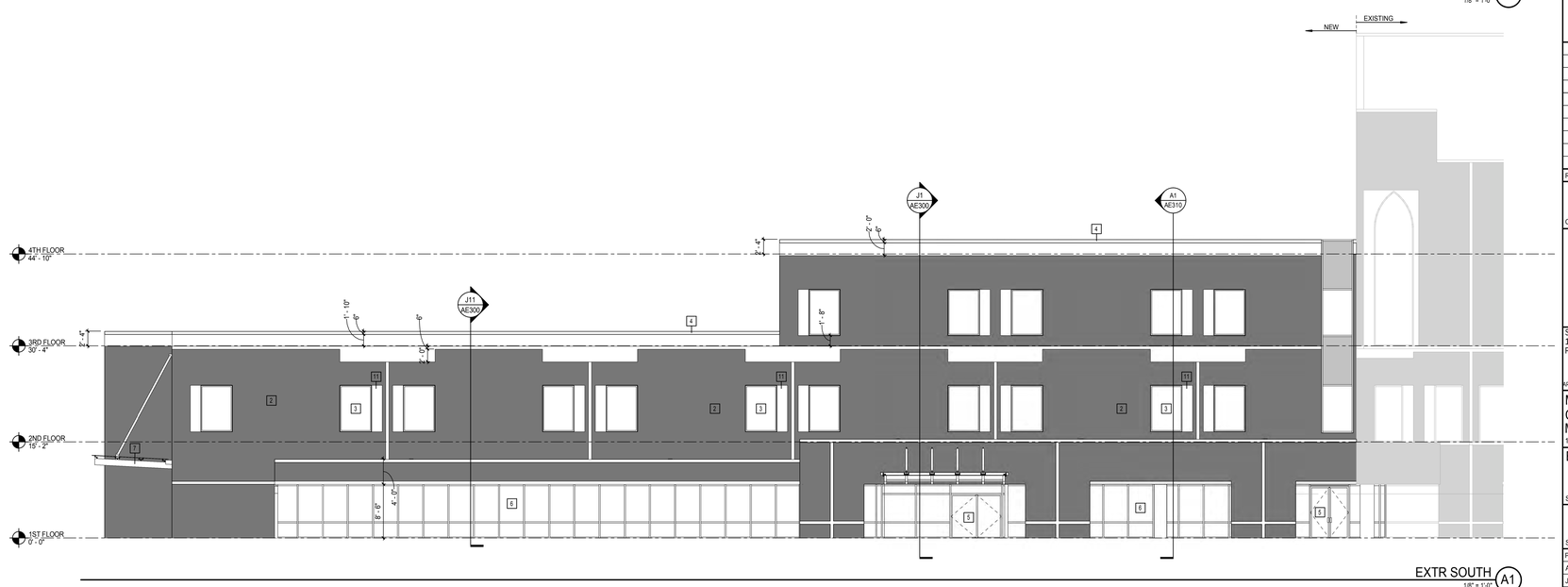
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EXTR NORTH
1/8" = 1'-0" F1



EXTR WEST
1/8" = 1'-0" L1



EXTR SOUTH
1/8" = 1'-0" A1

EXTERIOR KEYED NOTES:

1. METAL PANEL TO MATCH EXISTING PENTHOUSE
2. BRICK VENEER
3. ALUMINUM WINDOW
4. 6" CAST STONE TRIM BAND
5. ALUMINUM DOOR AND FRAME
6. ALUMINUM STOREFRONT
7. CANOPY, RE:AE501
8. NEW RETAINING WALL, COORDINATE W/ C/VIL DRAWINGS BY OTHERS
9. SPANDREL PANELS
10. RELIGIOUS ICONOGRAPHY/HOSPITAL BRANDING, DESIGN TBD
11. CAST STONE PANEL, RE XX/AEXXX
12. NEW RAMP AND STAIRS, TBD

REV	DESCRIPTION	DATE

DESIGN DEVELOPMENT
7-31-2019

CURRENT ISSUE STATUS:

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Portland, Maine 04104
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MERCY FORE RIVER CAMPUS CONSOLIDATION
MERCY HOSPITAL - PHASE 2
175 FORE RIVER PARKWAY

EXTERIOR ELEVATIONS

SHEET TITLE:

0" 1/4" 1/2" 1" 2" 3"

SCALE: AS NOTED

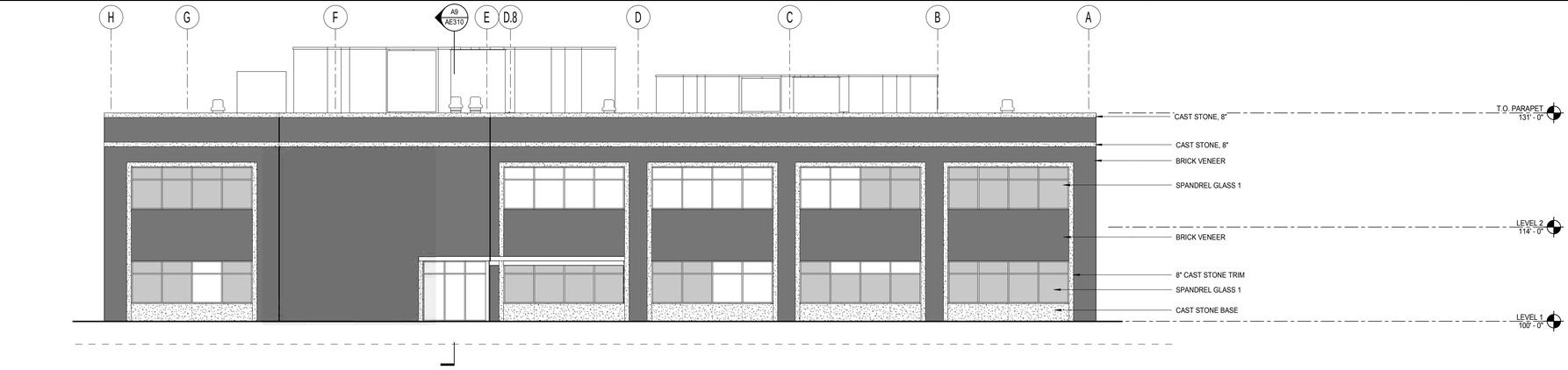
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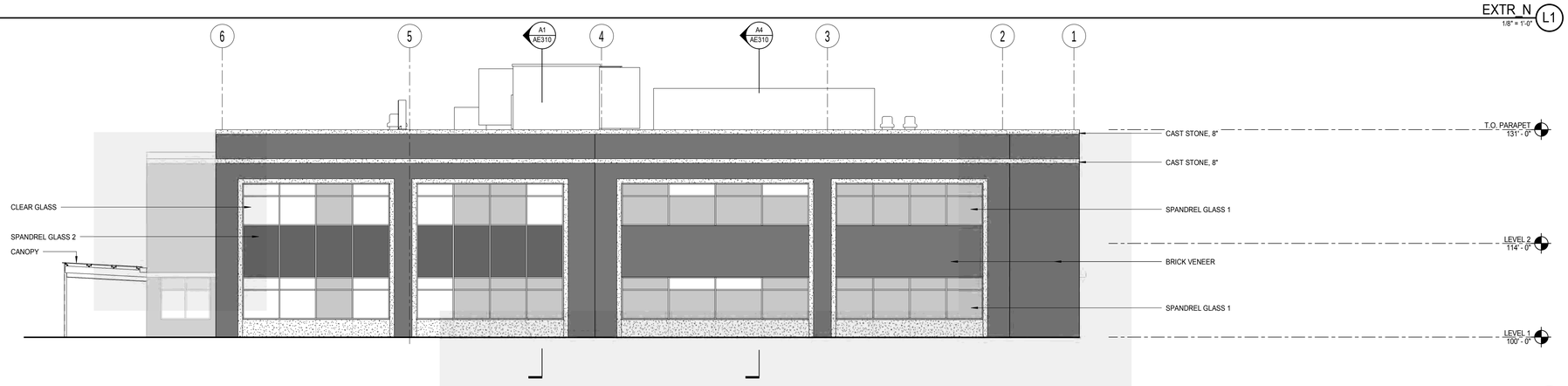
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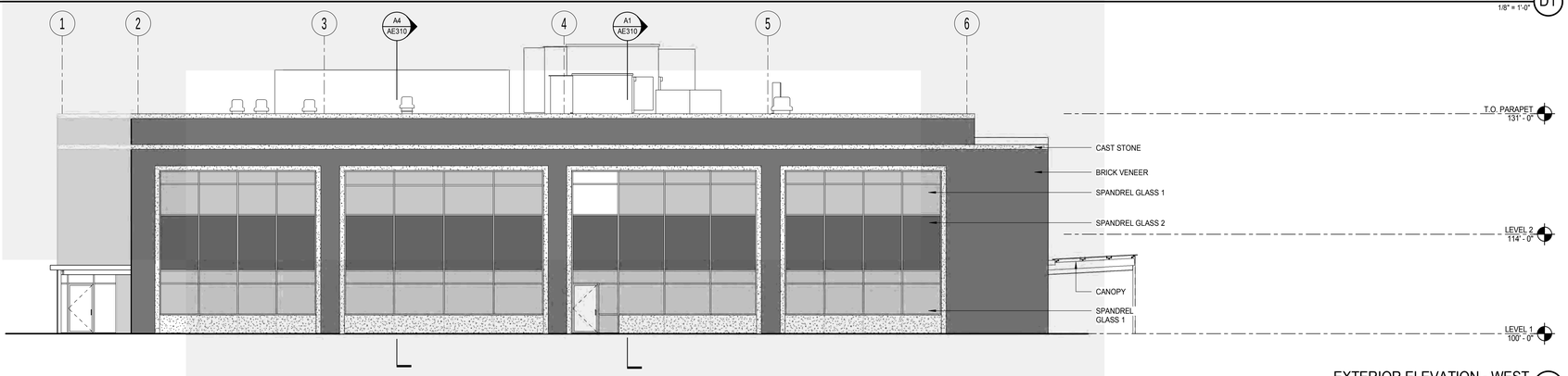
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1/8" = 1'-0" L1



EXTERIOR ELEVATION - EAST
1/8" = 1'-0" H1



EXTERIOR ELEVATION - SOUTH
1/8" = 1'-0" D1



EXTERIOR ELEVATION - WEST
1/8" = 1'-0" A1

REV	DESCRIPTION	DATE

DESIGN DEVELOPMENT
7-31-2019

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MERCY HOSPITAL
AMBULATORY SURGERY CENTER

Portland, ME

EXTERIOR ELEVATIONS

SHEET TITLE:

0" 1/4" 1/2" 1" 2" 3"

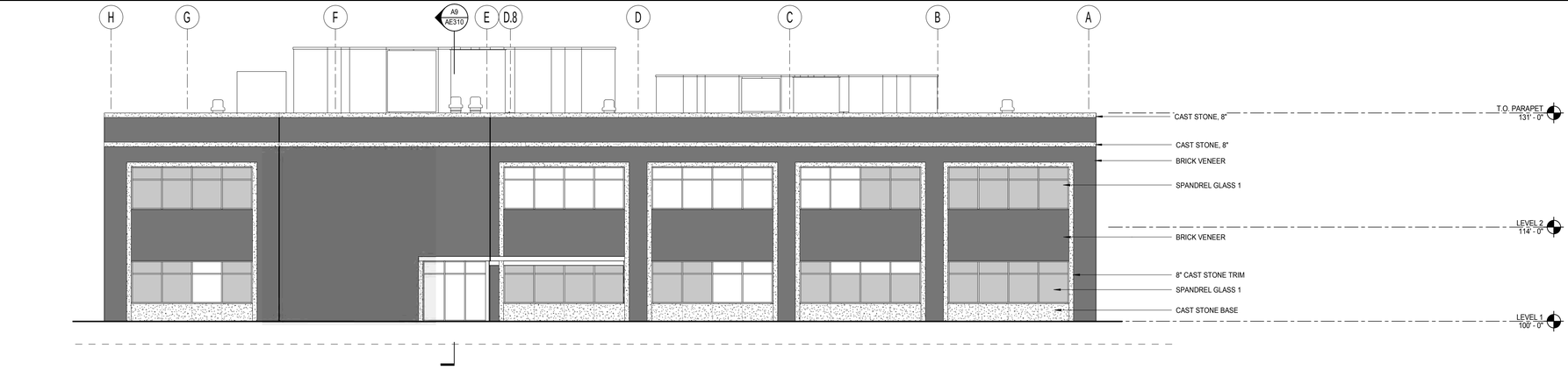
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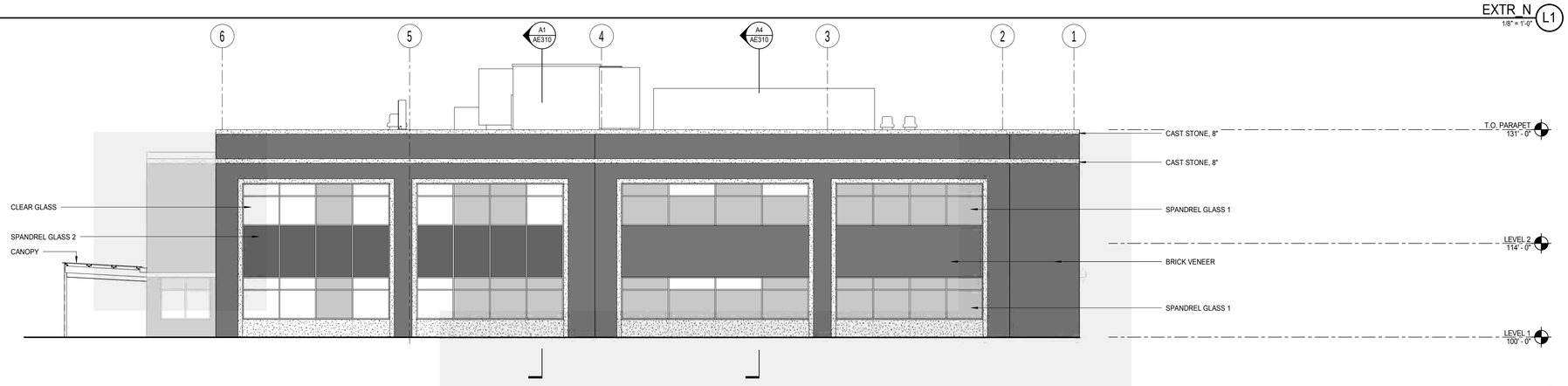
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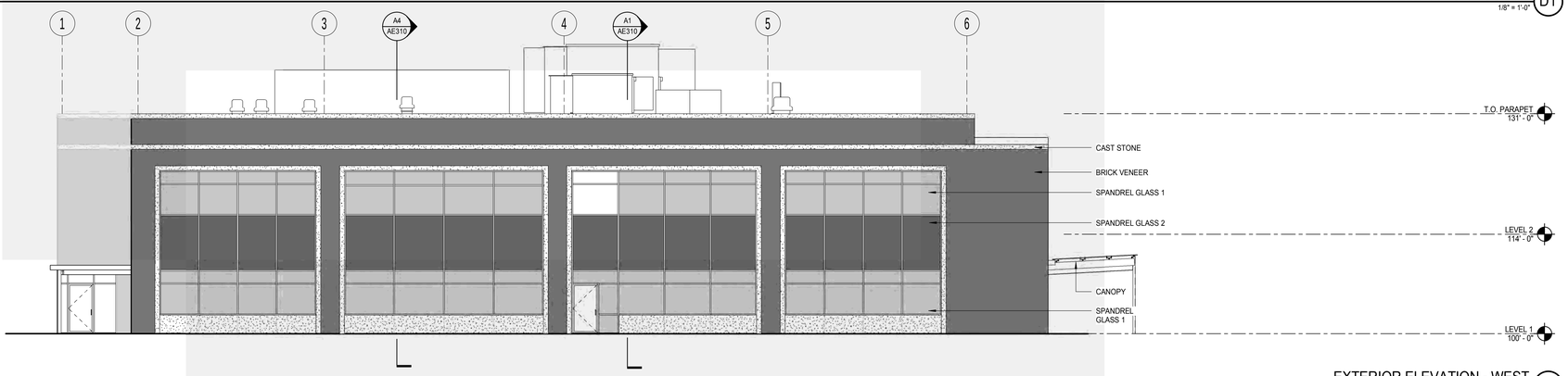
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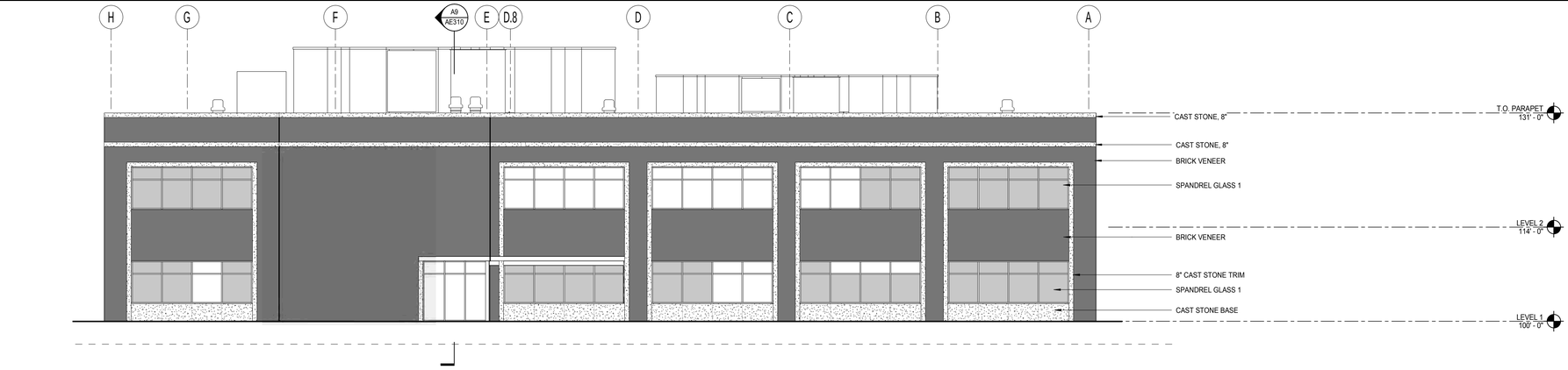
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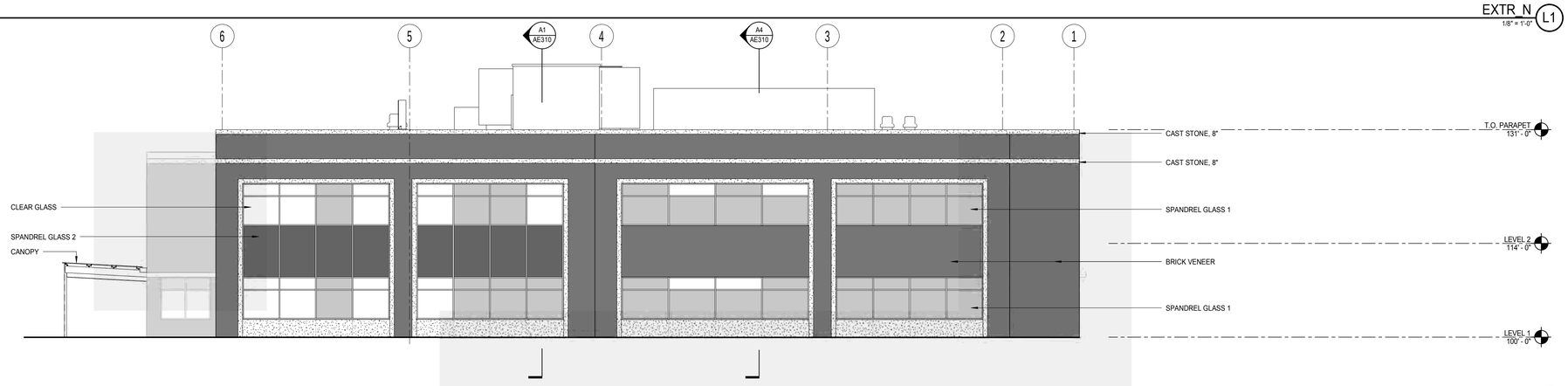
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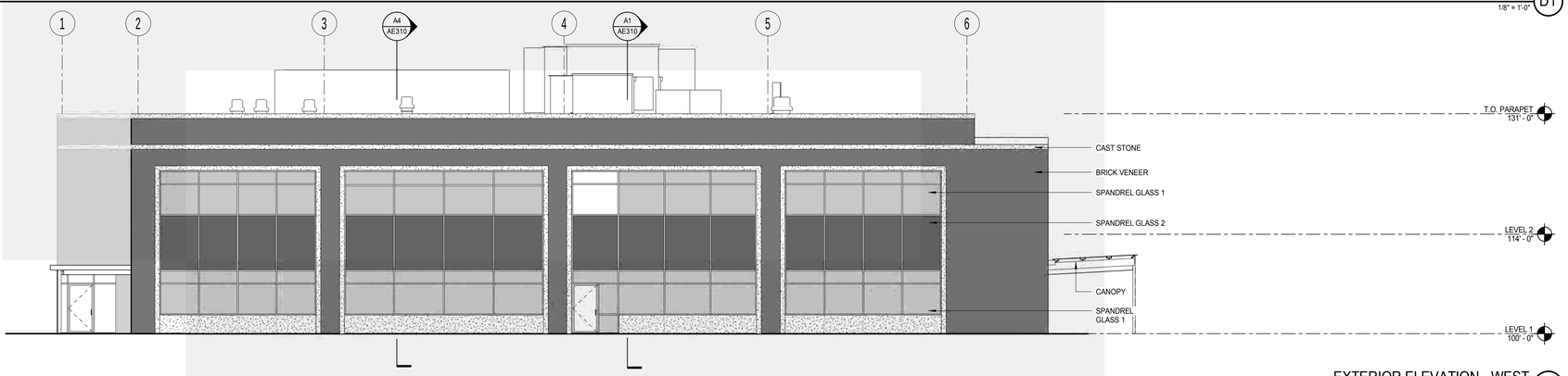
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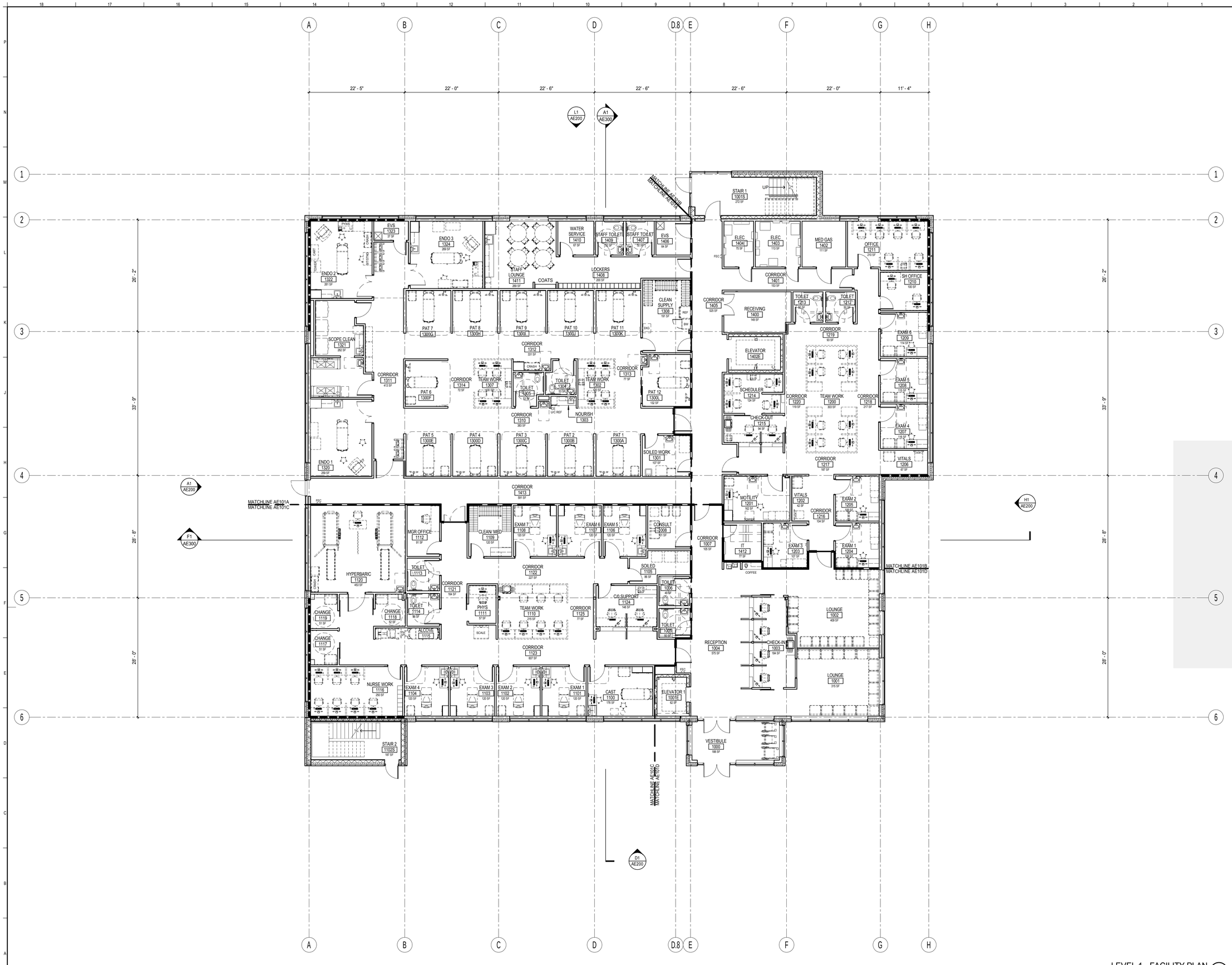
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LEVEL 1 - FACILITY PLAN (A1)
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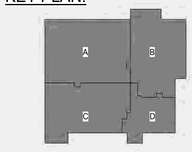
PLAN NOTES:

1. SEE G-001 FOR GENERAL PROJECT NOTES, LEGENDS AND ABBREVIATIONS.
2. SEE G-003 FOR GENERAL TOP OF WALL DETAILS AND PARTITION TYPES.
3. CONTRACTOR IS RESPONSIBLE FOR REVIEWING CODE COMPLIANCE PLANS AND NOTIFYING THE ARCHITECT OF CONFLICTS BETWEEN WHAT IS IN THE FIELD AND ON THE CODE DOCUMENTS.
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LEGEND:

STRUCTURAL BRACING

KEY PLAN:



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LEVEL 1 FACILITY PLAN

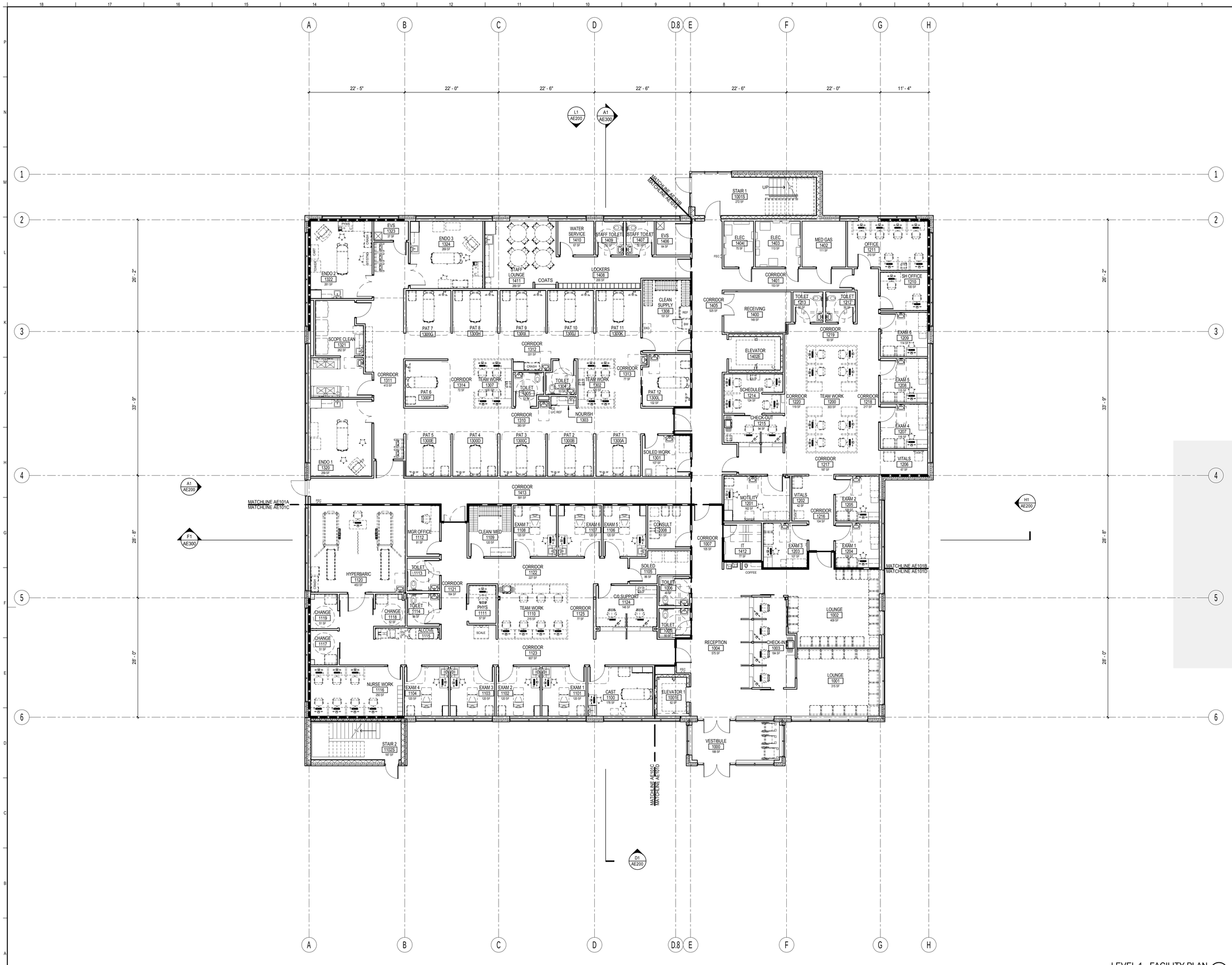
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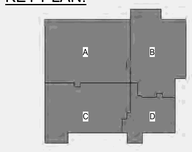
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LEVEL 1 FACILITY PLAN

SHEET TITLE:

SCALE: AS NOTED

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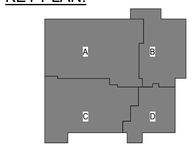
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LEVEL 2 FACILITY PLAN

SHEET TITLE:

SCALE: AS NOTED

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A/E OF RECORD:	KD		
JOB CAPTAIN:	CAH		A-102
DRAWN BY:	CAH		
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LEVEL 2 - FACILITY PLAN (A1)
1/8" = 1'-0"

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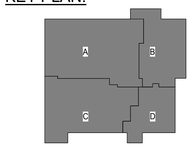
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Portland, ME

LEVEL 2 FACILITY PLAN

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NORTHERN LIGHT MERCY HOSPITAL
FORE RIVER CAMPUS
LEVEL III SITE PLAN APPLICATION
CONTRACT ZONE COMPLIANCE

Prepared for:

Northern Light℠
Mercy Hospital

175 Fore River Parkway
Portland, Maine 04101

Prepared by:

Gorrill Palmer Consulting Engineers
707 Sable Oaks Drive
South Portland, Maine 04106
(207) 772-2515

February 2020

The following is an analysis of the Site Plan Application for Phase II of Mercy Hospital's development of the Fore River campus, as it relates to the additional development standards contained in the December 3, 2001 Contract Zone Agreement with the City of Portland. As demonstrated below, the proposed development meets all of the standards.

I. DEVELOPMENT STANDARDS

A. Design Relationship to Site

Development proposals shall demonstrate a reasonably unified design of the site in a Campus-like setting, including the architecture, the layout of the buildings, pedestrian and vehicular circulation plan, open space, drainage, and the topography, soil conditions, vegetation, and other natural features of the site. Integration of open spaces and natural features shall be achieved by incorporation of outdoor amenities for the benefit of users of the site, such as jogging and walking trails, gardens, and benches. The proposed layout of buildings and uses shall demonstrate compatibility within the site. Consideration shall be given to compatibility of proposed perimeter development with the existing and future uses adjacent to the property. The existing north and south open space areas provide over 4 acres of undeveloped waterfront for the use and enjoyment of site users as well as the general public.

1. Building Orientation

The development layout is governed by the following site conditions:

- Location of the driveway access locations along the Fore River Parkway. These are fixed due to geometric and sight line requirements.
- Naturally high ground within the northern sections of the site.
- Natural building envelopes available within the north and south sections. Neither area is large enough by itself to support the full Campus program, therefore requiring a "bridge" between them. Mercy sought and was granted approvals by the MaineDEP and USACOE for the filling of the pond in the middle of the site which allows for the Phase 2 plan for the Ambulatory Surgery Center ("ASC") and next phase support programming. Future phases will build upon the availability of development area provided by the pond filling.
- The building envelopes allow for the following key elements:
    - Building connectivity for the Phase 1 Medical Office Building and Expanded Hospital.
    - Adequacy of Phase 1 and Phase 2 surface parking within reasonable proximity to each building's entrance.
    - Future accessibility to surface and structured parking proximate to the Hospital, the expansion, and existing and future Hospital Facility outpatient Building(s).
    - The hospital's prominence on the higher elevation of the site provides for clarity of view from the nearby roadways and over the Fore River Parkway to the Fore River.
    - Allows capacity for building expansion.
    - Ample utilities capacity on the Campus.
    - Open spaces for patients, staff, and the general public to take advantage of the site's waterfront conditions and aesthetics.

- Continued connectivity to various pedestrian access routes including the Fore River Parkway Trail and other Portland Trails systems, METRO bus services, Veterans Bridge and Portland Transportation Terminal.
- A designated vehicular access route from the northerly driveway to the southerly driveway and ideal connectivity to the nearby regional highway system including I-295, US Route 1 and Maine Turnpike.

B. ***Landscaping***

Future development proposals shall include a landscape program. All land areas not covered by structures, parking areas, or circulation facilities shall be landscaped and maintained to supplement the existing site landscaping. In order to soften the visual impact of large expanses of pavement in parking lots, vegetation shall be planted or retained in islands or planting strips where required by Article IV (Subdivisions) and Article V (Site plan) of the Land Use Code.

The current surface parking areas contain significant tree planting and vegetative plantings for screening and general aesthetics.

Please see Schematic Figure 4.

1. Design Intent

   Mercy Hospital looks to "heal" the development site through its approved soil management plan and landscaping program. The cleanup and coverage of exposed soils and disturbed areas has been accomplished in a manner that beautifies the site and builds upon its waterfront location.

   The project's landscaping program has been installed to meet the City's Arboricultural Specifications and Standards of Practice and Landscape Guidelines. The site contains trees and landscaping species that are suitable for the property's environmental conditions. All materials are of appropriate hardiness, are suitable to the site's soils conditions and generally complement existing landscaping in the surrounding areas, including the Fore River Parkway and Veterans Bridge. All areas not otherwise used for buildings, paved parking areas, landscaping or otherwise naturally vegetated have been covered with topsoil and grassed.

   Mercy intends to construct a permanent wetpond within the southwest corner of the former gravel pit, as part of the Phase 2 Hospital expansion. The wetpond will be preserved in perpetuity to function as both a stormwater management measure and also a recreational amenity. Enhancements to the wetpond perimeter will include naturalized vegetation and a walking path/boardwalk for access to the pond edges.

2. Planting Design

   Plantings utilized throughout the site have been maintained to fulfill the functions listed below. Plant types used vary in type and size, some being native, and are placed to take full advantage of individual plant characteristics, such as form, mature size, and seasonal interest.

   - Highlight and accent building entrances and specialty areas; gardens, terraces, etc.
   - Define major entry, intersection, and focal points.

- Soften and screen the visual impact of parking and service/utilitarian areas from views within and from outside the site.
- Help define areas and travel sequences within the site to aid in identification of circulation patterns and wayfinding.
- Provide an aesthetically pleasing environment for patients, staff, and visitors.

This is accomplished by means of the following:

- Establish a hierarchical planting structure defining major site components.
- Used Green Ash to line and identify the primary site circulation loop from the north entry, around the pond, to the south entry, and along the eastern drive to the south end of the site (access from Connector eastbound).
- Used Ginkgo and Red Maple to line and identify secondary circulation drives adjoining the hospital and through the southern parking area.
- Used single species in individual parking "cells" or blocks, to define and create identity for each, much like a color-coding for each sub lot. Species include European Hornbeam, Chinese Elm, and Ornamental Pear.
- Used flowering accent trees such as Crabapple, Ornamental Pear, and Serviceberry, to highlight primary intersections and points of emphasis.
- Utilize a mix of deciduous and evergreen species around the site perimeter to screen parking areas, and integrate the site into the background of mixed-species vegetation at the base of the Western Promenade. Evergreens are used on the slope between the Fore River Parkway and north parking, which screen views of the north parking areas, augmenting the street trees planted in the Parkway Right-of-way. The eastern side of the site at the property line is planted in a mix of deciduous and evergreen trees. The planting on the berm on the east side of the south parking is augmented with shrubs. Mixed planting is shown at the northwest corner to soften views to the northern parking from those southbound on the Connector, reinforcing the natural screening by existing vegetation and lower position of the parking in the landscape.



- Existing vegetation has been preserved to the greatest extent practicable, and is incorporated into the overall plan as a screening and naturalizing element.

3. Open Space Design

Though constituting what essentially amounts to "leftovers" from the Fore River Parkway and Veterans Bridge road projects, the open spaces at the north and south ends of the project area adjacent to the Fore River represent an excellent opportunity for recreation resources. Character-defining elements of the area include:

- Close proximity to the water's edge, with a few limited opportunities for shoreline access.
- Expansive views to the Fore River north of the Veteran's Bridge.
- Access potential from an established pedestrian system (Portland Trail network).
- Remnants of past uses including wharves, rail lines and access ways that speak to Portland's industrial "working waterfront" heritage.
- New, state-of-the-art stormwater treatment swales that reflect the latest environmental thinking in run-off water quality, the form of which includes long, geometric, swales and berms in the landscape.
- Large open areas of essentially flat land in varying degrees of natural succession vegetation re-establishment.
- Somewhat secluded from view, and the sometimes haunt of Portland's transient population, raising questions of security.

Taken together, these elements offer an opportunity for the creation of passive-oriented recreation areas with interpretive potential. This is achieved by:

- Utilizing and integrating the regular geometry of the stormwater swales and berms into the open space design. The swales are reminiscent of the Cumberland & Oxford Canal system that used to terminate in the nearby turning basin. The linear arrangement is incorporated into the composition as a foil for a bosque of trees, across which pathways with footbridges are located to draw the user into the area. Interpretive signage could be installed at some future date to provide information about the treatment system and water quality issues, as well as nearby canal history.







- At the north end, the remains of a railroad spur to the former wharves organize the alignment of a path between it and the water's edge. Volunteer tree growth, primarily birches, in and amongst the tracks, creates a unique "decomposition" of an industrial area back to the natural. Old internal access drives are geometrically incorporated with allée of trees, with a sitting area with benches focused on the water at their confluence.
- Opportunities are created along stone dust pathways for bench seating and viewing of the water.
- Disturbed areas not otherwise treated are given back to a naturalized field state, or, where active recreation activities (Frisbee, kite flying, etc.) are possible, mown lawn.

4. <u>Phasing</u>

Phase 1 planting and open space improvements included:

- Plantings in the north and south parking areas.
- Plantings at the north and south site entrances.

- Perimeter screen/buffer plantings.
- Plantings around Phase 1 hospital and medical office buildings.
- Screen plantings around service/loading area.
- "Structural" planting in the green space south of the hospital building between the access drive and Connector to include trees and lawns only.
- Full development of north open space including stone dust paths, footbridges, benches, and plantings. The path will be constructed to a point at the northernmost property line where it will be met by pending Portland Trails construction. Trail directional signage will be installed in coordination with Portland Trails.
- Partial development of the south open space to include a portion of planned shade tree planting, general cleanup, and grassing of disturbed and un-revegetated areas.

Phase 2 planting and open space improvements will include:

- Plantings in the expanded parking area.
- Plantings around the new wetpond
- Plantings along the Fore River Parkway to replace the original plantings that have been removed over time.
- Plantings at the Phase 2 hospital building expansion.

5. Wind Buffering

In addition to the front yard buffer areas, the parking areas contain landscaped longitudinal barrier islands at regular intervals. Tree plantings and other landscape measures are positioned to provide winter wind buffering of the building's front entrances and provide protection in the wide-open spaces.

6. General Site Character/Construction Materials

- *Parking Lot Surfaces*

  Parking lot surfaces are hot bituminous asphalt. Standard or pervious concrete may be used in service areas.

- *Walkways*

  Walks within reasonable proximity to the building are reinforced concrete. More remote walks consist of hot bituminous asphalt. Several pedestrian paths to open spaces and around the open marsh in the middle of the site may be bituminous asphalt or stone dust. Several boardwalks will be included for traversing near/over wet areas.

- *Curbs/Islands*

  Curbs are vertical or sloped granite. Landscaped islands are sloped or vertical granite.

- *Walls*

  Site retaining walls, where necessary, are segmented block retaining walls. Decorative walls at the main entrances have a masonry or poured concrete core and stone veneer (granite or limestone) constructed on an appropriate foundation. Retaining walls as an

extension of the building façade shall be poured concrete with a veneer of material to complement the building materials.

- *Fencing*

  Chain link fencing has been placed along the railroad ROW to provide separation and site security. Vinyl coating shall be used where appropriate.

C. *Pedestrian Orientation*

Development proposals shall include an integrated pedestrian circulation system, including internal sidewalks, to take advantage of the topography and natural features of the site. They shall provide for safe pedestrian access to all buildings and parking areas and conveniently access all developed portions of the site without additional driving. The pedestrian circulation system shall link with the shoreline trail feature of the site.

Currently there are over 4,000 LF of paved and maintained sidewalks throughout the Campus. Mercy maintains these routes year-round for staff, patient, and visitor use. The Phase 2 plans include maintenance of the majority of these sidewalks and some new sidewalk and pathways with the limits of work for the ASC and parking areas within the gravel pit area.

Pedestrian sidewalks link the Portland Trails network along the waterfront to each primary site entrance and to the site's internal sections. A pedestrian crossing signal has been installed on the Fore River Parkway at the southerly driveway. Pedestrian linkages include overlooks of the Fore River and also connectivity to the north open space. A paved sidewalk follows the rear access drive around the outside site perimeter; a pedestrian can walk over 4,000 LF (0.75 mile) along onsite paved sidewalk systems in a closed loop, without having to leave the Campus. Pedestrian crossings on the Parkway connect pedestrians to many more miles of available trail within the greater neighborhood and beyond, thus making the Fore River Campus one of the more accessible and walkable sites on the Peninsula.



The north open space area, constructed during Phase 1 includes pathways that enable completion of the linkage between the Thompson's Point area to the already paved and in-place Parkway sidewalk/trail system.

Site-related pedestrian circulation also includes designated sidewalk routes from the surface parking areas to the buildings. A hard surface, landscaped pedestrian sidewalk connects the southerly staff parking area to the staff entrance at the south end of the hospital. A shuttle van also transports hospital staff from the employee parking lots to the hospital entrance on a regular basis. Appropriate signage is provided to aid in the understanding of onsite and offsite pedestrian facilities.

Mercy has actively worked with nearby landowners including the Thompsons Point by allowing weekend event parking that benefits from the site's connectivity to the Fore River Parkway Trail, allowing patrons a very short 8-15 minute walk to events at the Point.

D. Vehicular Access and Circulation

The primary access to serve the entire development will be from two access points and a slip lane from the Connector as may be further developed or modified by joint agreement of the City, MDOT and the applicant. Vehicular circulation through internal driveways and roadways will provide safe an orderly access to all developed portions of the site.

The Maine Department of Transportation used a significant portion of the property for the construction of the I-295/Commercial Street Connector aka fore River Parkway. The connector roadway provides the link between Outer Congress Street, I-295, the Veterans Bridge and the Commercial Street Corridor. From west to east, the connector extends from the I-295 Exit 5 interchange and crosses the Pan Am railroad tracks above grade and proceeds across the property generally along the Fore River frontage. The Veterans Bridge Interchange has been reconstructed with expansive pedestrian facilities for walkers, runners, and bicyclist between Portland and South Portland. The connector right of way includes the Fore River Parkway pedestrian walkway/bikeway along the Fore River frontage. Two separate access drives to the hospital Campus have been provided off the Parkway with the southerly driveway being signalized. Additional gated emergency access is provided off an existing access route behind the County Correctional Facility. These access conditions will likely remain unchanged into the future due to design consideration along the Parkway. A traffic analysis of predicted operating conditions at the driveways upon completion of the Phase 2 project indicates a high level of service will be maintained at both side driveways. Overall, the Fore River Parkway is considered to be an under-utilized transportation corridor in the city, while the city has made efforts to even further improve conditions in the Libbytown area, north of the Mercy Campus[1].

1. Parking

   A parking demand and supply analysis was conducted by Gorrill Palmer Consulting Engineers in support of the Phase II development activity and the findings of that study support the proposed parking supply of 857 spaces. Future development activity will rely on updated parking demand analysis to further inform decision making for surface or structured parking expansion on the property.

   Overall Assessment of Need

   Currently the Phase 1 development contains the following parking:

		Fore River Site Parking Phase 1	
Phase 1 Use	**Building Size**	**Required by Code**	**Currently Available**
Hospital – 1 SP/500 SF	137,832 SF	276	
MOB – 1 SP/400 SF	82,186 SF	205	
Total		**481**	**762**

[1] See *Libbytown Traffic Circulation and Streetscape Study,* by DuBois & King Inc. 2012

Assuming similar ratios are allocated for Phase 2, the expected parking demand at the Fore River site can be summarized as follows:

		Fore River Site Parking Phase 2	
Phase 2	**Building Size**	**Required by Code**	**Provided on Site**
Hospital Expansion – 1 SP/500 SF	54,889 SF	110	
ASC – 1 SP/400 SF	34,987 SF	88	
Subtotal		198	
Plus Existing		481	
Grand Total		**679**	**857**

2. Access and Circulation

   Please see Schematic Figures 2 and 3.

3. Major Entrances and Exits

   - Northerly Driveway – Unsignalized
     - Southbound left and northbound right turn entering
     - Exiting right only to Fore River Parkway northbound
   - Southerly Driveway – Signalized
     - Northbound right turn entering
     - Southbound left turning entering
     - Exiting left turn to Veterans Bridge and West Commercial Street and right turn to I-295 and Congress Street

4. Secondary Access

   Gate controlled emergency access is provided from the existing at-grade crossing behind the Cumberland County Correctional Facility.

5. Internal Site Circulation

   Designated access drive connections are provided between the north and south driveways. Wayfinding measures including signage is provided to direct travelers to the appropriate driveways for north and south access from the site. Landscaping and lighting selection provide distinction from adjacent parking and interior circulation and pedestrian areas.

6. Bus Routes

   METRO currently serves the site from their Congress Street route that involves bus travel from the Parkway and northbound to Congress Street. There is an existing bus shelter located adjacent the Medical Office building. In the future, METRO has expressed a planning goal to update their service routes along the Parkway to provide service in both directions. METRO is also seeking to discontinue the onsite service path and to replace it with possibly two or three new bus stops along the Parkway, one each at the south driveway intersection and at the north driveway intersection. METRO is also contemplating a new stop on the southbound leg of the Parkway. Mercy will continue to work closely with METRO on this planning as these route updates are likely to improve overall METRO service and also

continue to provide key service to all onsite programming including the Hospital, Medical office building and the ASC.

7. Alternative Transportation/Travel Demand Management Plan

The development operations will be conducted in a manner to promote transportation demand alternatives to the extent practicable, given the use and inherent conditions associated patient services, staff work hours[2] and overall hospital Campus visitation. A fundamental result of the relocation of Mercy programming from the State Street facility to the Fore River Campus will be less traffic resulting from Mercy State Street operations. This action alone will result in shifting long standing Mercy traffic from the Portland Peninsula interior and specifically State and High Streets, to the Fore River Parkway and its direct connectivity to the regional highway system. The State Street neighborhood will dramatically benefit from decreased emergency services traffic and overall parking demand along neighborhood streets. Further, the Phase 2 development will not result in increased traffic pressure on the Peninsula as a whole, since Mercy has always been a valued existing land use. Simply, the move results in an improvement for Mercy generated traffic as it utilizes the direct highway connectivity and ample capacity of these highways and the Fore River Parkway.

In addition, Mercy continues to promote the shifting of various operational and administrative functions to their outpatient facilities in surrounding Portland Communities and/or work from home telecommuting opportunities, thus resulting in decreased traffic overall to the Portland Peninsula.

Ultimately, Mercy's TDM will include strategies that encourage employees to use alternatives to driving to work unaccompanied. For example, employees participating in a ride share program currently benefit from designated spaces at the northwest parking lot, nearest the MOB and thus do not need to park in the south parking lot[3]. This will enable Mercy and other tenants to successfully provide parking to all employees, visitors, patients, and physicians in the designed parking plan. Mercy also maintains bike racks at the front of the hospital and near the staff entrance at the south end of the hospital building. Bicycle riding staff have the availability of staff locker room facilities for changing and showering. Mercy routinely provides Taxi vouchers to patients on an as needed basis and they have promoted bus pass programs in the past. An updated Transportation Demand Management Plan is currently underway and will be shared as it becomes available.

E. Buffers and Screens

Development proposals shall include appropriate measures of a dense and continuous nature to supplement existing buffering to parking lot visibility from public roads.

Buffer plantings to provide wind buffering and reduce off-site noise shall be incorporated where feasible. Since the Phase 1 development in 2008, Mercy has maintained a robust planting plan across the Campus and many of the trees have become well established and are providing

[2] Acute care hospital settings and workforce hours are characterized by shift work, per diem staff, and irregular patient load, thus contributing to challenges of a traditional TDM plan.

[3] There are approximately 12 designated spaces for ride share vehicles to park closer to the MOB/Hospital than the south parking lot.

excellent screening and aesthetic impact to the site overall. The Phase 2 development program includes expansion of the hospital within an existing parking lot and placement of the new ASC within the gravel pit. Much of the existing buffering to the ASC location will remain unchanged from current conditions, thus reducing the visual impact the new buildings may have on the site.

F. Preservation of Natural Features

Development proposals shall identify the extent to which the developer will preserve natural features including, but not limited to, existing vegetation, flood plains, rock outcroppings, surface water bodies, drainage swales and courses, and wetlands, provided *any such program shall consider and be sensitive to the need to preserve such natural features.*

See landscaping section above. Public open space has been provided at each end of the property's water frontage, as well as around the new wet pond. During the first development phase, the open spaces offered passive recreational opportunity. The northerly open space is connected to the Portland Trails network by a stone dust path extension. The primary purpose of these spaces is to allow waterfront access. Portland Trails also holds a recreational trail easement over the pedestrian and bicycle paths on the property. Except for one section of gravel path near the existing pond, all pedestrian and bicycle paths will remain.

The property contains a 3.49-acre artificial pond and associated wetlands that had formed in an abandoned gravel pit. The abandoned pit area was substantial cleaned up during the initial 2006 Phase 1 construction period, at which time a significant amount of solid waste including tires, old appliances, furniture and the remnants of a multitude of homeless encampments was removed from the site and some vegetative embankment stabilization was performed. The wetlands are not depicted on the Shoreland Zoning Map. The proposed development will include filling in the existing pond and building a half-acre wet pond in same location. The wetpond will become a permanent measure on the campus that will be protected in perpetuity by a conservation easement. Pursuant to the dimensional standards in the CZA, the maximum amount of impervious coverage permitted on the site is 80%. The proposed project will result in lot coverage of 66%. In 2013, Mercy Hospital obtained permits from the Maine Department of Environmental Protection and the US Army Corps of Engineers to fill in the pond.[4] (see attached permits). In its application, Mercy Hospital provided an alternatives analysis that explains how the campus expansion design evolved to having to fill in the pond. The initial alternatives focused on site selection for all hospital facilities. Campus consolidation is a preferred alternative to a dual campus system for a multitude of reasons, including bringing the hospital up to appropriate standards of care, efficiency and safety, as well as being more cost effective. Mercy Hospital analyzed five alternative site layouts for the expansion and ultimately was approved for a design that included filling the pond.

The proposed site layout, which requires filling the pond, is essential for several reasons. Mercy Hospital's goal is to provide patient care in the most appropriate location for optimum experience and accessibility. The intent is not to overbuild a costly acute care hospital, but rather, create settings to which care is most appropriately provided – our Ambulatory Surgery Center and Medical Office Building – affording convenience for patients and providers as well as adjacencies to support services as required. The ASC is not connected to the hospital because

[4] The permit obtained from the MaineDEP is for a project that is larger than the current phased development presented to the City for permitting.

a separate building meets the goal of providing outpatient services in an appropriate outpatient setting, discreet from Mercy's acute hospital services. In addition, ambulatory surgical services are expected to continue to be a significant part of Mercy's healthcare offerings, with potential for growth which would be compromised if the ASC programming were located in the hospital or otherwise not well positioned on the site. The proposed location allows for future expansion of the ASC building. The site layout was also carefully designed to utilize the rear access road as the central utility corridor and to serve back-of-house functions. All onsite utilities are located either behind the existing hospital or within the east side access drive. There are no utilities (water, sewer, power, gas, comm.) along the Fore River Parkway frontage or front half of the site. The hospital expansion is displacing 100+ physician parking spaces which need to be relocated to a location that provides easy access to the hospital and to the ASC. The parking lots on the MOB side of the hospital will be designated for patients & visitors to the MOB & Hospital as those lots are situated at the front of the hospital building. The new physician parking relocated to the east of the hospital provides for direct access into the staff entrances at the hospital, and to the ASC. Finally, the ASC back-of-house functions are backed up to the central utility/service corridor that exists today for the hospital. Functions that will be provided to the ASC through this corridor include staff and provider parking & circulation between buildings, utilities, deliveries and ambulance pick-up/drop-off. Other potential functions that could be shared between the hospital and ASC through this corridor include materials management, clinical engineering, housekeeping and security.

The MaineDEP accepted Mercy Hospital's alternatives analysis, finding that Mercy has "avoided and minimized wetland impacts to the greatest extent practicable, and that the proposed project represents the least environmentally damaging alternative that meets the overall purpose of the project." In issuing the permit, the MaineDEP found that the pond was used by waterfowl, but it was not a wetland of special significance. The permit requires Mercy Hospital to pay a total of $834,156.00 in wetland compensation. The funds have been paid into the In-Lieu-Fee program of the Maine Natural Resource Conservation Fund.

The proposed project preserves natural features to the greatest extent practicable, while allowing Mercy Hospital to provide safe, effective, cost-effective, and state-of-the-art medical services to patients in an appropriate location and manner.

G. Architecture

All buildings shall be designed or approved by a registered architect in the State of Maine. The scale, texture, colors, and massing of the buildings shall be coordinated. The full range of high-quality, permanent, and traditional or contemporary building materials and technology may be incorporated in a manner so that the development as a whole embodies distinguishing attributes that achieve the developer's desired degree of excellence and are in conformance with the architectural guidelines provided in any private development restrictions. Particular emphasis shall be placed on the appearance of building facades from public streets and highways including the Connector, from driveway and parking areas, and from other nearby buildings. Building elevation drawings shall be submitted which indicate architectural style, exterior finishes and color, building height and scale, and location and scale of window and door openings. Samples of exterior building materials shall also be submitted.

1. Design

During the Phase 1 development, Mercy requested a building that embodies the faith-based nature of their institution. The design approach utilized the pointed arch motif of Gothic Revival, a style that has historically had a great depth of meaning for Roman Catholic institutions in our country. This approach is given a modernist overlay with concentrated areas of glass wall and metal panel, with generally clean lines throughout. Mercy also wished to maintain a sense of continuity with their existing State Street facility.

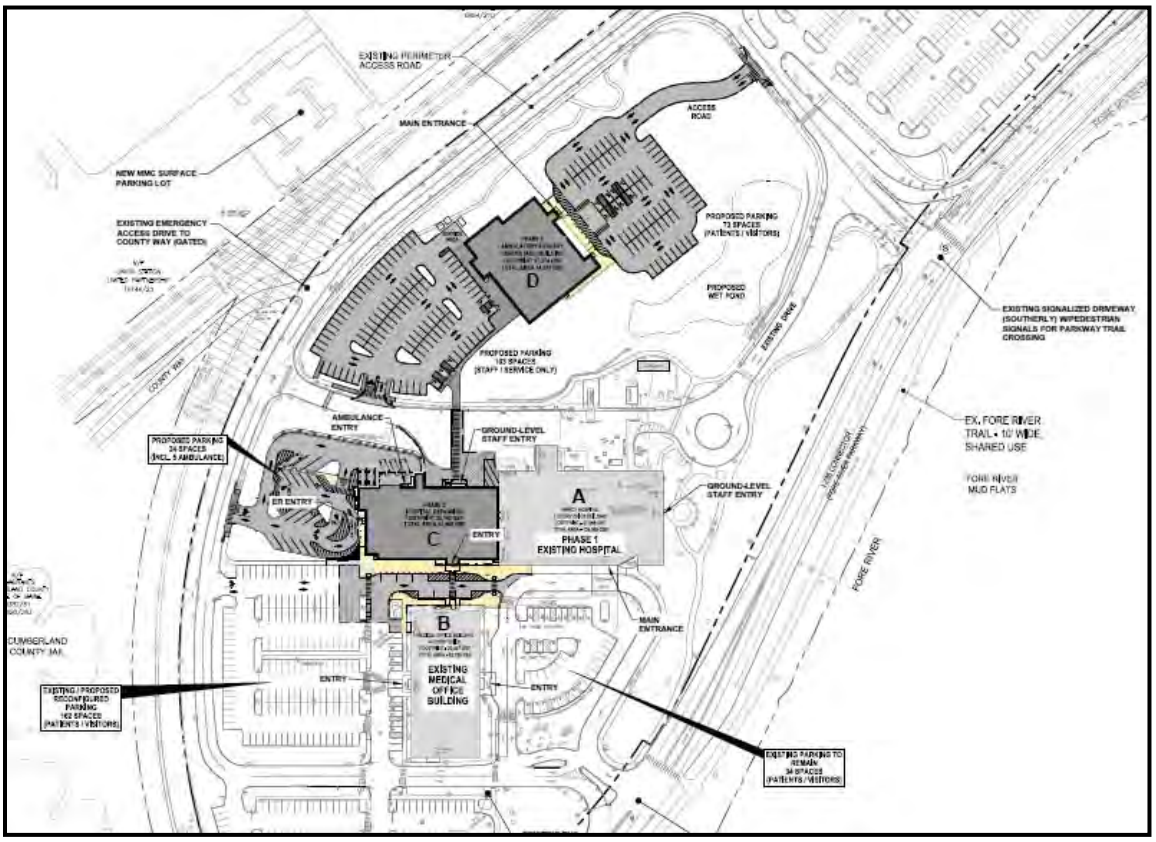


Finally, the prominent waterfront location bears a direct relationship to the historic brick waterfront structures of downtown Portland. The Phase 2 expansion will continue to reflect this design intent. Future buildings will adhere to the Private Development Restrictions previously prepared as a condition of Phase 1 approval.

2. Building Footprint

The Hospital is centrally located on the high point of the site to enhance visibility from all directions. The rectangular footprint of the hospital is oriented north-south to both maximize access to sunlight and to optimize views from patient windows of the Fore River to the west. This footprint will be extended to the north as part of the Phase 2 activity as this simplifies construction of foundations, internal utilities, and internal operational connectivity among other things. The existing building's four floors above a partially exposed ground level maximize the building's height (90 ft.) with the available program while minimizing the impact on the site. The existing Medical Office Building is located perpendicular to the Hospital in an L-shaped alignment so that future connections to the Hospital Expansion and a future multi-level parking garage may be easily facilitated. The MOB currently connects to the hospital with a below grade tunnel between the buildings.

The ASC footprint has been positioned to allow for surface parking on both sides of the building, yet maintaining proximity to the main Hospital, as it is expected that ASC staff will need access the hospital (for example, staff may use the Hospital Cafeteria, etc.). The ASC positioning also allows for Hospital facilities personnel to easily travel between the buildings as they made need for supply management, maintenance, and general facilities operations.



3. Building Massing



The massing of the existing hospital building steps in, on both the east and west elevations as a response to the programmatic requirements within. This pattern will continue with the Phase 2 hospital expansion. During Phase 1, a prominent location was created for the chapel with a full-height diagonal slice at the southwest corner of the Hospital. The Medical Office Building was sited perpendicular to the hospital on the west elevation in an L-shaped configuration, creating an entry court for both buildings that opens directly onto the Fore River Parkway and river. The Medical Office Building is oriented in a manner that allows access from each side.

The Phase 2 Hospital expansion uses the stepped pattern for the third floor to help shape the building form while softening the linear building presentation. Much of the Phase 2 expansion is partially shielded from the Parkway views due to the placement of the MOB, generally in front of the Hospital expansion. The Phase 2 building height at only three levels also minimizes the overall massing effects. Finally, the recent construction of the nine (9) level 2,500 space MMC parking garage, to the east of the site, substantially impacts the background and overall visual effect of the Fore River Campus, as seen from the I-295 Corridor and Veterans Bridge. Future Hospital facilities on the Fore River Campus will not exceed the overall MMC parking garage height and are expected to actually be much smaller in overall scale.



4. Building Façade/Materials

The existing hospital façade is composed of traditional Portland red brick with light cast stone highlights. Gothic cast stone tracery throughout and stained-glass windows at the existing chapel convey the faith-based nature of the institution. A brick arcade and entry

canopy create an inviting approach on the west elevation. The majority of windows throughout are traditional punched openings, counterbalanced by the full height glass and metal panel slice at the southwest corner of the building. The windows on the west and south elevations are combined in a larger scale to read strongly at a distance from across the river. Traditional sloped metal roofing covers the chapel. The MOB follows the Hospital's lead with a complementary building face, glass, and accents to mirror the Hospital building. The Phase 2 buildings will also follow these building and materials patterns and character.

5. Roofline

The main roofline of the Hospital building is a clean modernist horizontal edge accented with a large-scale pediment centered over the main entry that is a direct reference back to Mercy's State Street building. The overall massing of the Hospital building is softened with the cascading sloped rooflines along the east and west elevations. The MOB follows with a horizontal roofline that falls at or below the Hospitals. Future buildings will follow with similar or lower rooflines. Roof top appurtenances on the ASC will be adequately screened to minimize visual impact.

6. Service Areas

The exiting service areas for the hospital are located along the partially exposed ground floor level on the east side (rear) of the building. These service areas are partially screened from view from the Fore River Parkway by the hospital itself, as well as landscaping along the Parkway frontage. The semi-trailer loading area is located to the northeast corner and is shielded from general view by the building. Waste containers and other service-related activities are buffered by appropriate screening. The MOB service area will continue to be minimal. The Phase 2 hospital expansion will generally rely on the existing Hospital service areas, as the loading area was originally sized based on the Hospital's full anticipated build-out. Service areas for future buildings will be placed to consider buffering and shielding from important views to the extent practicable. This applies to the ASC building that will have a modest waste collection and utility area at the east side of the facility, facing the railroad tracks.

7. Building and Site Lighting

Ground-mounted and building-mounted lighting provides general illumination of the building and safety and security over building entrances and walks and within parking fields. Building mounted lighting places specific emphasis on the Phase 1 Hospital arcade and entrance canopy along the westerly elevation. Site Lighting is provided throughout the Campus with the use of "Heritage" style fixtures that blend traditional architecture with modern performance. Fixture heights do not exceed 30 feet along primary drives, 25 feet within parking fields and 12 to 15 feet around pedestrian walks and building perimeters. These lighting measures will remain as part of the Phase 2 activity.

Parking area and pedestrian lighting is of high-quality construction and materials and with a character that complements the architectural features and style of the building. The site lighting meets the City of Portland strict requirements regarding minimum, average, and maximum levels of illumination, maximum wattage, and mounting height.

H. Signs

Signage shall be focused internally to the site or to the Connector and shall not be oriented or scaled to address Route 1 or Interstate 295, with the exception of the hospital and major office buildings. Development proposals shall identify all proposed signage. Signs shall be designed in proportion and character with the building facades. All signs shall be constructed of permanent materials and shall be coordinated with the building and landscaping design through the use of appropriate materials and finishes.

All signage at main entrance and way finding signs throughout the site shall be of a character and quality consistent with that of the building. Signs shall be illuminated at the entrances, with consistent graphics and logo (custom screen-printing) throughout the project.

I. Master plan

Prior to development on the property, Mercy shall provide a master plan of the campus. The master plan shall include the following: The location of the buildings on the site; infrastructure of the site; identification of common areas; traffic circulation; architectural character and treatment of the buildings; proposed building envelopes; phasing and timing of the development; private development restrictions; and such other information necessary and sufficient to ensure compliance with the standards in this section. Master plans are dynamic representations that assist in guiding projects through phased development. Master plans are flexible and adaptable to changes that occur within the development process. The master plan shall be subject to periodic revision and update as needed and as phased development occurs over time.

A revised master plan of the campus is provided as Figure 1. As summary of the phased development that balances business needs and economic capacity is as follows:

- **Initial Phase 1 – Constructed 2008**
  - 137,832 SF Hospital
  - 82,186 SF Medical Office Building
  - Surface parking for 762 vehicles
  - Utilities extended for initial and future phases
  - Campus grounds fully landscaped and open spaces established
  - Exterior systems including med gas, auxiliary power, and above ground heating oil tank storage
- **Phase 2 – Proposed 2019/2020**
  - 54,889 SF Hospital expansion over 3 levels to include emergency department and ancillary programming
  - 34,987 SF Outpatient Ambulatory Surgical Center within free-standing 2-story building
  - Surface parking resulting in a net increase of 95 parking spaces on the Campus
  - Partial filling of the former gravel pit for ASC and parking placement
  - Wet Pond construction for stormwater management

- **Future Phases**

  - ASC Expansion
  - Parking Structure(s) to support 700-900 parking spaces subject to demand analysis and future programming
  - 50,000 to 200,000 SF Hospital facilities may be attached or free-standing structures to meet expanding outpatient and/or acute care health care delivery
  - Relocation of Maintenance facility
  - Total building space equals to 500,000 to 600,000 SF can be supported on the Campus depending on building height etc.

II. DIMENSIONAL REQUIREMENTS

The following dimensional requirements shall apply to the property as a whole and not to individual lots (if any) within the property:

Maximum Impervious Surface Ratio

Eighty (80) percent. The Phase 1 development resulted in 57 percent impervious and the Phase 2 proposal will increase the ratio to 66 percent.

Maximum Building Height

Ninety (90) feet. The maximum building height on the Campus is currently 90 feet and that will remain unchanged.

Minimum Front Yard Landscaped Buffer

Twenty (20) feet from the edge of the connector right-of-way. Retaining walls, walkways, trails and pathways may occur within the landscaped buffer. Buildings and expanses of paved surfaces for vehicular use are prohibited.

Minimum Side Yards

Ten (10) feet.

Minimum Rear Yard

Ten (10) feet.

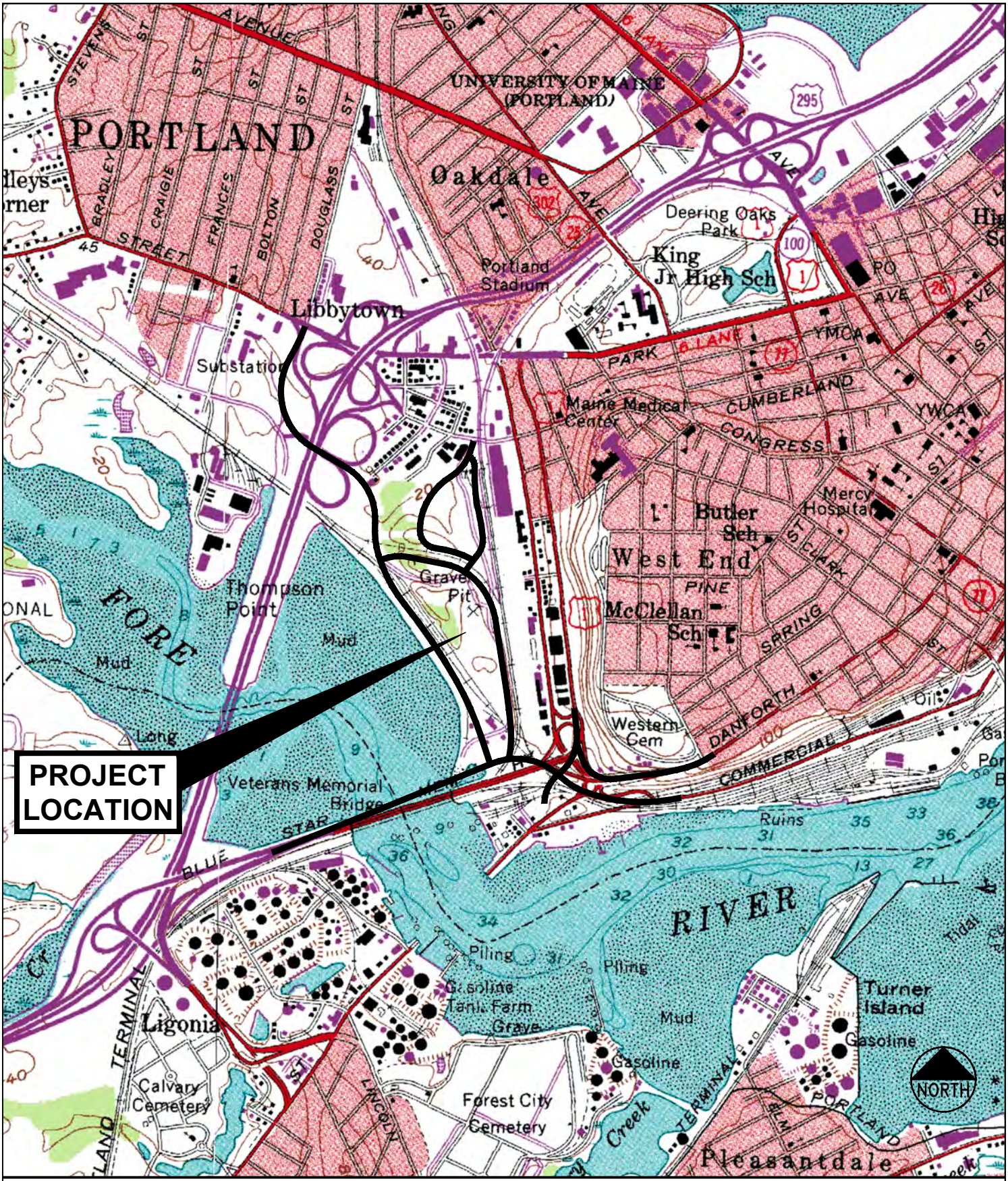
Pavement Setback from property

Fifteen (15) feet; twenty (20) feet from connector right of way.

The proposed development meets the above dimensional requirements.

APPENDIX A

FIGURES



U.S.G.S. Location Map

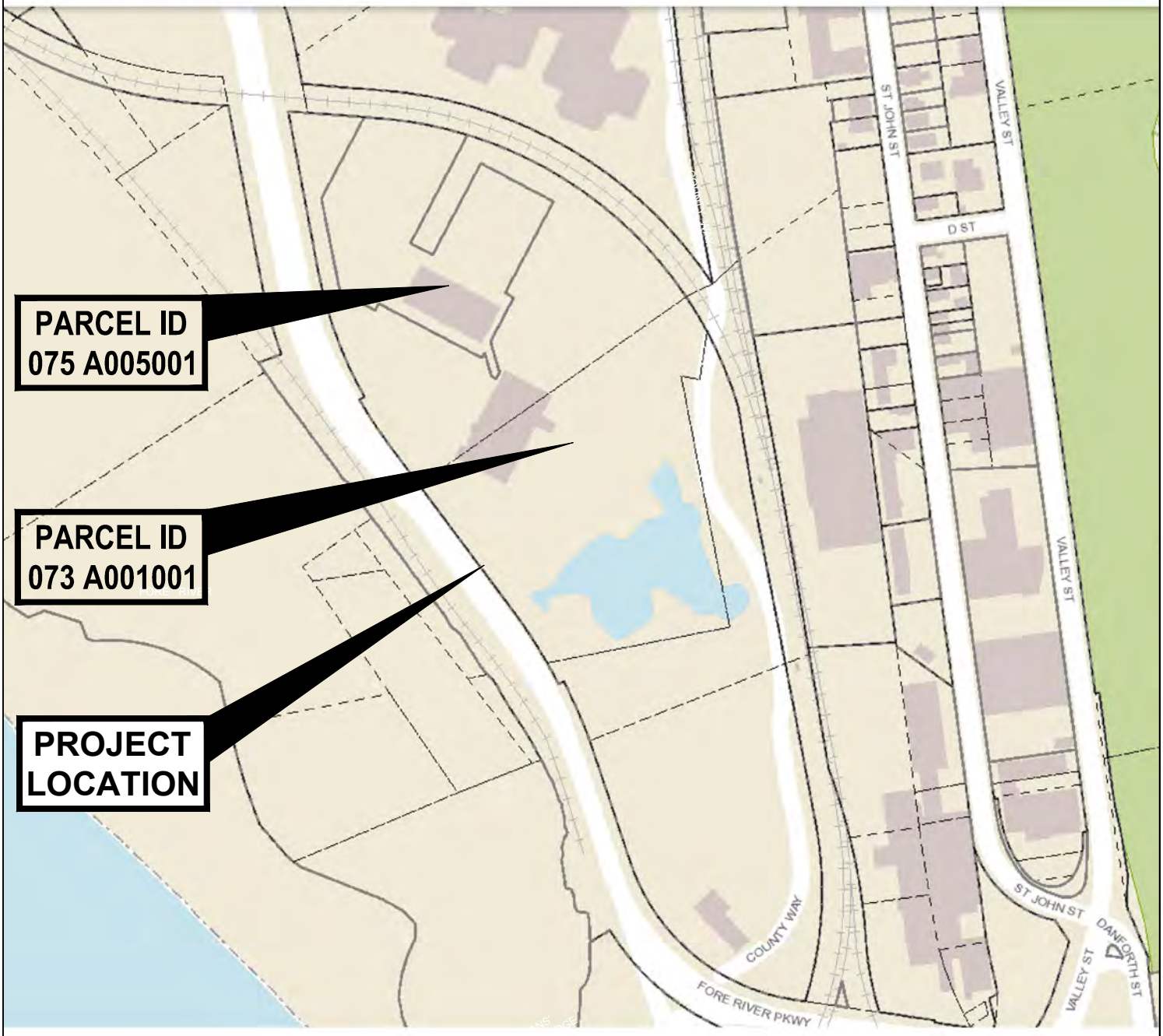
NLH Mercy Hospital, Fore River Campus Consolidation, Portland, Maine
U.S.G.S. Portland West, State-7.5 Minute Series (Topographic)

Design: JTA	Date: AUG. 2019
Draft: CDD	Job No.: 3257.04
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Figure
1



Property Tax Map

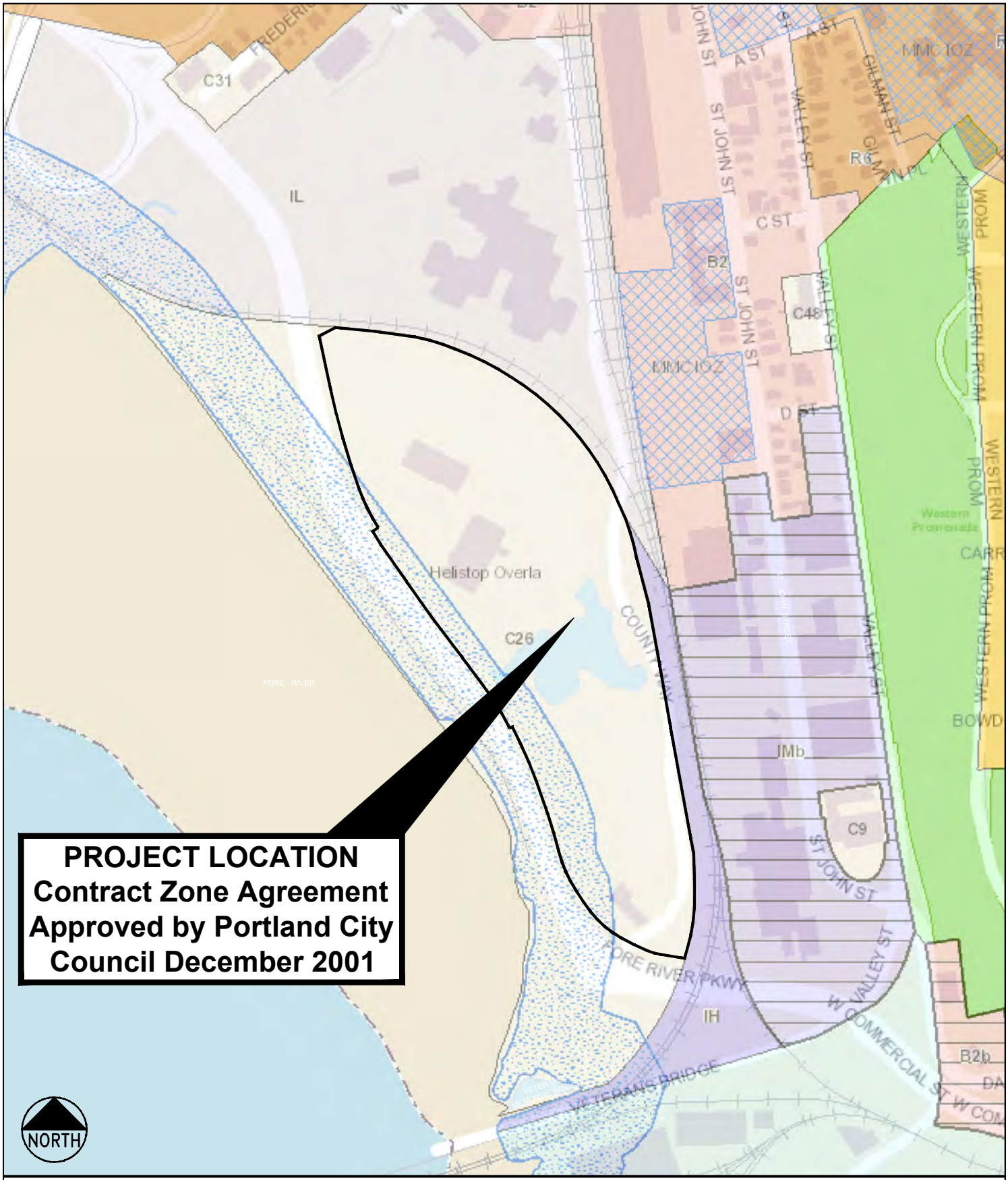
NLH Mercy Hospital, Fore River Campus Consolidation, Portland, Maine
City of Portland Maine Parcel Viewer

Design: JTA	Date: AUG. 2019	
Draft: CDD	Job No.: 3257.04	
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Figure
2



Zoning Map

NLH Mercy Hospital, Fore River Campus Consolidation, Portland, Maine
City of Portland Maine Zoning Map Viewer

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Figure
3



Aerial Photograph

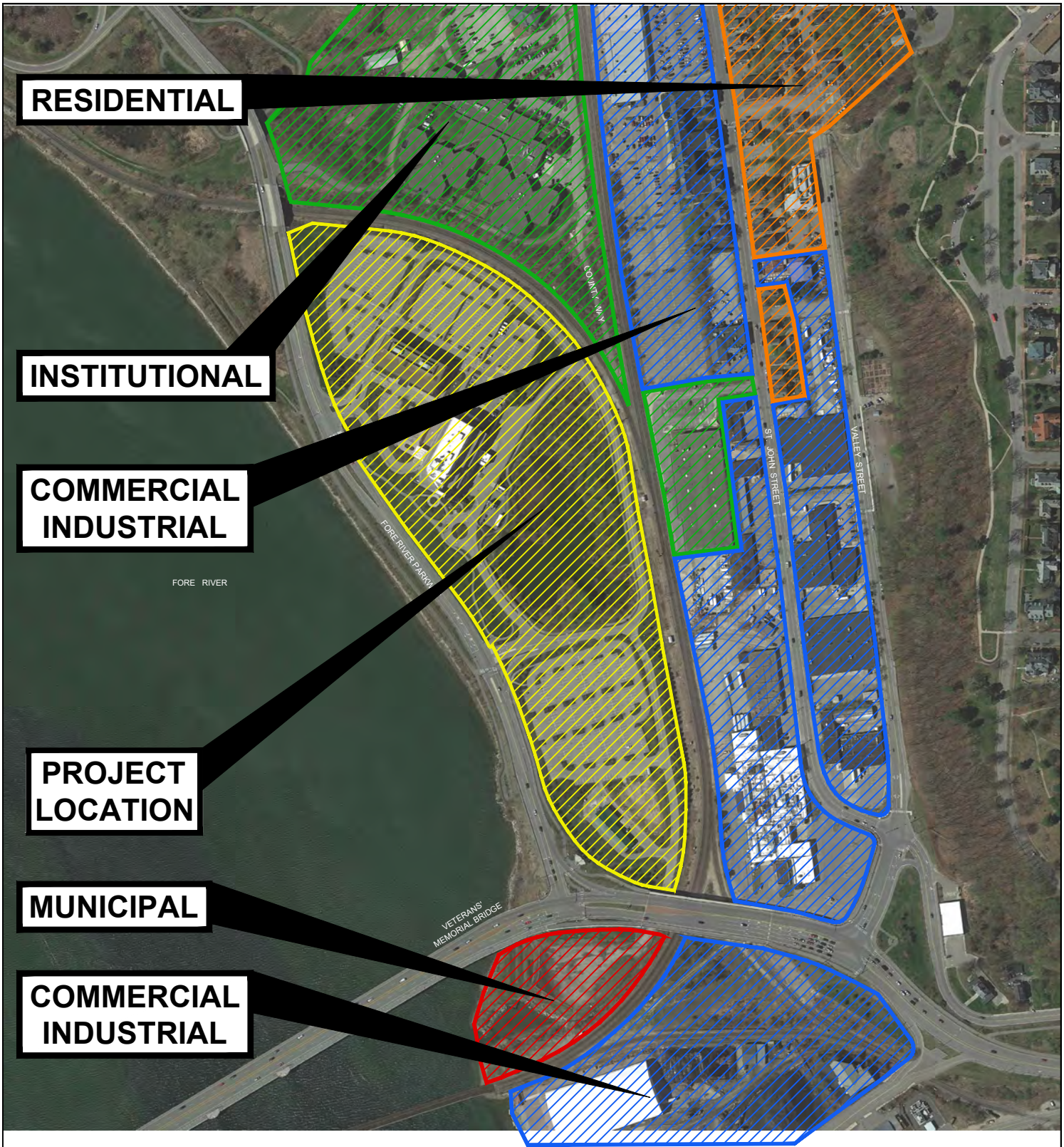
NLH Mercy Hospital, Fore River Campus Consolidation, Portland, Maine
City of Portland Maine Aerial Imagery 2018

Design: JTA	Date: AUG. 2019
Draft: CDD	Job No.: 3257.04
Checked: SRB	Scale: N.T.S.
File Name: 325704–DEP FIGURES.dwg	

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Figure
4



Abutting Land Use Map

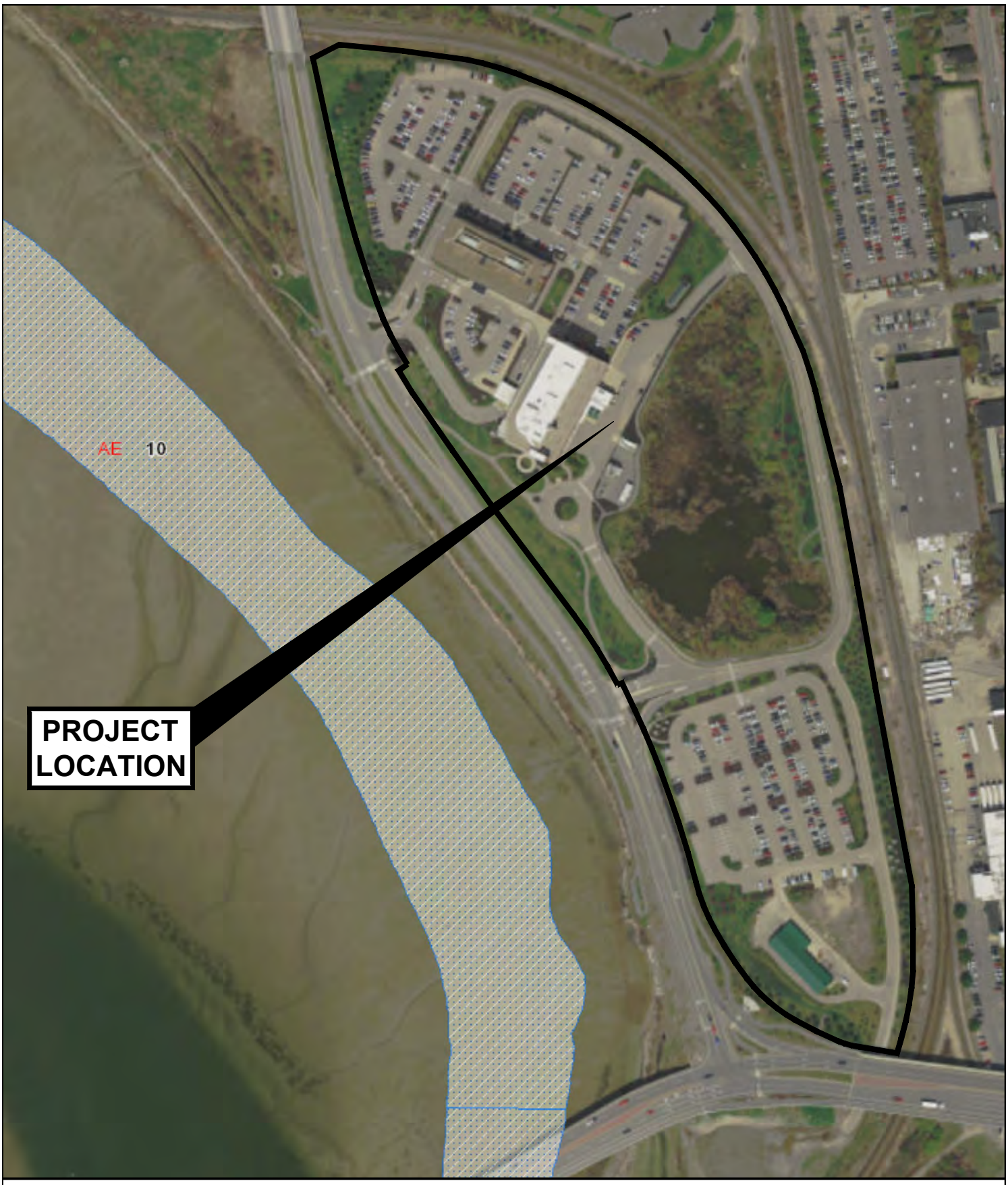
NLH Mercy Hospital, Fore River Campus Consolidation, Portland, Maine
City of Portland Maine Aerial Imagery 2018

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Figure
5



NORTH

Flood Map

NLH Mercy Hospital, Fore River Campus Consolidation, Portland, Maine
City of Portland Maine Flood Map Viewer

Design: JTA	Date: AUG. 2019
Draft: CDD	Job No.: 3257.04
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Figure
6



USDA Soils Map

NLH Mercy Hospital, Fore River Campus Consolidation, Portland, Maine
Soil Survey of Cumberland County, Maine

NORTH

Design: JTA	Date: AUG. 2019
Draft: CDD	Job No.: 3257.04
Checked: SRB	Scale: N.T.S.
File Name: 325704–DEP FIGURES.dwg	

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Figure
7



Sand and Gravel Aquifer Map

NLH Mercy Hospital, Fore River Campus Consolidation, Portland, Maine
Source: Maine Geological Survey (Department of Conservation)

NORTH

Design: JTA	Date: AUG. 2019
Draft: CDD	Job No.: 3257.04
Checked: SRB	Scale: N.T.S.
File Name: 325704–DEP FIGURES.dwg	

GORRILL PALMER

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207.772.2515

Figure
8



Surficial Geology Map

NLH Mercy Hospital, Fore River Campus Consolidation, Portland, Maine
Source: Maine Geological Survey (Department of Conservation)

NORTH

Design: JTA	Date: AUG. 2019
Draft: CDD	Job No.: 3257.04
Checked: SRB	Scale: N.T.S.
File Name: 325704–DEP FIGURES.dwg	

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Figure
9

APPENDIX B

PHOTOGRAPHS



PHOTO 1



PHOTO 2

GORRILL PALMER
707 Sable Oaks Drive
Suite 30
So. Portland, ME 04106
207.772.2515

Northern Light Mercy Hospital – Fore River Campus
Existing Photographs
Photos on October 21, 2019



PHOTO 3



PHOTO 4

GORRILL PALMER
707 Sable Oaks Drive
Suite 30
So. Portland, ME 04106
207.772.2515

Northern Light Mercy Hospital – Fore River Campus
Existing Photographs
Photos on October 21, 2019



PHOTO 5



PHOTO 6

GORRILL PALMER
707 Sable Oaks Drive
Suite 30
So. Portland, ME 04106
207.772.2515

Northern Light Mercy Hospital – Fore River Campus
Existing Photographs
Photos on October 21, 2019



PHOTO 7



PHOTO 8

GORRILL PALMER
707 Sable Oaks Drive
Suite 30
So. Portland, ME 04106
207.772.2515

Northern Light Mercy Hospital – Fore River Campus
Existing Photographs
Photos on October 21, 2019



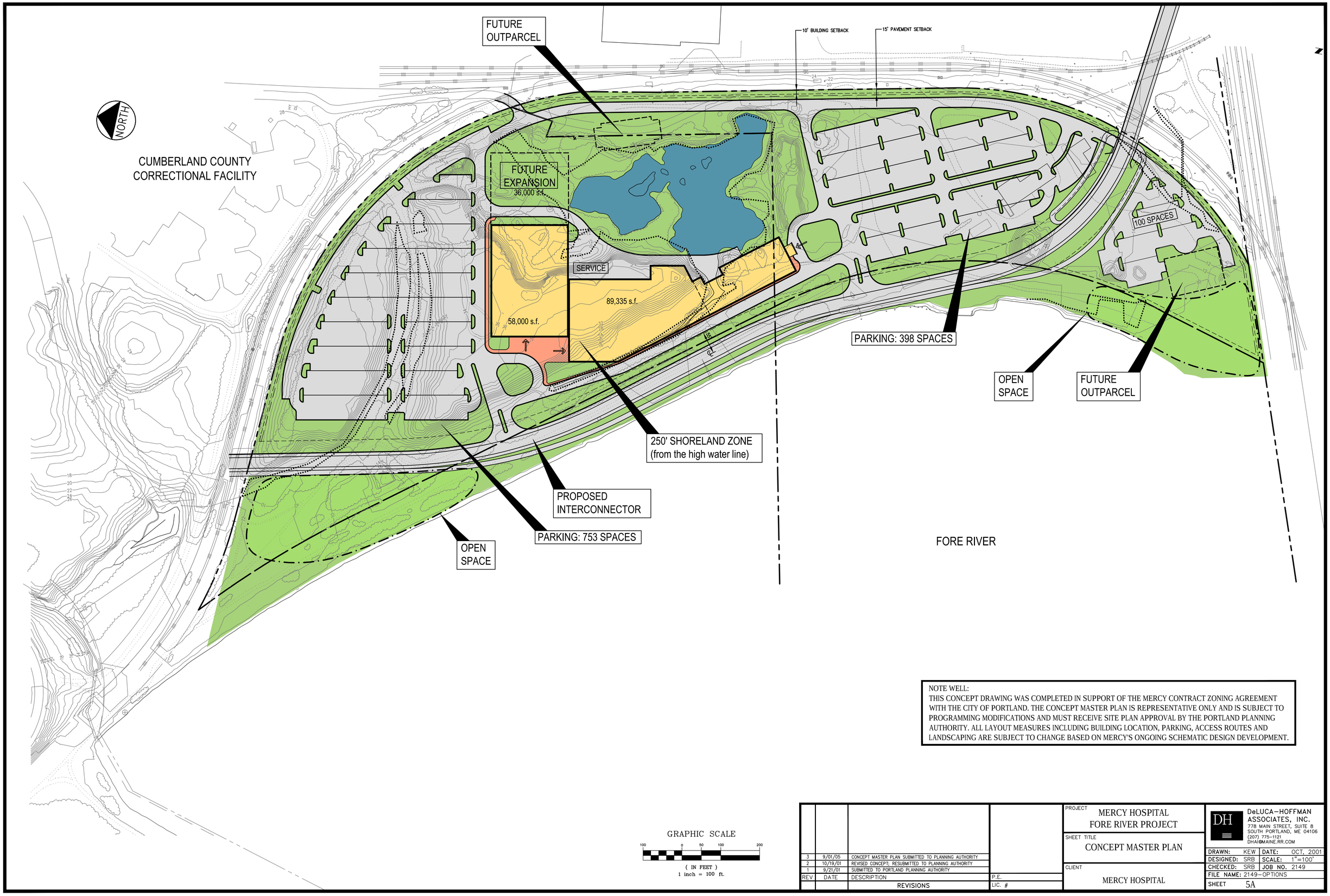
PHOTO 9

GORRILL PALMER
707 Sable Oaks Drive
Suite 30
So. Portland, ME 04106
207.772.2515

Northern Light Mercy Hospital – Fore River Campus
Existing Photographs
Photos on October 21, 2019

APPENDIX C

ORIGINAL MASTER PLAN



NOTE WELL:
THIS CONCEPT DRAWING WAS COMPLETED IN SUPPORT OF THE MERCY CONTRACT ZONING AGREEMENT WITH THE CITY OF PORTLAND. THE CONCEPT MASTER PLAN IS REPRESENTATIVE ONLY AND IS SUBJECT TO PROGRAMMING MODIFICATIONS AND MUST RECEIVE SITE PLAN APPROVAL BY THE PORTLAND PLANNING AUTHORITY. ALL LAYOUT MEASURES INCLUDING BUILDING LOCATION, PARKING, ACCESS ROUTES AND LANDSCAPING ARE SUBJECT TO CHANGE BASED ON MERCY'S ONGOING SCHEMATIC DESIGN DEVELOPMENT.

GRAPHIC SCALE
100 0 50 100 200
(IN FEET)
1 inch = 100 ft.

REV.	DATE	DESCRIPTION
3	9/01/05	CONCEPT MASTER PLAN SUBMITTED TO PLANNING AUTHORITY
2	10/19/01	REVISED CONCEPT; RESUBMITTED TO PLANNING AUTHORITY
1	9/21/01	SUBMITTED TO PORTLAND PLANNING AUTHORITY

REVISIONS

P.E.
LIC. #

PROJECT
MERCY HOSPITAL
FORE RIVER PROJECT

SHEET TITLE
CONCEPT MASTER PLAN

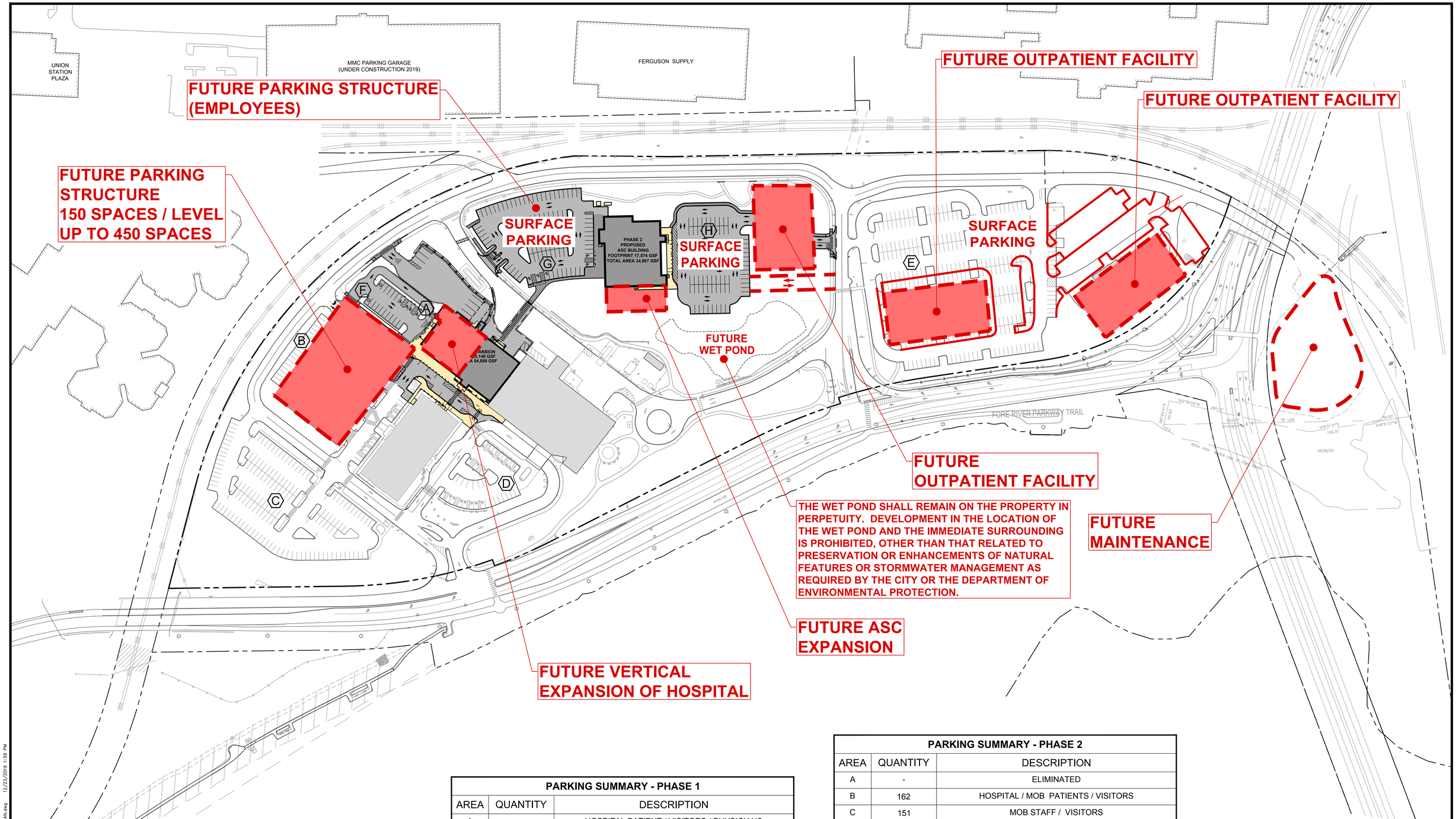
CLIENT
MERCY HOSPITAL

DeLUCA–HOFFMAN ASSOCIATES, INC.
778 MAIN STREET, SUITE 8
SOUTH PORTLAND, ME 04106
(207) 775-1121
DHAI@MAINE.RR.COM

DRAWN: KEW | DATE: OCT, 2001
DESIGNED: SRB | SCALE: 1"=100'
CHECKED: SRB | JOB NO. 2149
FILE NAME: 2149-OPTIONS
SHEET 5A

APPENDIX D

MASTER PLAN SCHEMATICS



PARKING SUMMARY - PHASE 1

AREA	QUANTITY	DESCRIPTION
A	105	HOSPITAL PATIENT / VISITORS / PHYSICIANS
B	162	MOB PATIENT / VISITORS
C	151	MOB STAFF / VISITORS
D	34	HOSPITAL / MOB PATIENTS
E	310	HOSPITAL STAFF
TOTAL	762	

PARKING SUMMARY - PHASE 2

AREA	QUANTITY	DESCRIPTION
A	-	ELIMINATED
B	162	HOSPITAL / MOB PATIENTS / VISITORS
C	151	MOB STAFF / VISITORS
D	34	HOSPITAL / MOB PATIENTS
E	310	HOSPITAL / MOB / ASC FACILITY STAFF
F	24	HOSPITAL PATIENTS / VISITORS / AMBULANCE
G	103	HOSPITAL / ASC FACILITY STAFF / SERVICE
H	73	ASC FACILITY PATIENTS / VISITORS
TOTAL	857	

NORTH

GRAPHIC SCALE

75 0 37.5 75 150

(IN FEET)

1 inch = 75 ft.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE STEPHEN R. BUSHEY 11.22.19 REGISTERED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
1	11.04.19	PREPARED FOR L.O.R. #1 & SUBMITTED TO CITY

Issued For	Date	By
CONSTRUCTION DOCUMENTS FOR PRICING ONLY	11.22.19	SRB
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB | Draft: CDD | Date: AUG. 2019
Checked: SRB | Scale: NTS | Job No.: 3257.04
File Name: 325704-MASTER PLAN.dwg

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207.772.2515

Drawing Name: Master Plan – Phases
Project: Fore River Campus Consolidation, Portland, Maine
Client: Northern Light Mercy Hospital, 144 State Street, Portland, Maine 04101

Drawing No. FIG. 1

U:\3257.04_Mercy Hospital_Expansion_DD_Permits\STANTEC\civil\cadd\permit\dwg\325704-MASTER PLAN.dwg 12/23/2019 1:59 PM

UNION STATION PLAZA

MMC PARKING GARAGE (UNDER CONSTRUCTION 2019)

FERGUSON SUPPLY

EXISTING PERIMETER ACCESS ROAD

PAN AM RAILWAY

TYSON FOODS

COUNTY WAY

PROPOSED EMERGENCY DEPARTMENT ENTRANCE

CUMBERLAND COUNTY JAIL

PHASE 2 PROPOSED ASC BUILDING FOOTPRINT 17,574 GSF TOTAL AREA 34,987 GSF

AMBULANCE ENTRANCE

PROPOSED AMBULATORY SURGICAL CENTER

MAINTENANCE FACILITY

PHASE 2 HOSPITAL EXPANSION FOOTPRINT 20,140 GSF TOTAL AREA 54,889 GSF

PHASE 1 EXISTING MERCY HOSPITAL 4 STORY BRICK BUILDING FOOTPRINT - 37,566 GSF TOTAL AREA - 138,099 GSF

PHASE 1 EXISTING MEDICAL OFFICE BUILDING 1 STORY BRICK FOOTPRINT - 20,047 GSF TOTAL AREA - 62,186 GSF

SIGNALIZED INTERSECTION

EXISTING SNOW STORAGE FACILITY

FORE RIVER PARKWAY TRAIL

SOUTH ENTRANCE (SIGNALIZED)

FORE RIVER MUD FLATS

EX. FORE RIVER TRAIL - 10' WIDE, SHARED USE

PED CONNECTOR (FORE RIVER PARKWAY)

FORE RIVER

FORE RIVER MUD FLATS

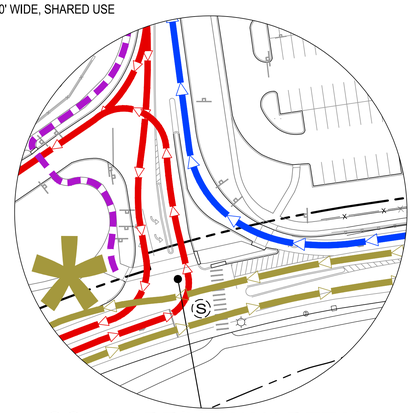
MAIN HOSPITAL ENTRANCE

NORTH ENTRANCE (UNSIGNALIZED - NO LEFT TURNS OUT)

NORTH OPEN SPACE

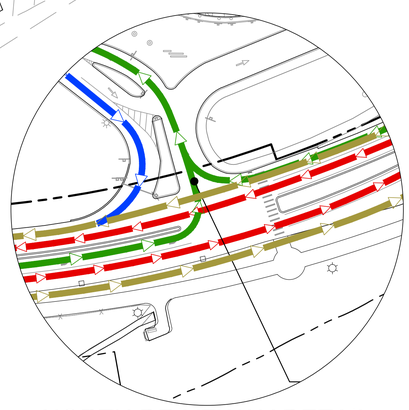
SOUTH OPEN SPACE

VETERANS MEMORIAL BRIDGE (FORE RIVER) U.S. ROUTE ONE



SOUTH DRIVEWAY DETAIL

SCALE: 1" = 50'



NORTH DRIVEWAY DETAIL

SCALE: 1" = 50'

TYPICAL SERVICE VEHICLE ROUTE

EXISTING METRO BUS ROUTE (TO BE DISCONTINUED WHEN METRO UPDATES SERVICE ROUTES)

FUTURE METRO BUS ROUTE

AMBULANCE ROUTE

FUTURE METRO BUS STOP

FUTURE PEDESTRIAN ROUTE TO BUS STOPS

NORTH

GRAPHIC SCALE

75 0 37.5 75 150

(IN FEET)

1 inch = 75 ft.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE * STEPHEN R BUSHEY * 10.30.19 LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB	Draft: CDD	Date: AUG. 2019
Checked: SRB	Scale: NTS	Job No.: 3257.04

File Name: 325704–MASTER PLAN.dwg

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GORRILL PALMER

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www.gorrillpalmer.com
207.772.2515

Drawing Name: Master Plan – Service & Bus Circulation Routes

Project: Fore River Campus Consolidation
Portland, Maine

Client: Northern Light Mercy Hospital
144 State Street, Portland, Maine 04101

Drawing No. FIG. 2

U:\3257.04_Mercy Hospital_Expansion_DD_Permits\STANTEC\civil\cadd\permit\dwg\325704–MASTER PLAN.dwg 10/2/2019 3:10 PM

UNION STATION PLAZA

MMC PARKING GARAGE (UNDER CONSTRUCTION 2019)

FERGUSON SUPPLY

EXISTING PERIMETER ACCESS ROAD

PAN AM RAILWAY

TYSON FOODS

COUNTY WAY

PROPOSED EMERGENCY DEPARTMENT ENTRANCE

CUMBERLAND COUNTY JAIL

PHASE 2 PROPOSED ASC BUILDING FOOTPRINT 17,574 GSF TOTAL AREA 34,987 GSF

AMBULANCE ENTRANCE

PROPOSED AMBULATORY SURGICAL CENTER

PHASE 2 HOSPITAL EXPANSION FOOTPRINT 20,140 GSF TOTAL AREA 54,889 GSF

PHASE 1 EXISTING MERCY HOSPITAL 4 STORY BRICK BUILDING FOOTPRINT - 37,566 GSF TOTAL AREA - 138,099 GSF

PHASE 1 EXISTING MEDICAL OFFICE BUILDING 1 STORY BRICK FOOTPRINT - 20,047 GSF TOTAL AREA - 62,186 GSF

MAINTENANCE FACILITY

SIGNALIZED INTERSECTION

EXISTING SNOW STORAGE FACILITY

FORE RIVER PARKWAY TRAIL

SOUTH ENTRANCE (SIGNALIZED)

FORE RIVER MUD FLATS

EX. FORE RIVER TRAIL - 10' WIDE, SHARED USE

PEDE CONNECTOR

(FORE RIVER PARKWAY)

FORE RIVER

MAIN HOSPITAL ENTRANCE

NORTH ENTRANCE (UNSIGNALIZED - NO LEFT TURNS OUT)

NORTH OPEN SPACE

SOUTH OPEN SPACE

VETERANS MEMORIAL BRIDGE (FORE RIVER) U.S. ROUTE ONE

FORE RIVER MUD FLATS

SOUTH DRIVEWAY DETAIL

SCALE: 1" = 50'

NORTH DRIVEWAY DETAIL

SCALE: 1" = 50'

ENTERING FROM I-295 NORTH BOUND / SOUTH BOUND

ENTERING FROM COMMERCIAL ST / VETERANS BRIDGE

EXITING TO I-295 NORTH BOUND

EXITING TO I-295 SOUTH BOUND

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE

75 0 37.5 75 150

(IN FEET)

1 inch = 75 ft.

STATE OF MAINE STEPHEN R. BUSHEY 08.30.19 LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB	Draft: CDD	Date: AUG. 2019
Checked: SRB	Scale: NTS	Job No.: 3257.04

File Name: 325704-MASTER PLAN.dwg

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www.gorrillpalmer.com
207.772.2515

Drawing Name: Master Plan – Visitor / Staff Circulation Routes

Project: Fore River Campus Consolidation
Portland, Maine

Client: Northern Light Mercy Hospital
144 State Street, Portland, Maine 04101

Drawing No. FIG. 3

U:\3257.04_Mercy Hospital_Expansion_DD_Permits\STANTEC\civil\cadd\permit\dwg\325704-MASTER PLAN.dwg 10/2/2019 3:17 PM

UNION STATION PLAZA

MMC PARKING GARAGE (UNDER CONSTRUCTION 2019)

FERGUSON SUPPLY

EXISTING PERIMETER ACCESS ROAD

PAN AM RAILWAY

TYSON FOODS

LANDSCAPE BERM

COUNTY WAY

CUMBERLAND COUNTY JAIL

PHASE 2 PROPOSED ASC BUILDING FOOTPRINT 17,574 GSF TOTAL AREA 34,987 GSF

PHASE 2 HOSPITAL EXPANSION FOOTPRINT 20,140 GSF TOTAL AREA 54,889 GSF

PHASE 1 EXISTING MEDICAL OFFICE BUILDING 1 STORY BRICK FOOTPRINT - 20,047 GSF TOTAL AREA - 62,186 GSF

PHASE 1 EXISTING MERCY HOSPITAL 4 STORY BRICK BUILDING FOOTPRINT - 37,566 GSF TOTAL AREA - 138,099 GSF

MAINTENANCE FACILITY

FUTURE OUTPARCEL

EXISTING SNOW STORAGE FACILITY

FORE RIVER PARKWAY TRAIL

WET POND AREA

SOUTH OPEN SPACE

EXISTING WATER QUALITY TREATMENT SWALE

FORE RIVER MUD FLATS

SCENIC OVERLOOK

I-295 CONNECTOR (FORE RIVER PARKWAY)

EX. FORE RIVER TRAIL - 10' WIDE, SHARED USE

VETERANS MEMORIAL BRIDGE (FORE RIVER) U.S. ROUTE ONE

FORE RIVER

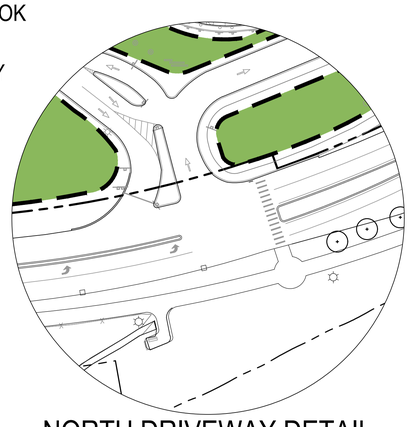
EXISTING CONDITIONS TO REMAIN

NORTH OPEN SPACE

SCENIC OVERLOOK

EXISTING WATER QUALITY TREATMENT SWALE

FUTURE TRAIL TO PROPERTY LINE FOR LINKAGE TO PORTLAND TRAILS



NORTH DRIVEWAY DETAIL

SCALE: 1" = 50'



SOUTH DRIVEWAY DETAIL

SCALE: 1" = 50'

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE

75 0 37.5 75 150

(IN FEET)
1 inch = 75 ft.

STATE OF MAINE
STEPHEN R. BUSHEY
08.30.19
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB	Draft: CDD	Date: AUG. 2019
Checked: SRB	Scale: NTS	Job No.: 3257.04
File Name: 325704–MASTER PLAN.dwg		

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207.772.2515

Drawing Name: Master Plan – Landscape & Open Space

Project: Fore River Campus Consolidation
Portland, Maine

Client: Northern Light Mercy Hospital
144 State Street, Portland, Maine 04101

Drawing No. FIG. 4

U:\3257.04_Mercy Hospital_Expansion_DD_Permits\STANTEC\civil\cadd\permit\dwg\325704–MASTER PLAN.dwg 10/2/2019 4:18 PM

UNION STATION PLAZA

MMC PARKING GARAGE (UNDER CONSTRUCTION 2019)

FERGUSON SUPPLY

EXISTING PERIMETER ACCESS ROAD

PAN AM RAILWAY

TYSON FOODS

PROPOSED CROSSWALK RAMPS & SIDEWALK CONNECTIONS

COUNTY WAY

CUMBERLAND COUNTY JAIL

BIKE RACK

STAFF PARKING

PHASE 2 PROPOSED ASC BUILDING FOOTPRINT 17,574 GSF TOTAL AREA 34,987 GSF

PATIENT / VISITOR PARKING

PATIENT / VISITOR PARKING

PHASE 2 HOSPITAL EXPANSION FOOTPRINT 20,140 GSF TOTAL AREA 54,889 GSF

PATIENT / VISITOR PARKING

PHASE 1 EXISTING MERCY HOSPITAL 4 STORY BRICK BUILDING FOOTPRINT - 37,566 GSF TOTAL AREA - 138,099 GSF

PHASE 1 EXISTING MEDICAL OFFICE BUILDING 1 STORY BRICK FOOTPRINT - 20,047 GSF TOTAL AREA - 62,186 GSF

STAFF / PATIENT PARKING

BIKE RACK

BIKE RACK

STAFF PARKING

MAINTENANCE FACILITY

EXISTING SNOW STORAGE FACILITY

SOUTH OPEN SPACE

FORE RIVER TRAIL

EXISTING PUSH BUTTON FLASHING PEDESTRIAN CROSSING

EXISTING OVERLOOK WITH BENCHES

EXISTING THERMOPLASTIC MARKINGS TO BE REMOVED AND REPLACED WITH PAINTED PAVEMENT MARKINGS IN ACCORDANCE WITH CITY STANDARDS

FORE RIVER MUD FLATS

FUTURE METRO BUS STOP

NATURE PATH

EX. FORE RIVER TRAIL - 10' WIDE, SHARED USE

SEE ENLARGEMENT PLANS FOR BIKE LANE PAVEMENT MARKINGS ALONG FORE RIVER PARKWAY

FORE RIVER

FORE RIVER MUD FLATS

INSTALLATION OF RECTANGULAR RAPID FLASHING BEACONS SUBJECT TO MDOT REVIEW AND COORDINATION BY THE CITY

FUTURE CROSSWALK SUBJECT TO METRO BUS STOP LOCATION
MERCY TO INSTALL CROSSWALK, INCLUDING THE FOLLOWING MODIFICATIONS:

- INSTALL ADA COMPLIANT RAMPS AT EACH END
- MODIFY EXISTING CENTER ISLAND BY CURB REMOVAL / REPLACE AND PAVEMENT PLACEMENT
- PROVIDE PAINTED PAVEMENT MARKINGS PER CITY STANDARDS
- PROVIDE PEDESTRIAN CROSSING SIGNAGE
- CONNECT CROSSWALK / SIDEWALK TO FUTURE METRO BUS STOP / SHELTER

EXISTING BUS SHELTER TO BE REMOVED / RELOCATED UPON METRO ROUTE UPDATES

NORTH OPEN SPACE

FUTURE METRO BUS STOP

FUTURE PEDESTRIAN CONNECTION PENDING METRO

EXISTING OVERLOOKS WITH BENCHES

FUTURE PEDESTRIAN CONNECTION

VETERANS MEMORIAL BRIDGE (FORE RIVER) U.S. ROUTE ONE

TYPICAL STAFF / PEDESTRIAN ACCESS ROUTE TO / FROM PARKING TO BUILDINGS

TYPICAL ACCESS ROUTES TO OPEN SPACE

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE

75 0 37.5 75 150

(IN FEET)
1 inch = 75 ft.

STATE OF MAINE
STEPHEN R. BUSHEY
02.06.20
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
4	02.06.20	PREPARED FOR L.O.R. #4 & SUBMITTED TO CITY
3	01.30.20	REVISED / RESUBMITTED CONSTRUCTION DOCUMENTS
2	01.29.20	REVISED / RESUBMITTED TO DEP – L.O.R. #2
1	11.04.19	PREPARED FOR L.O.R. #1 & SUBMITTED TO CITY

Issued For	Date	By
CONSTRUCTION DOCUMENTS FOR PRICING ONLY	11.22.19	SRB
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB	Draft: CDD	Date: AUG. 2019
Checked: SRB	Scale: NTS	Job No.: 3257.04

File Name: 325704–MASTER PLAN.dwg

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207.772.2515

Drawing Name: Master Plan – Pedestrian Access Routes

Project: Fore River Campus Consolidation
Portland, Maine

Client: Northern Light Mercy Hospital
144 State Street, Portland, Maine 04101

Drawing No. FIG. 5

U:\3257.04_Mercy Hospital_Expansion_DD_Permits\STANTEC\civil\cadd\permit\dwg\325704–MASTER PLAN.dwg 2/6/2020 6:14 PM

SignCHART Northern Light EMHS

Proposed Existing Building Signage Replacement and New Signage

Site Number: 000048

Site Name: Fore River Hospital

Address: 175 Fore River Parkway

,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019
Leased/Owned: Owned



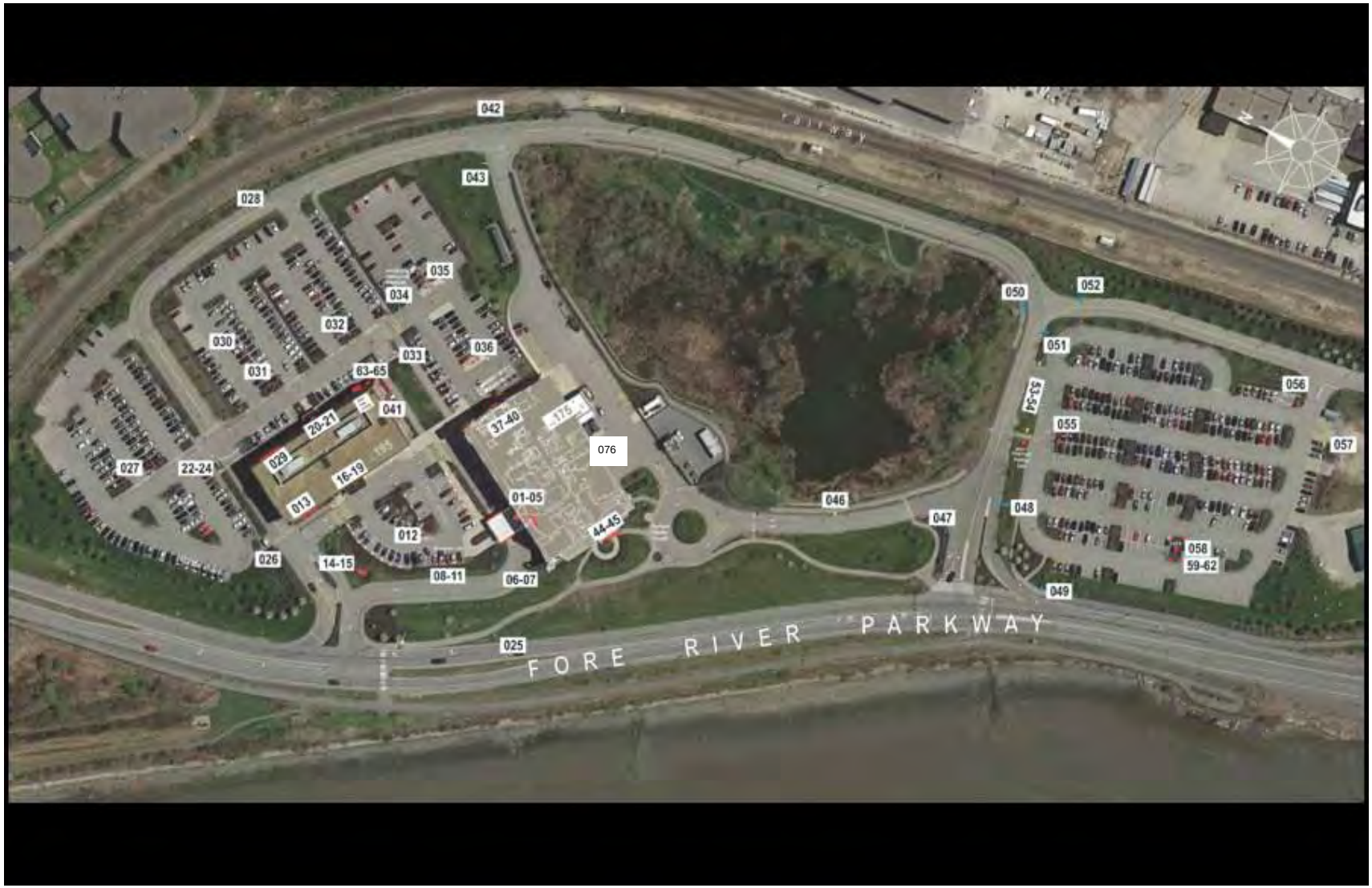


EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019



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monigle

Recommendations Report

Sign Number	Sign Type	Description	Action Code
001a	CL-36-EXHOR-D	36' Extreme Horizontal Signature Channel letters - Dark Faces	Remove and Replace
001c	Leave	Leave Existing Donor Name Sign	Leave
002	DL-S-20-W	20'' Secondary Name (Typeset Font) Dimensional letters - White Faces	Remove and Replace
003	Remove	Remove Existing Plate Letters	Remove
004	Custom	Custom Door Vinyl	Remove and Replace
013	Leave	Leave Dimensional Letters	Leave

(continued on next page)

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Recommendations Report *(continued)*

Sign Number	Sign Type	Description	Action Code
029	Leave	Leave Dimensional Wall Letters	Leave

(continued on next page)

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Recommendations Report *(continued)*

Sign Number	Sign Type	Description	Action Code
037	Custom	Custom Door Vinyl	Remove and Replace
038a	DL-18-VERT-W	18" Vertical Signature Non-Illuminated Dimensional Letters - White Faces	New
039	REG-W2-NS	Small Wall Mounted Regulatory Sign - No Smoking	Remove and Replace
040a	Remove	Remove Existing Mercy Hospital Sign	Remove
040b	Leave	Leave Ambulance Entrance Plate Letters	Leave
041b	Leave	Leave Existing Non-branded Regulatory Wall Sign	Leave
045a	CL-30-VERT-W	30" Vertical Signature Channel letters - White Faces	Remove and Replace

(continued on next page)

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Recommendations Report *(continued)*

Sign Number	Sign Type	Description	Action Code
045c	Leave	Leave	Leave
045d	REG-W2-NS	Small Wall Mounted Regulatory Sign - No Smoking	Remove and Replace
045e	V3	Door Vinyl - Double Doors	Remove and Replace

(continued on next page)

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Recommendations Report *(continued)*

Sign Number	Sign Type	Description	Action Code
063	Custom	Custom Reface of Existing Canopy	Leave
064	Custom	Custom Window Vinyl	Remove and Replace
065	Custom	Custom Window Vinyl	Remove and Replace

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	001a
Existing Sign Type:	Channel Letters
Face Material:	Flat Plastic
Graphics Material:	Vinyl
Overall Height:	
Face Height:	60"
Face Width:	26' /-
Square Feet:	
Illuminated:	Internally Illuminated
Electrical:	
Wall Material:	Driveit
Sign Comment:	60" M /- cap heigjt white rooftop letters column to column 32' /-

Proposed

Sign Number:	001a
Sign Type:	CL-36-EXHOR-D
Description:	36" Extreme Horizontal Signature Channel letters - Dark Faces
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Vendor must confirm that stated size will fit as shown

Overall Height:	5'-5 5/8"
Overall Width:	45'-7 1/4"
Logo Height:	4'-6"
Letter Height:	3'-0"
Illuminated:	Illuminated

Restoration Notes: Patch and repair existing wall surface to like new condition. Repaint to match existing color finish. For brick or stone walls fill holes with matching silicone. Power wash wall if required. Install new signage using existing primary electrical. Verify if additional circuits are required for new sign. Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified letterset will fit in area and meet clear zone tolerances – refer to Control Documents. ***Change letterset height if required. See control documents for product specification and master agreement for removal

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	001c
Existing Sign Type:	
Face Material:	
Graphics Material:	
Overall Height:	
Face Height:	
Face Width:	
Square Feet:	
Illuminated:	
Electrical:	
Wall Material:	
Sign Comment:	

Proposed

Sign Number:	001c
Sign Type:	Leave
Description:	Leave Existing Donor Name Sign
Action:	Leave
Message A:	
Message B:	
Comments:	
Restoration Notes:	

Overall Height:	
Overall Width:	
Logo Height:	
Letter Height:	
Illuminated:	

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EMHS

Site Number: 000048

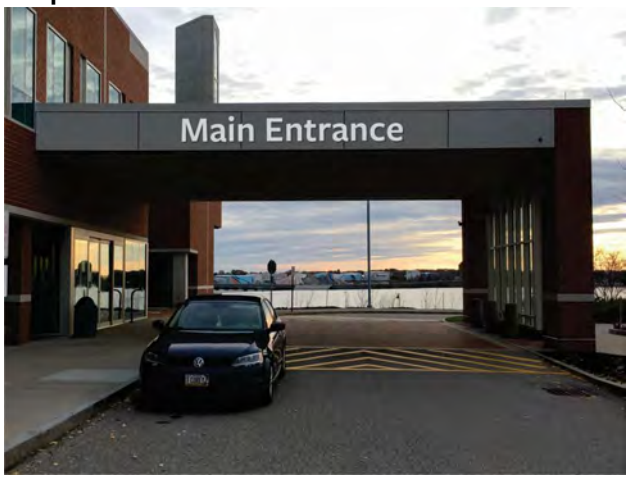
Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	002
Existing Sign Type:	Plate Letters
Face Material:	Flat Plastic
Graphics Material:	Acrylic
Overall Height:	
Face Height:	24"
Face Width:	18' /-
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	34"h fascia below flashing. 24" 'M' height cap height letters. .5" /-

Proposed

Sign Number:	002
Sign Type:	DL-S-20-W
Description:	20"" Secondary Name (Typeset Font) Dimensional letters - White Faces
Action:	Remove and Replace
Message A:	
Message B:	

Overall Height:	NULL
Overall Width:	NULL
Logo Height:	NULL
Letter Height:	1'-8""
Illuminated:	Non Illuminated

Comments: Hospital name is redundant in this location. Replace with "Main Entrance" copy to assist in directing patients to this entry instead of the Urgent Care entrance around the corner.

Restoration Notes: Patch and repair existing wall surface to like new condition. Repaint to match existing color finish. For brick or stone walls fill holes with matching silicone. Power wash wall if required. See master agreement for removal requirements.

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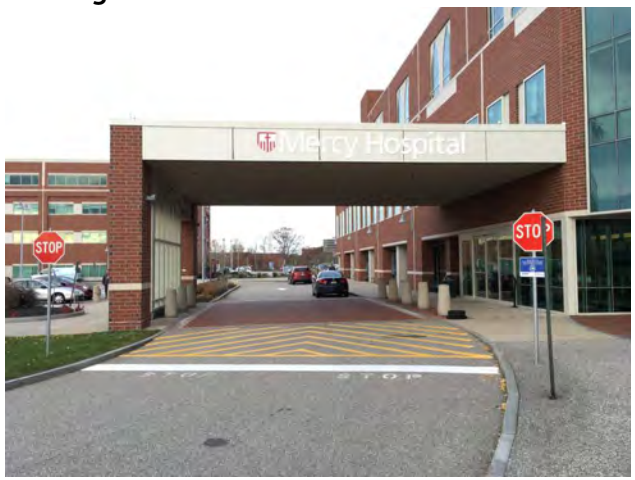
EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	003
Existing Sign Type:	Plate Letters
Face Material:	Flat Plastic
Graphics Material:	Acrylic
Overall Height:	
Face Height:	24"
Face Width:	18' /-
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	34"h fascia below flashing. 24" 'M' height cap height letters. .5" /-

Proposed

Sign Number:	003
Sign Type:	Remove
Description:	Remove Existing Plate Letters
Action:	Remove
Message A:	
Message B:	
Comments:	These letters are unnecessary
Restoration Notes:	Patch and repair existing wall surface to like new condition. Repaint to match existing color finish. For brick or stone walls fill holes with matching silicone. Power wash wall if required. See master agreement for removal requirements.

Overall Height:	
Overall Width:	
Logo Height:	
Letter Height:	
Illuminated:	

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EMHS

Site Number: 000048

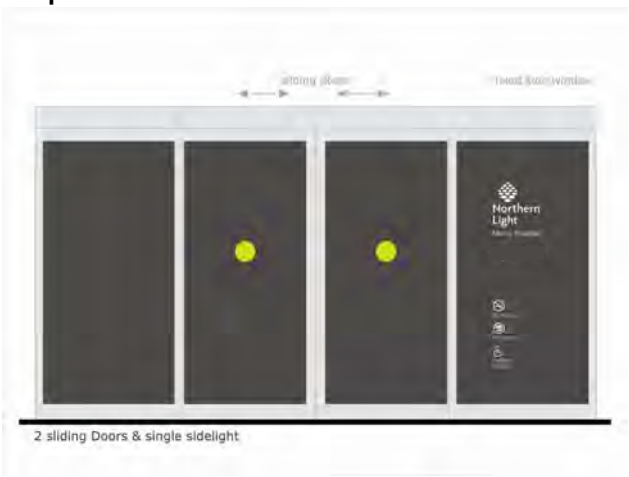
Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number: 004
Existing Sign Type:
Face Material:
Graphics Material:
Overall Height:
Face Height:
Face Width:
Square Feet:
Illuminated:
Electrical:
Wall Material:
Sign Comment:

Proposed

Sign Number: 004
Sign Type: Custom
Description: Custom Door Vinyl
Action: Remove and Replace
Message A:
Message B:
Comments: Client to verify copy and hours prior to approval.
Restoration Notes: Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified vinyl graphics will fit in area and meet clear zone tolerances – refer to Control Documents. ***Change vinyl graphics sizes if required. See control documents for product specification and master agreement for installation requirements. Verify copy w/ hospital prior to fabrication. Clean surface of all residue.

Overall Height:
Overall Width:
Logo Height:
Letter Height:
Illuminated: Non Illuminated

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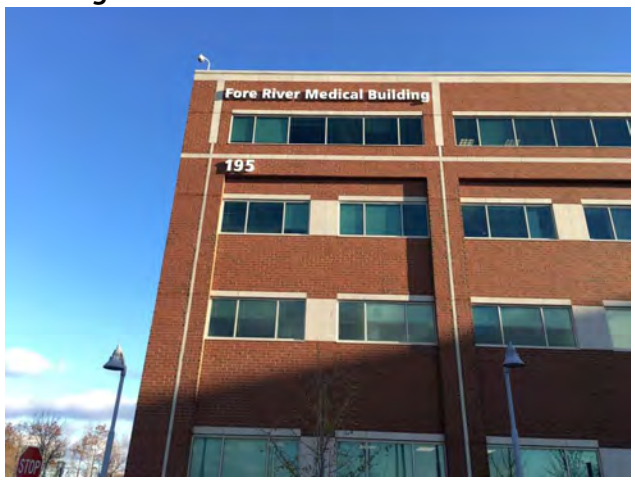
EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	013
Existing Sign Type:	Dimensional Letters
Face Material:	Metal
Graphics Material:	Painted Letters
Overall Height:	
Face Height:	18"
Face Width:	24' /-
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	18" 'FRMB' height cap height letters. 4.5 brik /- M height

Proposed

Sign Number:	013
Sign Type:	Leave
Description:	Leave Dimensional Letters
Action:	Leave
Message A:	
Message B:	
Comments:	Leave "Fore River Medical Building" letters
Restoration Notes:	

Overall Height:	
Overall Width:	
Logo Height:	
Letter Height:	
Illuminated:	

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	029
Existing Sign Type:	Dimensional Letters
Face Material:	Metal
Graphics Material:	Painted Letters
Overall Height:	
Face Height:	18"
Face Width:	24' /-
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	18" 'FRMB' height cap height letters. 4.5 brik /- M height

Proposed

Sign Number:	029
Sign Type:	Leave
Description:	Leave Dimensional Wall Letters
Action:	Leave
Message A:	
Message B:	
Comments:	
Restoration Notes:	

Overall Height:	
Overall Width:	
Logo Height:	
Letter Height:	
Illuminated:	

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	037
Existing Sign Type:	Regulatory Sign
Face Material:	Flat Plastic
Graphics Material:	Painted
Overall Height:	
Face Height:	
Face Width:	
Square Feet:	
Illuminated:	
Electrical:	
Wall Material:	
Sign Comment:	

Proposed

Sign Number:	037
Sign Type:	Custom
Description:	Custom Door Vinyl
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Client to verify copy and hours prior to approval.

Overall Height:	
Overall Width:	
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Restoration Notes: Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified vinyl graphics will fit in area and meet clear zone tolerances – refer to Control Documents. ***Change vinyl graphics sizes if required. See control documents for product specification and master agreement for installation requirements. Verify copy w/ hospital prior to fabrication. Clean surface of all residue.

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EMHS

Site Number: 000048

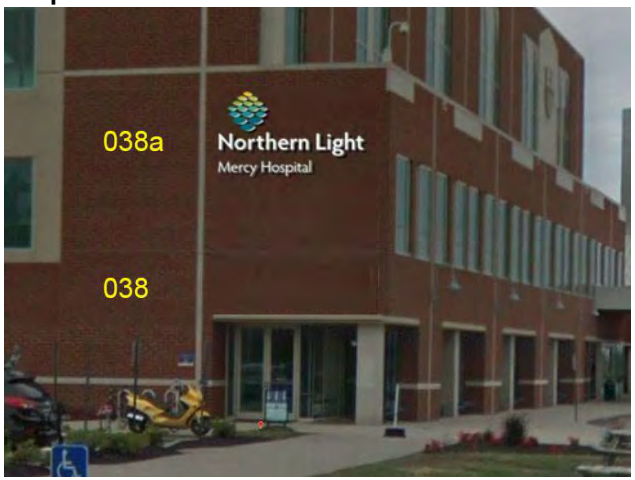
Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	038a
Existing Sign Type:	
Face Material:	
Graphics Material:	
Overall Height:	
Face Height:	
Face Width:	
Square Feet:	
Illuminated:	
Electrical:	
Wall Material:	
Sign Comment:	

Proposed

Sign Number:	038a
Sign Type:	DL-18-VERT-W
Description:	18"" Vertical Signature Non-Illuminated Dimensional Letters - White Faces
Action:	New
Message A:	
Message B:	
Comments:	Install new NLH letterset centered on upper brick area as shown.
Restoration Notes:	Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified letterset will fit in area and meet clear zone tolerances – refer to Control Documents. ***Change letterset height if required. See control documents for product specification and master agreement for installation requirements.

Overall Height:	7'-6""
Overall Width:	13'-5 1/8""
Logo Height:	3'-7 1/4""
Letter Height:	1'-6""
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	039
Existing Sign Type:	Smoke Free
Face Material:	Metal
Graphics Material:	Painted Letters
Overall Height:	
Face Height:	12"
Face Width:	18"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	silkscreened graphics on pole sign

Proposed

Sign Number:	039
Sign Type:	REG-W2-NS
Description:	Small Wall Mounted Regulatory Sign - No Smoking
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	

Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Restoration Notes: Patch and repair existing wall surface to like new condition. Repaint to match existing color finish. For brick or stone walls fill holes with matching silicone. Power wash wall if required. Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal & installation requirements.

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	040a
Existing Sign Type:	Plate Letters
Face Material:	Brick
Graphics Material:	Acrylic
Overall Height:	
Face Height:	12"-14"
Face Width:	143"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	

Proposed

Sign Number:	040a
Sign Type:	Remove
Description:	Remove Existing Mercy Hospital Sign
Action:	Remove
Message A:	
Message B:	
Comments:	Remove Mercy Hospital Sign. See #40b
Restoration Notes:	Patch and repair existing wall surface to like new condition. Repaint to match existing color finish. For brick or stone walls fill holes with matching silicone. Power wash wall if required. See master agreement for removal requirements.

Overall Height:	
Overall Width:	
Logo Height:	
Letter Height:	
Illuminated:	

(continued on next page)

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(continued)

Existing *(continued)*

Sign Comment: 14" E cap height in Ambulance Entr. 12" Mercy Hospit... OAw - 143" 1/2" thk acrylic Adjacent canopy (10'x15'x3') is pending reskin due to storm damage.

Proposed

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	040b
Existing Sign Type:	Plate Letters
Face Material:	Brick
Graphics Material:	Acrylic
Overall Height:	
Face Height:	12"-14"
Face Width:	143"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	14" E cap height in Ambulance Entr. 12" Mercy Hospit... OAw -143" 1/2" thk acrylic Adjacent canopy (10'x15'x3') is pending reskin due to storm damage.

Proposed

Sign Number:	040b
Sign Type:	Leave
Description:	Leave Ambulance Entrance Plate Letters
Action:	Leave
Message A:	
Message B:	
Comments:	
Restoration Notes:	

Overall Height:	
Overall Width:	
Logo Height:	
Letter Height:	
Illuminated:	

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	041b
Existing Sign Type:	Regulatory Sign
Face Material:	Flat Plastic
Graphics Material:	Vinyl
Overall Height:	
Face Height:	8"
Face Width:	8"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Employee entrance

Proposed

Sign Number:	041b
Sign Type:	Leave
Description:	Leave Existing Non-branded Regulatory Wall Sign
Action:	Leave
Message A:	
Message B:	
Comments:	
Restoration Notes:	

Overall Height:	
Overall Width:	
Logo Height:	
Letter Height:	
Illuminated:	

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	045a
Existing Sign Type:	Channel Letters
Face Material:	Flat Plastic
Graphics Material:	Vinyl
Overall Height:	
Face Height:	60"
Face Width:	26' /-
Square Feet:	
Illuminated:	Internally Illuminated
Electrical:	
Wall Material:	Brick
Sign Comment:	60" M /- cap heigjt white rooftop letters

Proposed

Sign Number:	045a
Sign Type:	CL-30-VERT-W
Description:	30"" Vertical Signature Channel letters - White Faces
Action:	Remove and Replace
Message A:	
Message B:	

Overall Height:	12'-6""
Overall Width:	22'-4 5/8""
Logo Height:	6'-0""
Letter Height:	2'-6""
Illuminated:	Illuminated

Comments: Vendor must confirm that size will fit as shown. ***Donor letters were built at 30". Mercy letters to be 36" to match copy height of Donor name. Unfortunately due to limited architectural space cap height of Northern Light Health will be slightly smaller than Mercy and Donor name.

Restoration Notes: Patch and repair existing wall surface to like new condition. Repaint to match existing color finish. For brick or stone walls fill holes with matching silicone. Power wash wall if required. Install new signage using existing primary electrical. Verify if additional circuits are required for new sign. Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified letterset will fit in area and meet clear zone tolerances – refer to Control Documents. ***Change letterset height if required. See control documents for product specification and master agreement for removal

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	045c
Existing Sign Type:	Channel Letters
Face Material:	Flat Plastic
Graphics Material:	Vinyl
Overall Height:	
Face Height:	30" (cap height)
Face Width:	
Square Feet:	
Illuminated:	
Electrical:	
Wall Material:	
Sign Comment:	30" ALL CAP Donor letters

Proposed

Sign Number:	045c
Sign Type:	Leave
Description:	Leave
Action:	Leave
Message A:	
Message B:	
Comments:	***Donor letters were built at 30". Mercy letters to be 36" to match copy height of Donor name. Unfortunately due to limited architectural space cap height of Northern Light Health will be slightly smaller than Mercy and Donor name.
Restoration Notes:	

Overall Height:	
Overall Width:	
Logo Height:	
Letter Height:	
Illuminated:	

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	045d
Existing Sign Type:	Smoke Free
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	12"
Face Width:	18"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	silkscreened graphics

Proposed

Sign Number:	045d
Sign Type:	REG-W2-NS
Description:	Small Wall Mounted Regulatory Sign - No Smoking
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	

Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Restoration Notes: Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	045e
Existing Sign Type:	Vinyls
Face Material:	Glass
Graphics Material:	Vinyl
Overall Height:	
Face Height:	
Face Width:	
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	

Proposed

Sign Number:	045e
Sign Type:	V3
Description:	Door Vinyl - Double Doors
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	

Overall Height:	2'-4"
Overall Width:	1'-8"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Restoration Notes: Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified vinyl graphics will fit in area and meet clear zone tolerances – refer to Control Documents. ***Change vinyl graphics sizes if required. See control documents for product specification and master agreement for installation requirements. Verify copy w/ hospital prior to fabrication. Clean surface of all residue.

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



As Built Photo



Existing

Sign Number:	063
Existing Sign Type:	Canopy
Face Material:	Panaflex
Graphics Material:	Vinyl
Overall Height:	
Face Height:	
Face Width:	
Square Feet:	
Illuminated:	
Electrical:	
Wall Material:	
Sign Comment:	Incase of a reskin only: 13' /- x 9' /- deep x 28" /. miller brand on 3 sides

Proposed

Sign Number:	063
Sign Type:	Custom
Description:	Custom Reface of Existing Canopy
Action:	Leave
Message A:	
Message B:	
Comments:	Reface the existing canopy with new white material and full-color logo on all 3 sides as shown. Typeset "Pharmacy"
Restoration Notes:	Reuse existing frame but repair and paint it as needed

Overall Height:	
Overall Width:	
Logo Height:	
Letter Height:	
Illuminated:	

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



As Built Photo



Existing

Sign Number:	064
Existing Sign Type:	Vinyls
Face Material:	Glass
Graphics Material:	Vinyl
Overall Height:	
Face Height:	5'
Face Width:	4'
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	Glass
Sign Comment:	Miller pestle vinyl

Proposed

Sign Number:	064
Sign Type:	Custom
Description:	Custom Window Vinyl
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Replace with white first surface vinyl as shown. Use locked up artwork
Restoration Notes:	clean surface of all residue.

Overall Height:	
Overall Width:	
Logo Height:	
Letter Height:	
Illuminated:	

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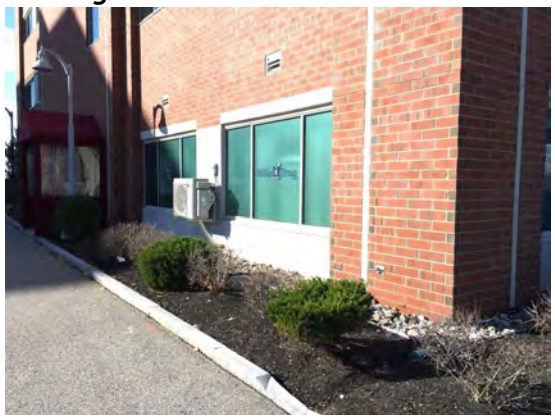
EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



As Built Photo



Existing

Sign Number:	065
Existing Sign Type:	Vinyls
Face Material:	Glass
Graphics Material:	Vinyl
Overall Height:	
Face Height:	5'
Face Width:	4'
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	Glass
Sign Comment:	Miller pestle vinyl

Proposed

Sign Number:	065
Sign Type:	Custom
Description:	Custom Window Vinyl
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Replace with white first surface vinyl as shown. Use locked up artwork
Restoration Notes:	clean surface of all residue.

Overall Height:	
Overall Width:	
Logo Height:	
Letter Height:	
Illuminated:	

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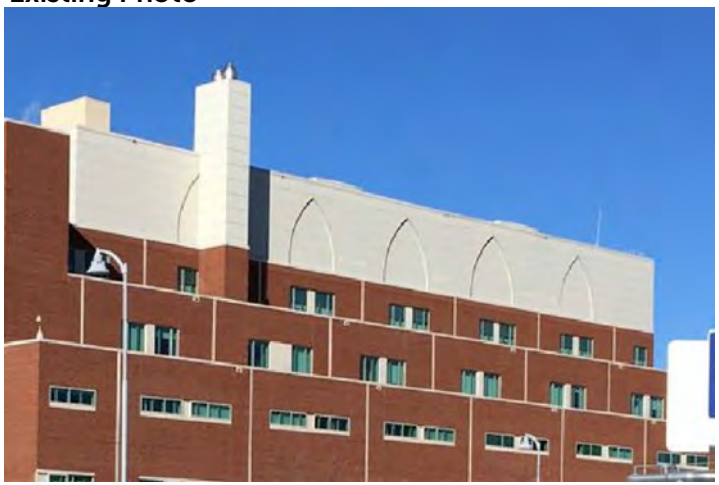
EMHS

Site Number: 000048

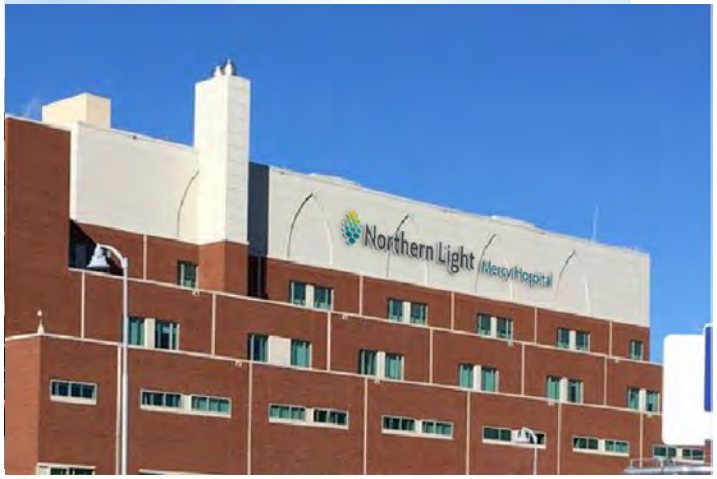
Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	076
Existing Sign Type:	Channel Letters
Face Material:	Flat Plastic
Graphics Material:	Vinyl
Overall Height:	
Face Height:	60"
Face Width:	26' /-
Square Feet:	
Illuminated:	Internally Illuminated
Electrical:	
Wall Material:	Driveit
Sign Comment:	60" M /- cap heigjt white rooftop letters column to column 32' /-

Proposed

Sign Number:	076
Sign Type:	CL-36-EXHOR-D
Description:	36" Extreme Horizontal Signature Channel letters - Dark Faces
Action:	New
Message A:	
Message B:	
Comments:	Vendor must confirm that stated size will fit as shown

Overall Height:	5'-5 5/8"
Overall Width:	45'-7 1/4"
Logo Height:	4'-6"
Letter Height:	3'-0"
Illuminated:	Illuminated

Restoration Notes: Patch and repair existing wall surface to like new condition. Repaint to match existing color finish. For brick or stone walls fill holes with matching silicone. Power wash wall if required. Install new signage using existing primary electrical. Verify if additional circuits are required for new sign. Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified letterset will fit in area and meet clear zone tolerances – refer to Control Documents. ***Change letterset height if required. See control documents for product specification and master agreement for removal

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SignCHART

Northern Light

EMHS

Proposed Replacement Ground Signs

Site Number: 000048

Site Name: Fore River Hospital

Address: 175 Fore River Parkway

,

Recommendation Completed: 2018-06-13

Approved: 2018-07-10

Date Print: 11/14/2019

Leased/Owned: Owned





EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019



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Recommendations Report

Sign Number	Sign Type	Description	Action Code
006	D-NB-6.4-NIL	6'-4' Non-Branded Non-Illuminated Directional	Remove and Replace
007	REG-W2-NS	Small Wall Mounted Regulatory Sign - No Smoking	Remove and Replace
008	REG-W2	Small Wall Mounted Regulatory Sign	Remove and Replace
009	REG-W2	Small Wall Mounted Regulatory Sign	Remove and Replace
010	REG-W2	Small Wall Mounted Regulatory Sign	Remove and Replace
011	REG-W2	Small Wall Mounted Regulatory Sign	Remove and Replace
012	PL-1	Parking Lot Sign	Remove and Replace
012a	PL-1	Parking Lot Sign	Remove and Replace
014	D-NB-6.4-NIL	6'-4' Non-Branded Non-Illuminated Directional	
015	DM-8	8' Internally Illuminated Monument w/ Directional Copy	Remove and Replace

(continued on next page)

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Recommendations Report *(continued)*

Sign Number	Sign Type	Description	Action Code
016	REG-W2-NS	Small Wall Mounted Regulatory Sign - No Smoking	Remove and Replace
017	REG-W2-NS	Small Wall Mounted Regulatory Sign - No Smoking	Remove and Replace
018	REG-W2-NS	Small Wall Mounted Regulatory Sign - No Smoking	Remove and Replace
021	REG-W2-NS	Small Wall Mounted Regulatory Sign - No Smoking	Remove and Replace
022	D-NB-6.4-NIL	6'-4' Non-Branded Non-Illuminated Directional	Remove and Replace
023	D-NB-6.4-NIL	6'-4' Non-Branded Non-Illuminated Directional	Remove and Replace
024	REG-W2-NS	Small Wall Mounted Regulatory Sign - No Smoking	Remove and Replace
025	Custom	Custom Non-illuminated 10' Pylon	Remove and Replace
026	REG-W2-NS	Small Wall Mounted Regulatory Sign - No Smoking	Remove and Replace
027	PL-1	Parking Lot Sign	Remove and Replace
027a	PL-1	Parking Lot Sign	Remove and Replace
028	D-NB-6.4-NIL	6'-4' Non-Branded Non-Illuminated Directional	Remove and Replace
030	PL-1	Parking Lot Sign	Remove and Replace
030a	PL-1	Parking Lot Sign	Remove and Replace
031	Custom	Custom Pole Mounted Directional Plaque	Remove and Replace
032	Custom	Custom Pole Mounted Directional Plaque	Remove and Replace

(continued on next page)

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Recommendations Report *(continued)*

Sign Number	Sign Type	Description	Action Code
033	D-NB-6.4-NIL	6'-4' Non-Branded Non-Illuminated Directional	Remove and Replace
034	D-NB-6.4-NIL	6'-4' Non-Branded Non-Illuminated Directional	Remove and Replace
035	PL-1	Parking Lot Sign	Remove and Replace
035b	PL-1	Parking Lot Sign	Remove and Replace
036	PL-1	Parking Lot Sign	Remove and Replace
036b	PL-1	Parking Lot Sign	
042	D-NB-6.4-NIL	6'-4' Non-Branded Non-Illuminated Directional	Remove and Replace
043a	REG-W2-NS	Small Wall Mounted Regulatory Sign - No Smoking	Remove and Replace
043b	Leave	Leave Regulatory Sign	Leave
044	D-NB-6.4-NIL	6'-4' Non-Branded Non-Illuminated Directional	Remove and Replace

(continued on next page)

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Recommendations Report *(continued)*

Sign Number	Sign Type	Description	Action Code
046	REG-P2-NS-DF	Small Pole Mounted Regulatory Sign - No Smoking - D/F	Remove and Replace
047	D-NB-6.4-NIL	6'-4' Non-Branded Non-Illuminated Directional	Remove and Replace
048	D-NB-6.4-NIL	6'-4' Non-Branded Non-Illuminated Directional	Remove and Replace
049	P-10	10' Internally Illuminated Pylon	Remove and Replace
050	D-NB-6.4-NIL	6'-4' Non-Branded Non-Illuminated Directional	Remove and Replace
051	D-NB-6.4-NIL	6'-4' Non-Branded Non-Illuminated Directional	Remove and Replace
052	D-NB-6.4-NIL	6'-4' Non-Branded Non-Illuminated Directional	Remove and Replace
053	REG-W1-NS	Large Wall Mounted Regulatory Sign - No Smoking	Remove and Replace
053b	REG-W1-NS	Large Wall Mounted Regulatory Sign - No Smoking	Remove and Replace
053c	Remove	Remove Faded Sign	
053d	Leave	Leave Security Sign	Leave
054	REG-P2-NS-DF	Small Pole Mounted Regulatory Sign - No Smoking - D/F	Remove and Replace
055	PL-1	Parking Lot Sign	Remove and Replace
055b	PL-1	Parking Lot Sign	Remove and Replace
056	PL-1	Parking Lot Sign	Remove and Replace

(continued on next page)

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Recommendations Report *(continued)*

Sign Number	Sign Type	Description	Action Code
056b	PL-1	Parking Lot Sign	Remove and Replace
057	REG-W2-NS	Small Wall Mounted Regulatory Sign - No Smoking	
058	PL-1	Parking Lot Sign	Remove and Replace
058b	PL-1	Parking Lot Sign	Remove and Replace
059	REG-W2	Small Wall Mounted Regulatory Sign	Remove and Replace
060	REG-W2	Small Wall Mounted Regulatory Sign	Remove and Replace
061	REG-W2	Small Wall Mounted Regulatory Sign	Remove and Replace
062	REG-W2	Small Wall Mounted Regulatory Sign	Remove and Replace

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EMHS

Site Number: 000048

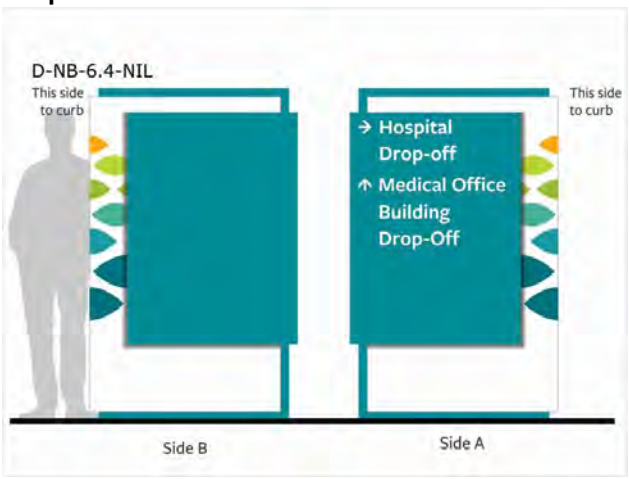
Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	006
Existing Sign Type:	Directional Sign
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	80"
Face Height:	39.5"
Face Width:	32.5"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	

Sign Comment: 32.5"x39.5"faded signface w reflected vinyl on 80"h x 9"w 2.25"deep support pole. Shield symbol is 6"w x 7.5" h vinyl only. Single face.

Proposed

Sign Number:	006
Sign Type:	D-NB-6.4-NIL
Description:	6'-4" Non-Branded Non-Illuminated Directional
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	

Restoration Notes: Perform utility locates and verify setbacks prior to fabrication / installation. Restore ground material to base of new sign. See control documents for product specification and master agreement for removal & installation requirements.

Overall Height:	6'-4"
Overall Width:	4'-0"
Logo Height:	n/a
Letter Height:	3"
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	007
Existing Sign Type:	Smoke Free
Face Material:	Metal
Graphics Material:	Painted Letters
Overall Height:	
Face Height:	12"
Face Width:	18"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	silkscreened graphics on pole sign

Proposed

Sign Number:	007
Sign Type:	REG-W2-NS
Description:	Small Wall Mounted Regulatory Sign - No Smoking
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Attach to existing pole
Restoration Notes:	Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal & installation requirements.

Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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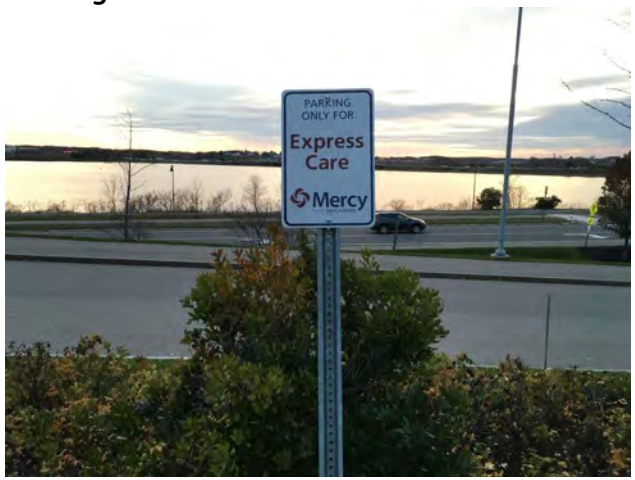
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Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	008
Existing Sign Type:	Regulatory - Pole Mo
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	18"
Face Width:	12"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Express care vinyl graphics

Proposed

Sign Number:	008
Sign Type:	REG-W2
Description:	Small Wall Mounted Regulatory Sign
Action:	Remove and Replace
Message A:	
Message B:	

Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Comments: Existing pole appears to be newer and in good condition. Recommend to reuse pole and attach new sign panel to the existing pole.

Restoration Notes: Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal & installation requirements.

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	009
Existing Sign Type:	Regulatory - Pole Mo
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	18"
Face Width:	12"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Express care vinyl graphics

Proposed

Sign Number:	009
Sign Type:	REG-W2
Description:	Small Wall Mounted Regulatory Sign
Action:	Remove and Replace
Message A:	
Message B:	

Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Comments: Existing pole appears to be newer and in good condition. Recommend to reuse pole and attach new sign panel to the existing pole.

Restoration Notes: Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	010
Existing Sign Type:	Regulatory - Pole Mo
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	18"
Face Width:	12"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Express care vinyl graphics

Proposed

Sign Number:	010
Sign Type:	REG-W2
Description:	Small Wall Mounted Regulatory Sign
Action:	Remove and Replace
Message A:	
Message B:	

Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Comments: Existing pole appears to be newer and in good condition. Recommend to reuse pole and attach new sign panel to the existing pole.

Restoration Notes: Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	011
Existing Sign Type:	Regulatory - Pole Mo
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	18"
Face Width:	12"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Express care vinyl graphics

Proposed

Sign Number:	011
Sign Type:	REG-W2
Description:	Small Wall Mounted Regulatory Sign
Action:	Remove and Replace
Message A:	
Message B:	

Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Comments: Existing pole appears to be newer and in good condition. Recommend to reuse pole and attach new sign panel to the existing pole.

Restoration Notes: Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	012
Existing Sign Type:	
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	36"
Face Width:	32"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Break formed at ends. Attached to pole with worm drive straps -10ft to bottom of sign

Proposed

Sign Number:	012
Sign Type:	PL-1
Description:	Parking Lot Sign
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	
Restoration Notes:	Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal & installation requirements.

Overall Height:	1'-6"
Overall Width:	2'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	012a
Existing Sign Type:	
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	36"
Face Width:	32"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Break formed at ends. Attached to pole with worm drive straps -10ft to bottom of sign

Proposed

Sign Number:	012a
Sign Type:	PL-1
Description:	Parking Lot Sign
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	
Restoration Notes:	Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal & installation requirements.

Overall Height:	1'-6"
Overall Width:	2'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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Site Number: 000048

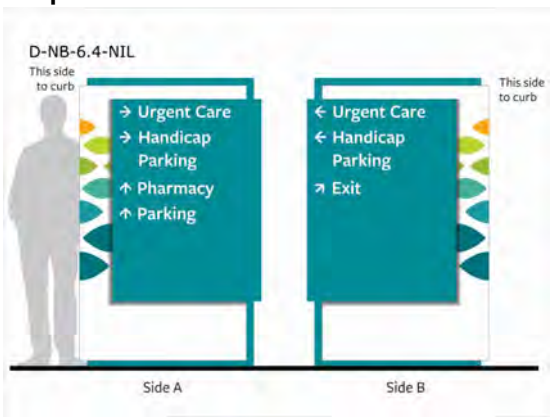
Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



As Built Photo



Existing

Sign Number:	014
Existing Sign Type:	Directional Sign
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	80"
Face Height:	39.5"
Face Width:	32.5"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	

Proposed

Sign Number:	014
Sign Type:	D-NB-6.4-NIL
Description:	6'-4" Non-Branded Non-Illuminated Directional
Action:	
Message A:	
Message B:	
Comments:	Verify copy and arrows directions w/ hospital prior to fabrication.
Restoration Notes:	Perform utility locates and verify setbacks prior to fabrication / installation. Restore ground material to base of new sign. See control documents for product specification and master agreement for removal & installation requirements.

Overall Height:	6'-4"
Overall Width:	4'-0"
Logo Height:	n/a
Letter Height:	3"
Illuminated:	Non Illuminated

Comment on this sign from Tom Errico email to Jean Fraser on 2 Nov 2018: Confirm sign does not impact vehicle sight distance.

(continued on next page)

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(continued)

Existing *(continued)*

Sign Comment: 32.5"x39.5"faded signface w reflected vinyl on 80"h x 9"w 2.25"deep support pole. Shield symbol is 6"w x 7.5" h vinyl only. Single face.

Proposed

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



As Built Photo



Existing

Sign Number:	015
Existing Sign Type:	Monument
Face Material:	Metal
Graphics Material:	
Overall Height:	
Face Height:	various
Face Width:	various
Square Feet:	
Illuminated:	Internally Illuminated
Electrical:	
Wall Material:	

Proposed

Sign Number:	015
Sign Type:	DM-8
Description:	8' Internally Illuminated Monument w/ Directional Copy
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Verify copy and arrows directions w/ hospital prior to fabrication.

Overall Height:	8'-0"
Overall Width:	8'-8"
Logo Height:	
Letter Height:	
Illuminated:	Illuminated

Restoration Notes: Perform utility locates and verify setbacks prior to fabrication / installation. Install new signage using existing primary electrical. Verify if additional circuits are required for new sign. Restore ground material to base of new sign. See control documents for product specification and master agreement for removal & installation requirements.

(continued on next page)

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(continued)

Existing *(continued)*

Sign Comment: 26"x30" routed backup shield on 6'x 9.25 deep internal illum silver box. Mercy 19.25" h plates on 77.75" x138"x3" deep white backer. Vinyl decorated descriptor blue panel:=3.25"deep x 13'x 42" h

Proposed

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	016
Existing Sign Type:	Smoke Free
Face Material:	Metal
Graphics Material:	Painted Letters
Overall Height:	
Face Height:	12"
Face Width:	18"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	silkscreened graphics on pole sign

Proposed

Sign Number:	016
Sign Type:	REG-W2-NS
Description:	Small Wall Mounted Regulatory Sign - No Smoking
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Reuse pole. Pole appears to be in good condition.

Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Restoration Notes: Verify copy w/ hospital prior to fabrication. Fabricator to verify if secondary copy is required on sign face (i.e. legal, towing, city ordinances or code information). See control documents for product specification and master agreement for removal & installation requirements.

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	017
Existing Sign Type:	Smoke Free
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	12"
Face Width:	18"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	silkscreened graphics on pole sign

Proposed

Sign Number:	017
Sign Type:	REG-W2-NS
Description:	Small Wall Mounted Regulatory Sign - No Smoking
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Reuse pole. Pole appears to be in good condition

Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Restoration Notes: Patch and repair existing wall surface to like new condition. Repaint to match existing color finish. For brick or stone walls fill holes with matching silicone. Power wash wall if required. Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal & installation requirements.

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	018
Existing Sign Type:	Smoke Free
Face Material:	Metal
Graphics Material:	Painted Letters
Overall Height:	
Face Height:	12"
Face Width:	18"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	silkscreened graphics on pole sign

Proposed

Sign Number:	018
Sign Type:	REG-W2-NS
Description:	Small Wall Mounted Regulatory Sign - No Smoking
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Reuse pole. Pole appears to be in good condition

Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Restoration Notes: Patch and repair existing wall surface to like new condition. Repaint to match existing color finish. For brick or stone walls fill holes with matching silicone. Power wash wall if required. Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal & installation requirements.

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	021
Existing Sign Type:	Smoke Free
Face Material:	Metal
Graphics Material:	Painted Letters
Overall Height:	
Face Height:	12"
Face Width:	18"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	silkscreened graphics on pole sign

Proposed

Sign Number:	021
Sign Type:	REG-W2-NS
Description:	Small Wall Mounted Regulatory Sign - No Smoking
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Client to verify copy and hours prior to approval.

Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Restoration Notes: Patch and repair existing wall surface to like new condition. Repaint to match existing color finish. For brick or stone walls fill holes with matching silicone. Power wash wall if required. Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

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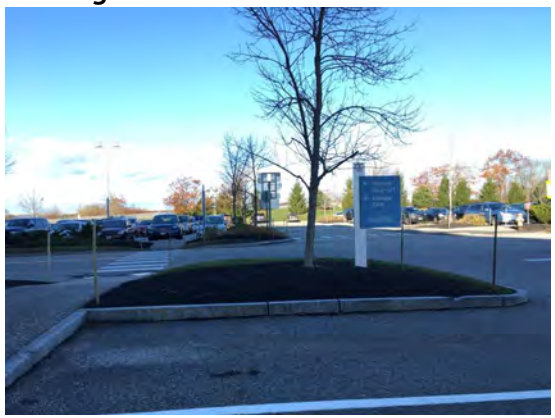
EMHS

Site Number: 000048

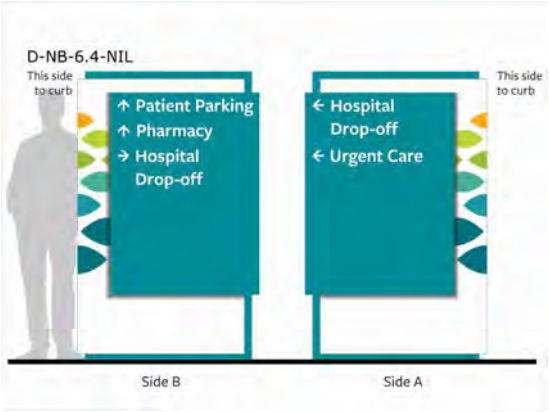
Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



As Built Photo



Existing

Sign Number:	022
Existing Sign Type:	Directional Sign
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	80"
Face Height:	39.5"
Face Width:	32.5"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	

Proposed

Sign Number:	022
Sign Type:	D-NB-6.4-NIL
Description:	6'-4" Non-Branded Non-Illuminated Directional
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Verify copy and arrows directions w/ hospital prior to fabrication.
Restoration Notes:	Perform utility locates and verify setbacks prior to fabrication / installation. Restore ground material to base of new sign. See control documents for product specification and master agreement for removal & installation requirements.

Overall Height:	6'-4"
Overall Width:	4'-0"
Logo Height:	n/a
Letter Height:	3"
Illuminated:	Non Illuminated

(continued on next page)

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(continued)

Existing *(continued)*

Sign Comment: 32.5"x39.5"faded signface w reflected vinyl on 80"h x 9"w 2.25"deep support pole. Shield symbol is 6"w x 7.5" h vinyl only. Double face.

Proposed

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



As Built Photo



Existing

Sign Number:	023
Existing Sign Type:	Directional Sign
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	108"
Face Height:	63.5"
Face Width:	51.5"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	

Proposed

Sign Number:	023
Sign Type:	D-NB-6.4-NIL
Description:	6'-4" Non-Branded Non-Illuminated Directional
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Verify copy and arrows directions w/ hospital prior to fabrication.
Restoration Notes:	Perform utility locates and verify setbacks prior to fabrication / installation. Restore ground material to base of new sign. See control documents for product specification and master agreement for removal & installation requirements.

Overall Height:	6'-4"
Overall Width:	4'-0"
Logo Height:	n/a
Letter Height:	3"
Illuminated:	Non Illuminated

Comment on this sign from Tom Errico email to Jean Fraser on 2 Nov 2018:
Confirm sign does not obstruct sight to/from pedestrians.

(continued on next page)

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(continued)

Existing *(continued)*

Sign Comment: 63.5"x51.5"faded signface w reflected vinyl on 80"h x 9"w 2.25"deep support pole. Shield symbol is 6"w x 7.5" h vinyl only. Double face.

Proposed

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	024
Existing Sign Type:	Smoke Free
Face Material:	Metal
Graphics Material:	Painted Letters
Overall Height:	
Face Height:	12"
Face Width:	18"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	silkscreened graphics on pole sign

Proposed

Sign Number:	024
Sign Type:	REG-W2-NS
Description:	Small Wall Mounted Regulatory Sign - No Smoking
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Reuse pole. Pole appears to be in good condition

Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Restoration Notes: Verify copy w/ hospital prior to fabrication. Fabricator to verify if secondary copy is required on sign face (i.e. legal, towing, city ordinances or code information). See control documents for product specification and master agreement for removal & installation requirements.

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	025
Existing Sign Type:	Directional Sign
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	108"
Face Height:	63.5"
Face Width:	51.5"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	

Sign Comment: 63.5"x51.5"faded signface w reflected vinyl on 80"h x 9"w 2.25"deep support pole. Shield symbol is 6"w x 7.5" h vinyl only. Double face.

Proposed

Sign Number:	025
Sign Type:	Custom
Description:	Custom Non-illuminated 10' Pylon
Action:	Remove and Replace
Message A:	
Message B:	

Overall Height:	10'
Overall Width:	5'
Logo Height:	
Letter Height:	3.125"
Illuminated:	Non Illuminated

Comments: Verify copy and arrows directions w/ hospital prior to fabrication.

Restoration Notes: Perform utility locates and verify setbacks prior to fabrication / installation. New electrical work required. Field verify available circuits and access prior to fabrication. Restore ground material to base of new sign. See control documents for product specification and master agreement for removal & installation requirements.

Comment on this sign from Tom Errico email to Jean Fraser on 2 Nov 2018:
Confirm roadway horizontal clear zone requirements are met.

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	026
Existing Sign Type:	Smoke Free
Face Material:	Metal
Graphics Material:	Painted Letters
Overall Height:	
Face Height:	12"
Face Width:	18"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	silkscreened graphics on pole sign

Proposed

Sign Number:	026
Sign Type:	REG-W2-NS
Description:	Small Wall Mounted Regulatory Sign - No Smoking
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Reuse pole. Pole appears to be in good condition.

Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Restoration Notes: . Verify copy w/ hospital prior to fabrication. Fabricator to verify if secondary copy is required on sign face (i.e. legal, towing, city ordinances or code information). See control documents for product specification and master agreement for removal & installation requirements.

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	027
Existing Sign Type:	
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	36"
Face Width:	32"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Break formed at ends. Attached to pole with worm drive straps -8 ft to bottom of sign

Proposed

Sign Number:	027
Sign Type:	PL-1
Description:	Parking Lot Sign
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Verify copy w/ hospital prior to fabrication.
Restoration Notes:	. Verify copy w/ hospital prior to fabrication. Fabricator to verify if secondary copy is required on sign face (i.e. legal, towing, city ordinances or code information). See control documents for product specification and master agreement for removal & installation requirements.

Overall Height:	1'-6"
Overall Width:	2'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	027a
Existing Sign Type:	
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	36"
Face Width:	32"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Break formed at ends. Attached to pole with worm drive straps -8 ft to bottom of sign

Proposed

Sign Number:	027a
Sign Type:	PL-1
Description:	Parking Lot Sign
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Verify copy w/ hospital prior to fabrication.

Overall Height:	1'-6"
Overall Width:	2'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Restoration Notes: . Verify copy w/ hospital prior to fabrication. Fabricator to verify if secondary copy is required on sign face (i.e. legal, towing, city ordinances or code information). See control documents for product specification and master agreement for removal & installation requirements.

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EMHS

Site Number: 000048

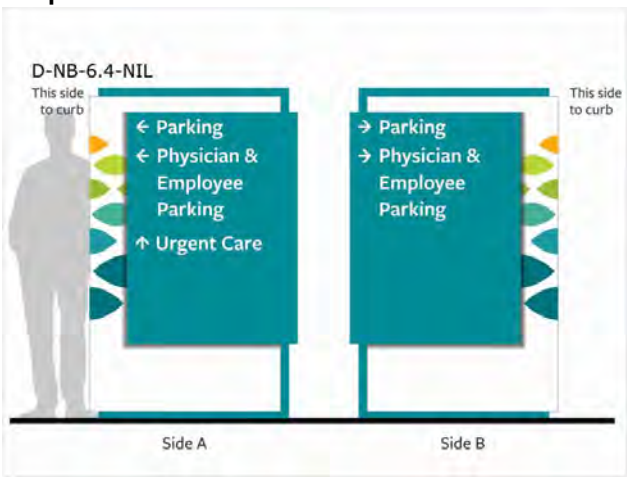
Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	028
Existing Sign Type:	Directional Sign
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	108"
Face Height:	63.5"
Face Width:	51.5"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	63.5"x51.5"faded signface w reflected vinyl on 80"h x 9"w 2.25"deep support pole. Shield symbol is 6"w x 7.5" h vinyl only. Double face.

Proposed

Sign Number:	028
Sign Type:	D-NB-6.4-NIL
Description:	6'-4" Non-Branded Non-Illuminated Directional
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Verify copy and arrows directions w/ hospital prior to fabrication.
Restoration Notes:	Perform utility locates and verify setbacks prior to fabrication / installation. Restore ground material to base of new sign. See control documents for product specification and master agreement for removal & installation requirements.

Overall Height:	6'-4"
Overall Width:	4'-0"
Logo Height:	n/a
Letter Height:	3"
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	030
Existing Sign Type:	
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	36"
Face Width:	32"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Break formed at ends. Attached to pole with worm drive straps -10 ft to bottom of sign

Proposed

Sign Number:	030
Sign Type:	PL-1
Description:	Parking Lot Sign
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Verify copy w/ hospital prior to fabrication.
Restoration Notes:	Verify copy w/ hospital prior to fabrication. Fabricator to verify if secondary copy is required on sign face (i.e. legal, towing, city ordinances or code information). See control documents for product specification and master agreement for removal & installation requirements.

Overall Height:	1'-6"
Overall Width:	2'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	030a
Existing Sign Type:	
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	36"
Face Width:	32"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Break formed at ends. Attached to pole with worm drive straps -8 ft to bottom of sign

Proposed

Sign Number:	030a
Sign Type:	PL-1
Description:	Parking Lot Sign
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Verify copy w/ hospital prior to fabrication.
Restoration Notes:	. Verify copy w/ hospital prior to fabrication. Fabricator to verify if secondary copy is required on sign face (i.e. legal, towing, city ordinances or code information). See control documents for product specification and master agreement for removal & installation requirements.

Overall Height:	1'-6"
Overall Width:	2'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	031
Existing Sign Type:	
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	40"
Face Width:	30"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Break formed at ends. Attached to pole with worm drive straps -10 ft to bottom of sign

Proposed

Sign Number:	031
Sign Type:	Custom
Description:	Custom Pole Mounted Directional Plaque
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Verify copy and arrows directions w/ hospital prior to fabrication.
Restoration Notes:	Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

Overall Height:	40"
Overall Width:	30"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	032
Existing Sign Type:	
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	40"
Face Width:	30"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Break formed at ends. Attached to pole with worm drive straps -10 ft to bottom of sign

Proposed

Sign Number:	032
Sign Type:	Custom
Description:	Custom Pole Mounted Directional Plaque
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Verify copy and arrows directions w/ hospital prior to fabrication.
Restoration Notes:	Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

Overall Height:	40"
Overall Width:	30"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

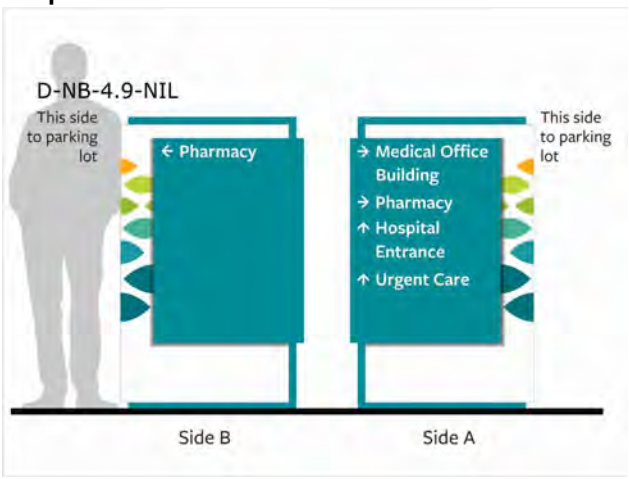
Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	033
Existing Sign Type:	Directional Sign
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	80"
Face Height:	39.5"
Face Width:	32.5"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	

Sign Comment: 32.5"x39.5"faded signface w reflected vinyl on 80"h x 9"w 2.25"deep support pole. Shield symbol is 6"w x 7.5" h vinyl only. Double face.

Proposed

Sign Number:	033
Sign Type:	D-NB-6.4-NIL
Description:	6'-4" Non-Branded Non-Illuminated Directional
Action:	Remove and Replace
Message A:	
Message B:	

Overall Height:	6'-4"
Overall Width:	4'-0"
Logo Height:	n/a
Letter Height:	3"
Illuminated:	Non Illuminated

Comments: Verify copy and arrows directions w/ hospital prior to fabrication.

Restoration Notes: Perform utility locates and verify setbacks prior to fabrication / installation. Restore ground material to base of new sign. See control documents for product specification and master agreement for removal & installation requirements.

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EMHS

Site Number: 000048

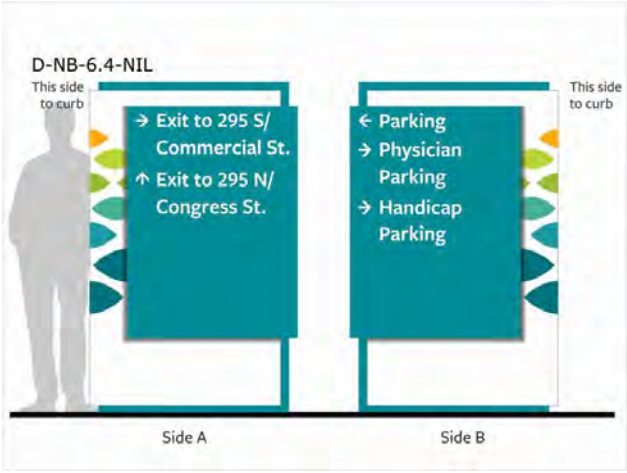
Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	034
Existing Sign Type:	Directional Sign
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	108"
Face Height:	63.5"
Face Width:	51.5"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	63.5"x51.5"faded signface w reflected vinyl on 80"h x 9"w 2.25"deep support pole. Shield symbol is 6"w x 7.5" h vinyl only. Double face.

Proposed

Sign Number:	034
Sign Type:	D-NB-6.4-NIL
Description:	6'-4" Non-Branded Non-Illuminated Directional
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Verify copy and arrows directions w/ hospital prior to fabrication.
Restoration Notes:	Perform utility locates and verify setbacks prior to fabrication / installation. Restore ground material to base of new sign. See control documents for product specification and master agreement for removal & installation requirements.

Overall Height:	6'-4"
Overall Width:	4'-0"
Logo Height:	n/a
Letter Height:	3"
Illuminated:	Non Illuminated

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Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	035
Existing Sign Type:	Wall Plaque
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	36"
Face Width:	32"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Break formed at ends. Attached to pole with worm drive straps -10 ft to bottom of sign

Proposed

Sign Number:	035
Sign Type:	PL-1
Description:	Parking Lot Sign
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	
Restoration Notes:	Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

Overall Height:	1'-6"
Overall Width:	2'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	035b
Existing Sign Type:	Wall Plaque
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	36"
Face Width:	32"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Break formed at ends. Attached to pole with worm drive straps -10 ft to bottom of sign

Proposed

Sign Number:	035b
Sign Type:	PL-1
Description:	Parking Lot Sign
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	
Restoration Notes:	Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

Overall Height:	1'-6"
Overall Width:	2'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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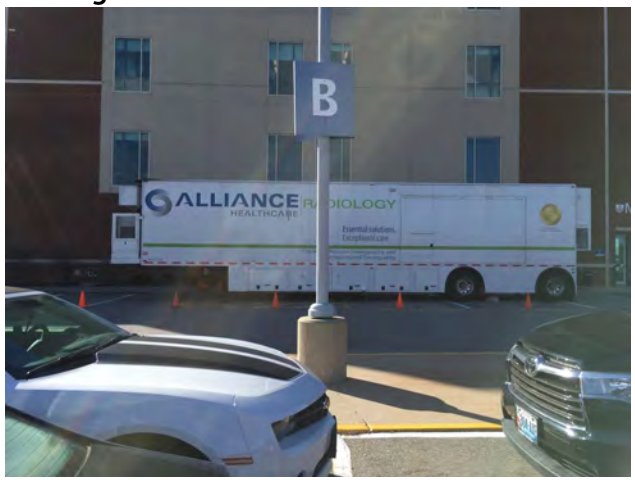
EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	036
Existing Sign Type:	
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	36"
Face Width:	32"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Break formed at ends. Attached to pole with worm drive straps -10 ft to bottom of sign

Proposed

Sign Number:	036
Sign Type:	PL-1
Description:	Parking Lot Sign
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Verify copy and arrows directions w/ hospital prior to fabrication.

Overall Height:	1'-6"
Overall Width:	2'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Restoration Notes: Patch and repair existing wall surface to like new condition. Repaint to match existing color finish. For brick or stone walls fill holes with matching silicone. Power wash wall if required. Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified letterset will fit in area and meet clear zone tolerances – refer to Control Documents. ***Change letterset height if required. See control documents for product specification and master agreement for installation requirements.

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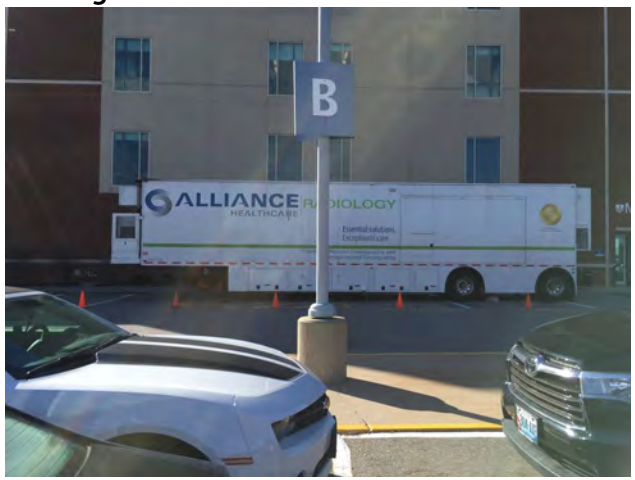
EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	036b
Existing Sign Type:	Wall Plaque
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	36"
Face Width:	32"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Break formed at ends. Attached to pole with worm drive straps -10 ft to bottom of sign

Proposed

Sign Number:	036b
Sign Type:	PL-1
Description:	Parking Lot Sign
Action:	
Message A:	
Message B:	

Overall Height:	1'-6"
Overall Width:	2'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Comments: Verify copy and arrows directions w/ hospital prior to fabrication.

Restoration Notes: Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified letterset will fit in area and meet clear zone tolerances – refer to Control Documents. ***Change letterset height if required. See control documents for product specification and master agreement for installation requirements.

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EMHS

Site Number: 000048

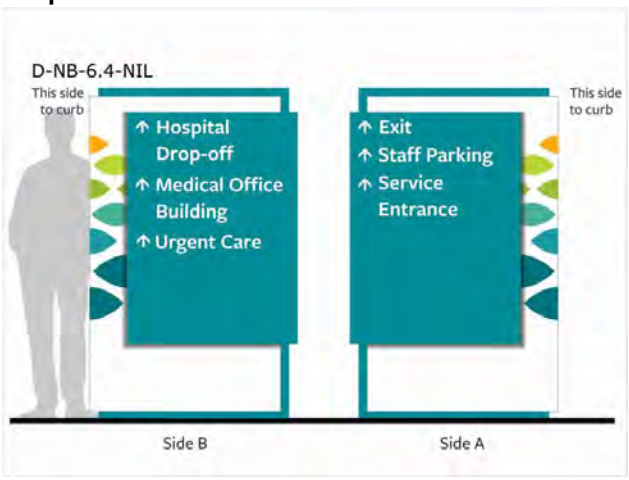
Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	042
Existing Sign Type:	Directional Sign
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	108"
Face Height:	63.5"
Face Width:	51.5"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	

Sign Comment: 63.5"x51.5"faded signface w reflected vinyl on 80"h x 9"w 2.25"deep support pole. Shield symbol is 6"w x 7.5" h vinyl only. Double face.

Proposed

Sign Number:	042
Sign Type:	D-NB-6.4-NIL
Description:	6'-4" Non-Branded Non-Illuminated Directional
Action:	Remove and Replace
Message A:	
Message B:	

Overall Height:	6'-4"
Overall Width:	4'-0"
Logo Height:	n/a
Letter Height:	3"
Illuminated:	Non Illuminated

Comments: Verify copy and arrows directions w/ hospital prior to fabrication.

Restoration Notes: Perform utility locates and verify setbacks prior to fabrication / installation. Restore ground material to base of new sign. See control documents for product specification and master agreement for removal & installation requirements.

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	043a
Existing Sign Type:	Smoke Free
Face Material:	Metal
Graphics Material:	Painted Letters
Overall Height:	
Face Height:	12"
Face Width:	18"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	silkscreened graphics on pole sign

Proposed

Sign Number:	043a
Sign Type:	REG-W2-NS
Description:	Small Wall Mounted Regulatory Sign - No Smoking
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Reuse existing pole
Restoration Notes:	Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal & installation requirements.

Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo

Leave Existing Sign

Existing

Sign Number:	043b
Existing Sign Type:	
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	24"
Face Width:	18"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	silkscreened graphics on pole sign

Proposed

Sign Number:	043b
Sign Type:	Leave
Description:	Leave Regulatory Sign
Action:	Leave
Message A:	
Message B:	
Comments:	
Restoration Notes:	

Overall Height:	
Overall Width:	
Logo Height:	
Letter Height:	
Illuminated:	

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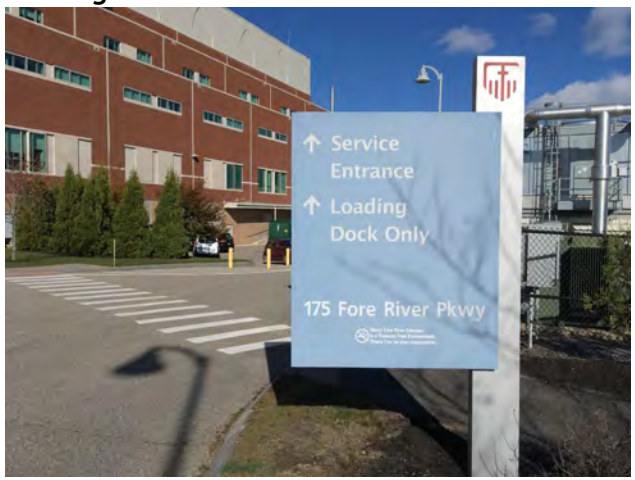
EMHS

Site Number: 000048

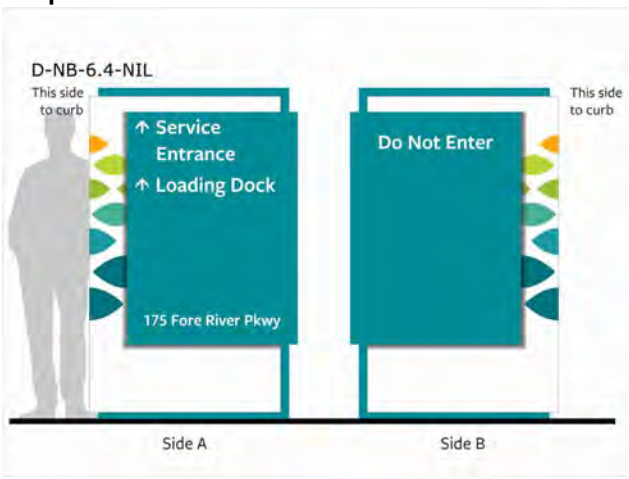
Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	044
Existing Sign Type:	Directional Sign
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	108"
Face Height:	63.5"
Face Width:	51.5"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	

Sign Comment: 63.5"x51.5"faded signface w reflected vinyl on 80"h x 9"w 2.25"deep support pole. Shield symbol is 6"w x 7.5" h vinyl only. Double face.

Proposed

Sign Number:	044
Sign Type:	D-NB-6.4-NIL
Description:	6'-4" Non-Branded Non-Illuminated Directional
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	

Overall Height:	6'-4"
Overall Width:	4'-0"
Logo Height:	n/a
Letter Height:	3"
Illuminated:	Non Illuminated

Restoration Notes: Perform utility locates and verify setbacks prior to fabrication / installation. Restore ground material to base of new sign. See control documents for product specification and master agreement for removal & installation requirements.

Comment on this sign from Tom Errico email to Jean Fraser on 2 Nov 2018: Confirm sign does not obstruct sight to/from pedestrians.

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Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	046
Existing Sign Type:	Smoke Free
Face Material:	Metal
Graphics Material:	Painted Letters
Overall Height:	
Face Height:	12"
Face Width:	18"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	silkscreened graphics on pole D/F sign

Proposed

Sign Number:	046
Sign Type:	REG-P2-NS-DF
Description:	Small Pole Mounted Regulatory Sign - No Smoking - D/F
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	double sided

Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Restoration Notes: Patch and repair existing wall surface to like new condition. Repaint to match existing color finish. For brick or stone walls fill holes with matching silicone. Power wash wall if required. Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

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EMHS

Site Number: 000048

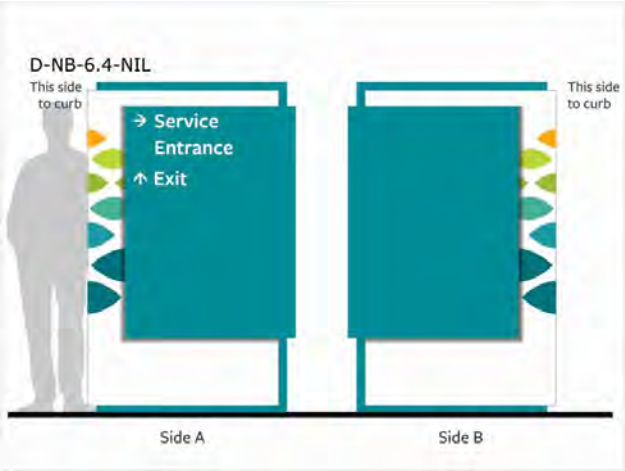
Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	047
Existing Sign Type:	Directional Sign
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	108"
Face Height:	63.5"
Face Width:	51.5"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	63.5"x51.5"faded signface w reflected vinyl on 80"h x 9"w 2.25"deep support pole. Shield symbol is 6"w x 7.5" h vinyl only. Double face.

Proposed

Sign Number:	047
Sign Type:	D-NB-6.4-NIL
Description:	6'-4" Non-Branded Non-Illuminated Directional
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Verify copy and arrows directions w/ hospital prior to fabrication.
Restoration Notes:	Perform utility locates and verify setbacks prior to fabrication / installation. Restore ground material to base of new sign. See control documents for product specification and master agreement for removal & installation requirements.

Overall Height:	6'-4"
Overall Width:	4'-0"
Logo Height:	n/a
Letter Height:	3"
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	048
Existing Sign Type:	Directional Sign
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	108"
Face Height:	63.5"
Face Width:	51.5"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	63.5"x51.5"faded signface w reflected vinyl on 80"h x 9"w 2.25"deep support pole. Shield symbol is 6"w x 7.5" h vinyl only. Single face.

Proposed

Sign Number:	048
Sign Type:	D-NB-6.4-NIL
Description:	6'-4" Non-Branded Non-Illuminated Directional
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Verify copy and arrows directions w/ hospital prior to fabrication.
Restoration Notes:	Perform utility locates and verify setbacks prior to fabrication / installation. Restore ground material to base of new sign. See control documents for product specification and master agreement for removal & installation requirements.

Overall Height:	6'-4"
Overall Width:	4'-0"
Logo Height:	n/a
Letter Height:	3"
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	049
Existing Sign Type:	Directional Sign
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	108"
Face Height:	63.5"
Face Width:	51.5"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	

Sign Comment: 63.5"x51.5"faded signface w reflected vinyl on 80"h x 9"w 2.25"deep support pole. Shield symbol is 6"w x 7.5" h vinyl only. Double face.

Proposed

Sign Number:	049
Sign Type:	P-10
Description:	10' Internally Illuminated Pylon
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	

Overall Height:	10'-0"
Overall Width:	5'-0"
Logo Height:	17.8"
Letter Height:	3.125"
Illuminated:	Illuminated

Restoration Notes: Perform utility locates and verify setbacks prior to fabrication / installation. Install new signage using existing primary electrical. Verify if additional circuits are required for new sign. Restore ground material to base of new sign. See control documents for product specification and master agreement for removal

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Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	050
Existing Sign Type:	Directional Sign
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	108"
Face Height:	63.5"
Face Width:	51.5"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	63.5"x51.5"faded signface w reflected vinyl on 80"h x 9"w 2.25"deep support pole. Shield symbol is 6"w x 7.5" h vinyl only. Double face.

Proposed

Sign Number:	050
Sign Type:	D-NB-6.4-NIL
Description:	6'-4" Non-Branded Non-Illuminated Directional
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	
Restoration Notes:	Perform utility locates and verify setbacks prior to fabrication / installation. Restore ground material to base of new sign. See control documents for product specification and master agreement for removal

Overall Height:	6'-4"
Overall Width:	4'-0"
Logo Height:	n/a
Letter Height:	3"
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

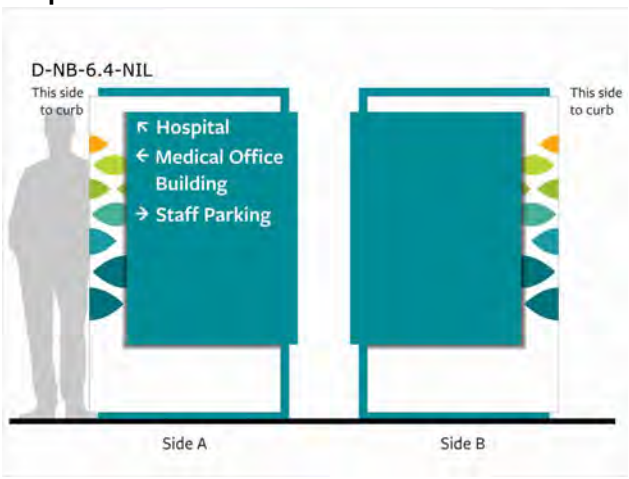
Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	051
Existing Sign Type:	Directional Sign
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	108"
Face Height:	63.5"
Face Width:	51.5"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	63.5"x51.5"faded signface w reflected vinyl on 80"h x 9"w 2.25"deep support pole. Shield symbol is 6"w x 7.5" h vinyl only. Double face.

Proposed

Sign Number:	051
Sign Type:	D-NB-6.4-NIL
Description:	6'-4" Non-Branded Non-Illuminated Directional
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	
Restoration Notes:	Perform utility locates and verify setbacks prior to fabrication / installation. Restore ground material to base of new sign. See control documents for product specification and master agreement for removal

Overall Height:	6'-4"
Overall Width:	4'-0"
Logo Height:	n/a
Letter Height:	3"
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	052
Existing Sign Type:	Directional Sign
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	108"
Face Height:	63.5"
Face Width:	51.5"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	63.5"x51.5"faded signface w reflected vinyl on 80"h x 9"w 2.25"deep support pole. Shield symbol is 6"w x 7.5" h vinyl only. Double face.

Proposed

Sign Number:	052
Sign Type:	D-NB-6.4-NIL
Description:	6'-4" Non-Branded Non-Illuminated Directional
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	
Restoration Notes:	Perform utility locates and verify setbacks prior to fabrication / installation. Restore ground material to base of new sign. See control documents for product specification and master agreement for removal

Overall Height:	6'-4"
Overall Width:	4'-0"
Logo Height:	n/a
Letter Height:	3"
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	053
Existing Sign Type:	Smoke Free
Face Material:	Metal
Graphics Material:	Painted Letters
Overall Height:	
Face Height:	12"
Face Width:	18"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	silkscreened graphics on pole sign

Proposed

Sign Number:	053
Sign Type:	REG-W1-NS
Description:	Large Wall Mounted Regulatory Sign - No Smoking
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	

Overall Height:	2'-0"
Overall Width:	1'-6"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Restoration Notes: Patch and repair existing wall surface to like new condition. Repaint to match existing color finish. For brick or stone walls fill holes with matching silicone. Power wash wall if required. Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	053b
Existing Sign Type:	Smoke Free
Face Material:	Metal
Graphics Material:	Painted Letters
Overall Height:	
Face Height:	12"
Face Width:	18"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	silkscreened graphics on pole sign

Proposed

Sign Number:	053b
Sign Type:	REG-W1-NS
Description:	Large Wall Mounted Regulatory Sign - No Smoking
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	

Overall Height:	2'-0"
Overall Width:	1'-6"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Restoration Notes: Patch and repair existing wall surface to like new condition. Repaint to match existing color finish. For brick or stone walls fill holes with matching silicone. Power wash wall if required. Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo

Remove Existing Sign

Existing

Sign Number:	053c
Existing Sign Type:	Regulatory Sign
Face Material:	Metal
Graphics Material:	Painted Letters
Overall Height:	
Face Height:	12"
Face Width:	18"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Faded Mercy permit parking

Proposed

Sign Number:	053c
Sign Type:	Remove
Description:	Remove Faded Sign
Action:	
Message A:	
Message B:	
Comments:	Remove the upper sign.
Restoration Notes:	

Overall Height:	
Overall Width:	
Logo Height:	
Letter Height:	
Illuminated:	

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo

Leave Existing Sign

Existing

Sign Number:	053d
Existing Sign Type:	Regulatory Sign
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	12"
Face Width:	18"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Faded Mercy permit parking

Proposed

Sign Number:	053d
Sign Type:	Leave
Description:	Leave Security Sign
Action:	Leave
Message A:	
Message B:	
Comments:	Leave Security Sign
Restoration Notes:	

Overall Height:	
Overall Width:	
Logo Height:	
Letter Height:	
Illuminated:	

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	054
Existing Sign Type:	Smoke Free
Face Material:	Metal
Graphics Material:	Painted Letters
Overall Height:	
Face Height:	12"
Face Width:	18"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	silkscreened graphics on pole sign

Proposed

Sign Number:	054
Sign Type:	REG-P2-NS-DF
Description:	Small Pole Mounted Regulatory Sign - No Smoking - D/F
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	double-sided

Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

Restoration Notes: Patch and repair existing wall surface to like new condition. Repaint to match existing color finish. For brick or stone walls fill holes with matching silicone. Power wash wall if required. Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	055
Existing Sign Type:	
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	36"
Face Width:	32"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Break formed at ends. Attached to pole with worm drive straps -10ft to bottom of sign

Proposed

Sign Number:	055
Sign Type:	PL-1
Description:	Parking Lot Sign
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	
Restoration Notes:	Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

Overall Height:	1'-6"
Overall Width:	2'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	055b
Existing Sign Type:	Regulatory - Pole Mo
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	36"
Face Width:	32"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Break formed at ends. Attached to pole with worm drive straps -10ft to bottom of sign

Proposed

Sign Number:	055b
Sign Type:	PL-1
Description:	Parking Lot Sign
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	
Restoration Notes:	Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

Overall Height:	1'-6"
Overall Width:	2'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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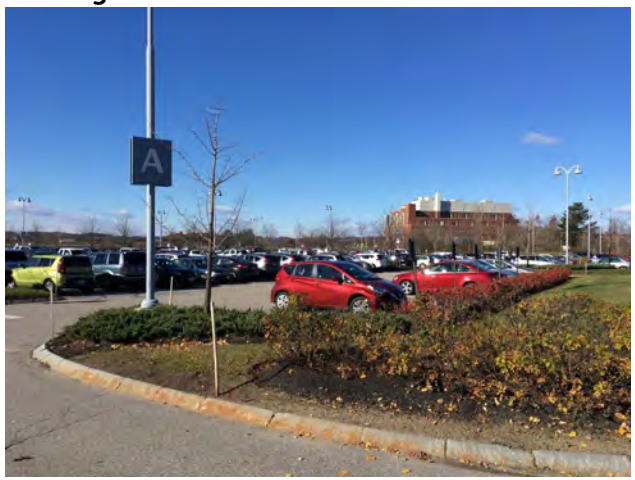
EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	056
Existing Sign Type:	Regulatory - Pole Mo
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	36"
Face Width:	32"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Break formed at ends. Attached to pole with worm drive straps -10ft to bottom of sign

Proposed

Sign Number:	056
Sign Type:	PL-1
Description:	Parking Lot Sign
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	
Restoration Notes:	Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

Overall Height:	1'-6"
Overall Width:	2'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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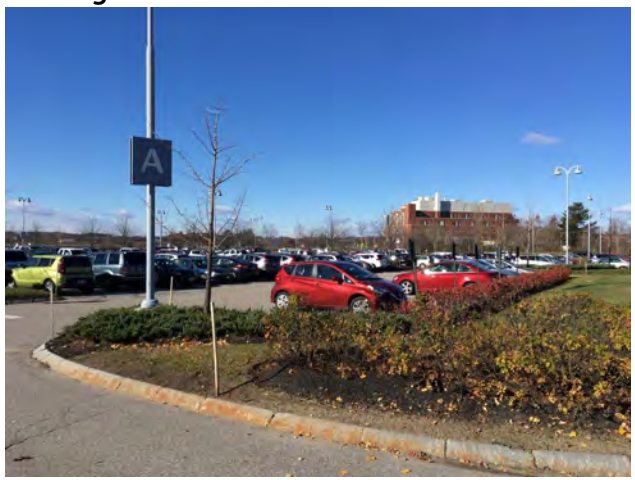
EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	056b
Existing Sign Type:	Regulatory - Pole Mo
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	36"
Face Width:	32"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Break formed at ends. Attached to pole with worm drive straps -10ft to bottom of sign

Proposed

Sign Number:	056b
Sign Type:	PL-1
Description:	Parking Lot Sign
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	
Restoration Notes:	Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

Overall Height:	1'-6"
Overall Width:	2'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	057
Existing Sign Type:	Smoke Free
Face Material:	Metal
Graphics Material:	Painted Letters
Overall Height:	
Face Height:	12"
Face Width:	18"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	silkscreened graphics on pole sign

Proposed

Sign Number:	057
Sign Type:	REG-W2-NS
Description:	Small Wall Mounted Regulatory Sign - No Smoking
Action:	
Message A:	
Message B:	
Comments:	Reuse pole. Pole appears to be in good condition
Restoration Notes:	

Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	058
Existing Sign Type:	Regulatory - Pole Mo
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	36"
Face Width:	32"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Break formed at ends. Attached to pole with worm drive straps -10ft to bottom of sign

Proposed

Sign Number:	058
Sign Type:	PL-1
Description:	Parking Lot Sign
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	
Restoration Notes:	Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

Overall Height:	1'-6"
Overall Width:	2'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	058b
Existing Sign Type:	Regulatory - Pole Mo
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	36"
Face Width:	32"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Break formed at ends. Attached to pole with worm drive straps -10ft to bottom of sign

Proposed

Sign Number:	058b
Sign Type:	PL-1
Description:	Parking Lot Sign
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	
Restoration Notes:	Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

Overall Height:	1'-6"
Overall Width:	2'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

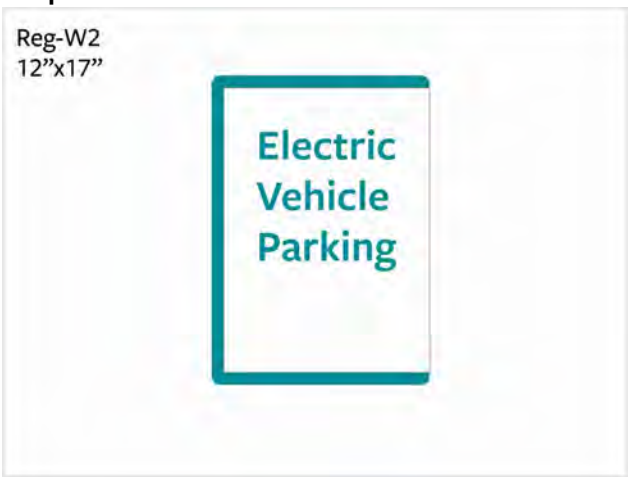
Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	059
Existing Sign Type:	
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	18"
Face Width:	12"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Branded EV parking

Proposed

Sign Number:	059
Sign Type:	REG-W2
Description:	Small Wall Mounted Regulatory Sign
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Reuse pole. Pole appears to be in good condition
Restoration Notes:	Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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EMHS

Site Number: 000048

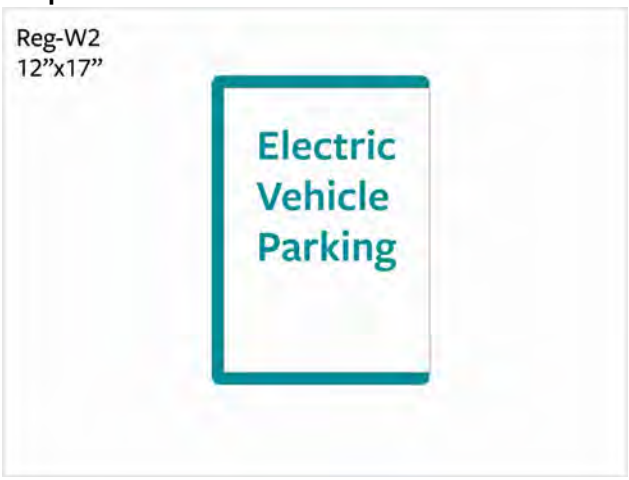
Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	060
Existing Sign Type:	
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	18"
Face Width:	12"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Branded EV parking

Proposed

Sign Number:	060
Sign Type:	REG-W2
Description:	Small Wall Mounted Regulatory Sign
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Reuse pole. Pole appears to be in good condition
Restoration Notes:	Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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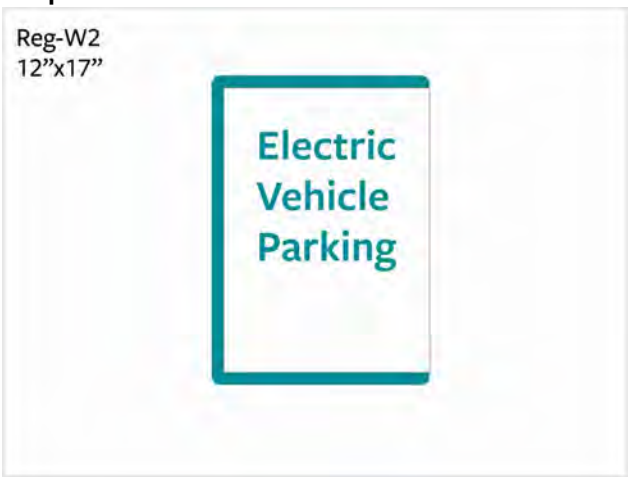
Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	061
Existing Sign Type:	
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	18"
Face Width:	12"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Branded EV parking

Proposed

Sign Number:	061
Sign Type:	REG-W2
Description:	Small Wall Mounted Regulatory Sign
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Reuse pole. Pole appears to be in good condition
Restoration Notes:	Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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EMHS

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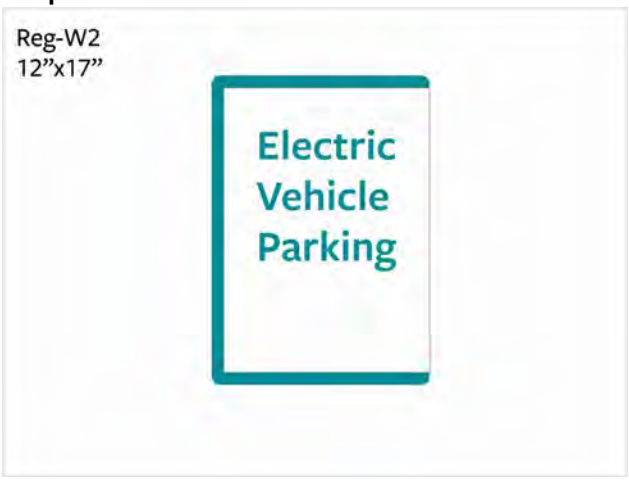
Site Name: Fore River Hospital
Address: 175 Fore River Parkway
City/State: ,

Recommendation Completed: 2018-06-13
Approved: 2018-07-10
Date Print: 11/14/2019

Existing Photo



Proposed Photo



Existing

Sign Number:	062
Existing Sign Type:	
Face Material:	Metal
Graphics Material:	Vinyl
Overall Height:	
Face Height:	18"
Face Width:	12"
Square Feet:	
Illuminated:	Non Illuminated
Electrical:	
Wall Material:	
Sign Comment:	Branded EV parking

Proposed

Sign Number:	062
Sign Type:	REG-W2
Description:	Small Wall Mounted Regulatory Sign
Action:	Remove and Replace
Message A:	
Message B:	
Comments:	Reuse pole. Pole appears to be in good condition
Restoration Notes:	Field verify dimensions of space shown in photo morph prior to fabrication to verify if specified sign will fit in area. See control documents for product specification and master agreement for removal

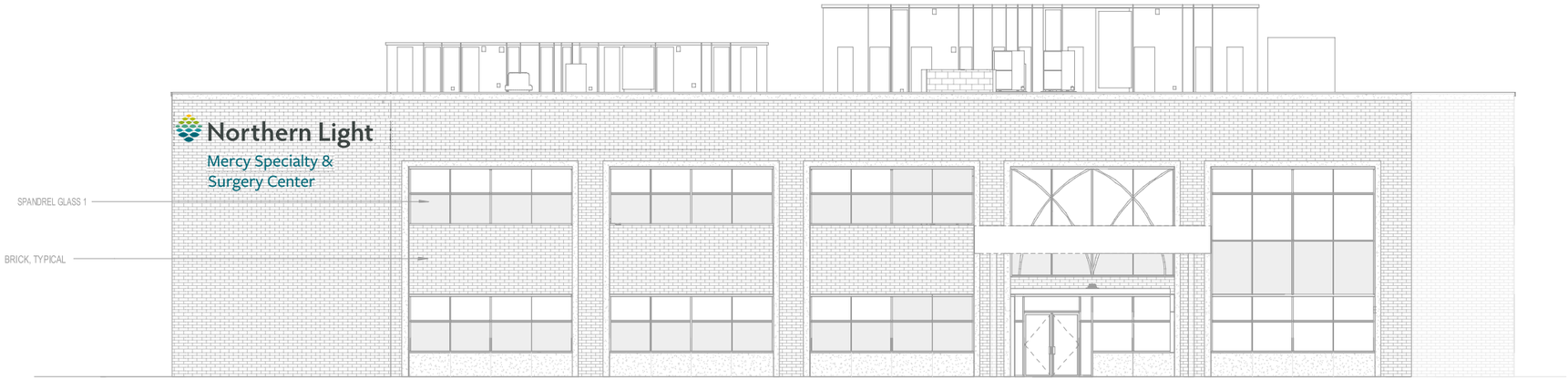
Overall Height:	1'-5"
Overall Width:	1'-0"
Logo Height:	
Letter Height:	
Illuminated:	Non Illuminated

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Concept Signage Proposals - New Surgery Center

Att. Y



EXTERIOR ELEVATION - SOUTH D1

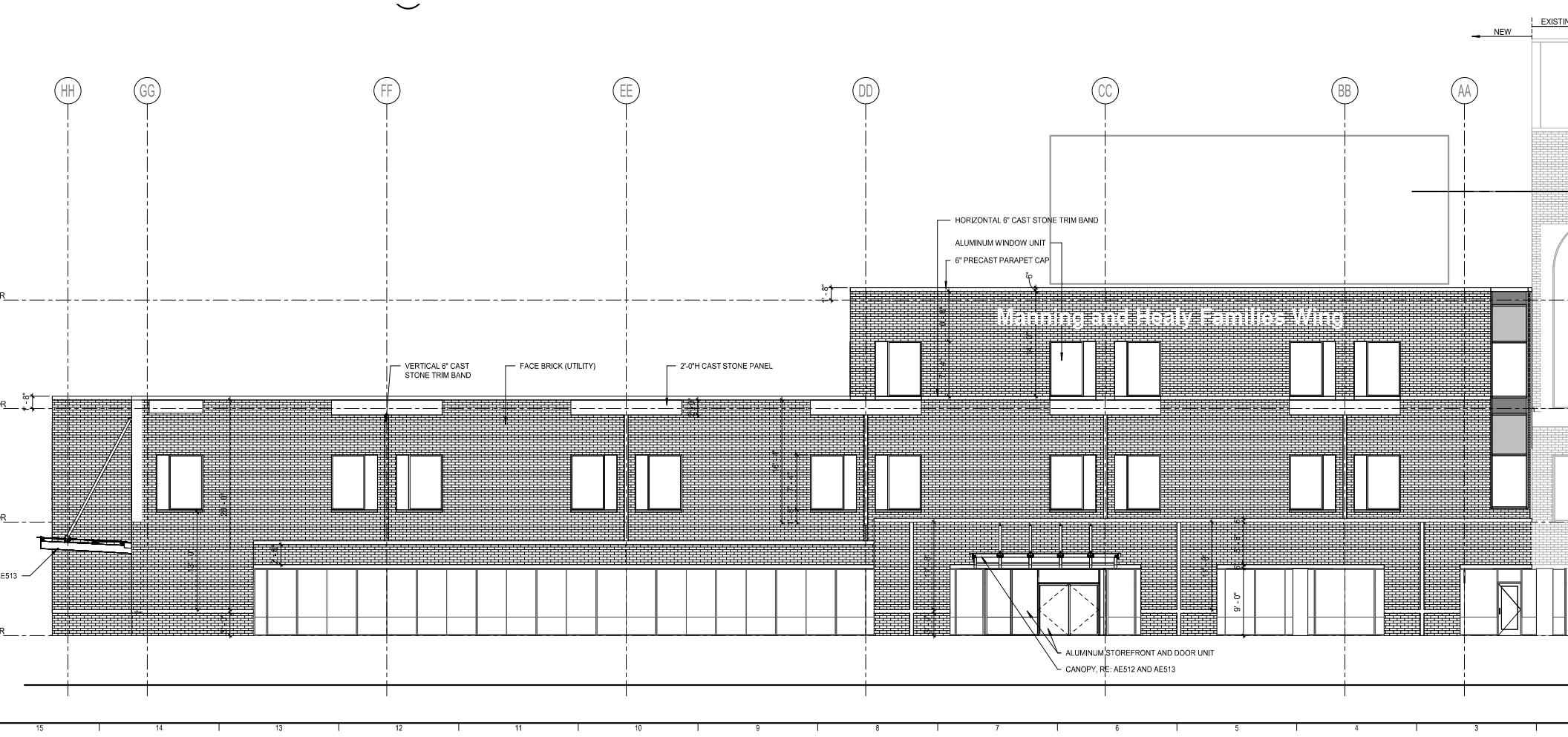


EXTERIOR ELEVATION - WEST A1

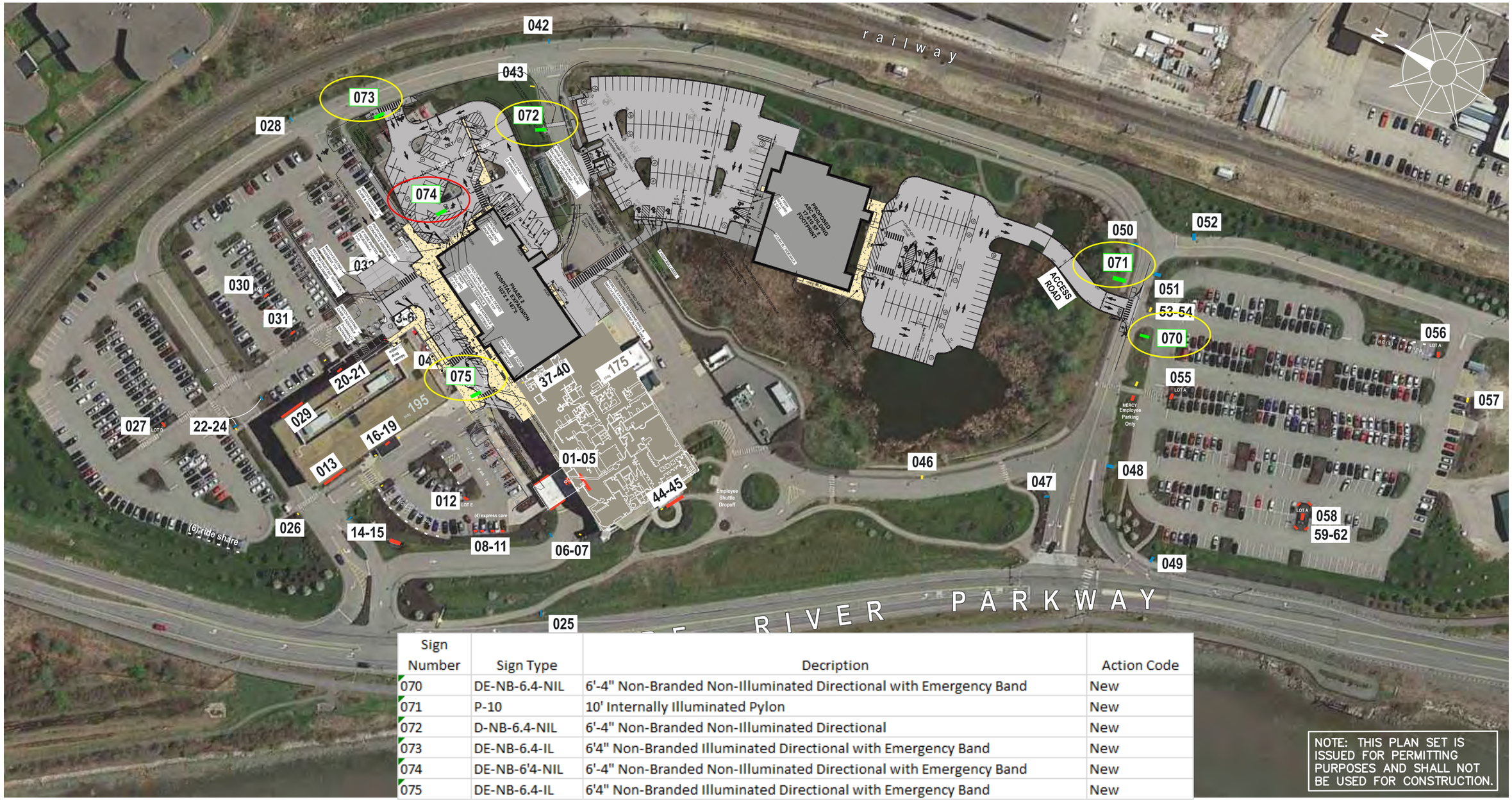
Concept Signage Proposals - Hospital Expansion West Facade



Concept Signage Proposals - Hospital Expansion South Facade



Current and Future State Proposed Sign Locations

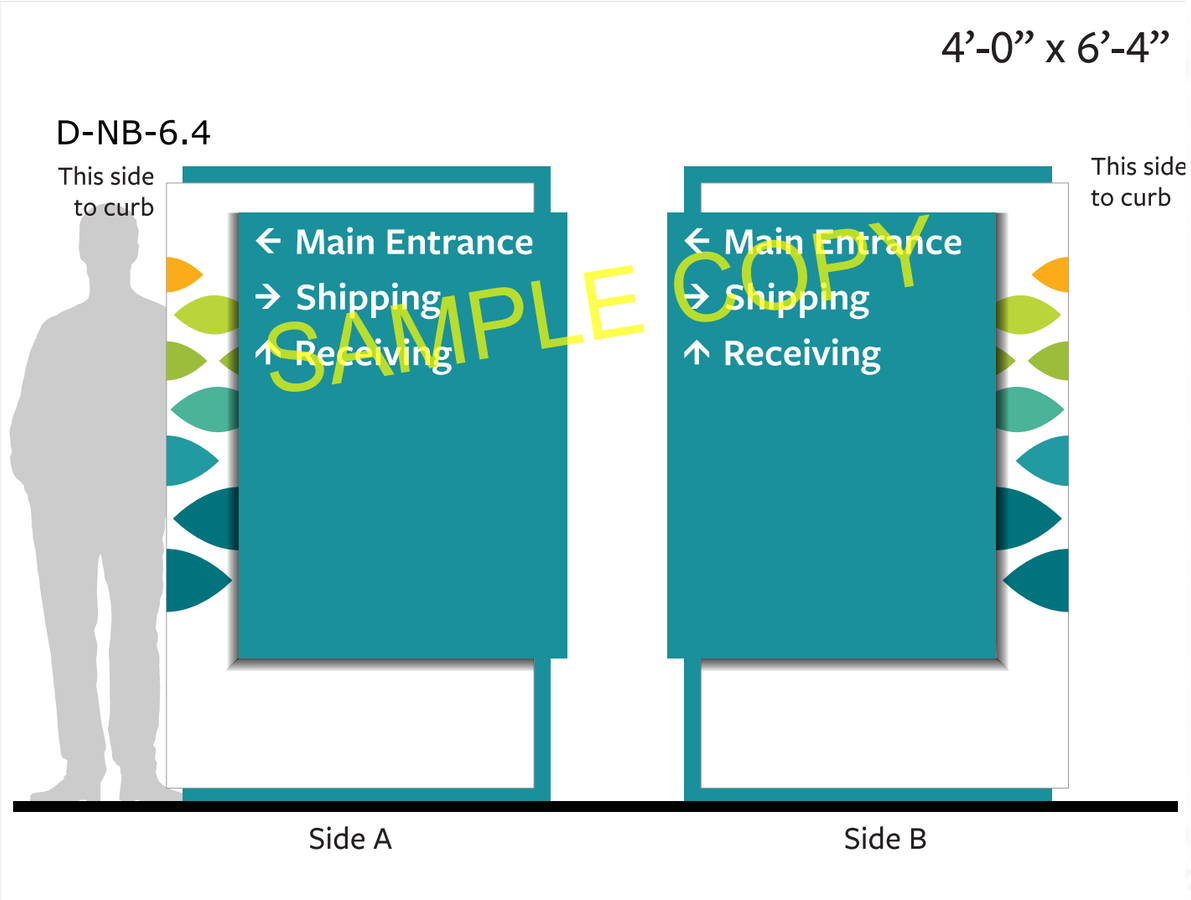


Sign Number	Sign Type	Decription	Action Code
070	DE-NB-6.4-NIL	6'-4" Non-Branded Non-Illuminated Directional with Emergency Band	New
071	P-10	10' Internally Illuminated Pylon	New
072	D-NB-6.4-NIL	6'-4" Non-Branded Non-Illuminated Directional	New
073	DE-NB-6.4-IL	6'4" Non-Branded Illuminated Directional with Emergency Band	New
074	DE-NB-6'4-NIL	6'-4" Non-Branded Non-Illuminated Directional with Emergency Band	New
075	DE-NB-6.4-IL	6'4" Non-Branded Illuminated Directional with Emergency Band	New

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

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Future State Proposed Sign Design

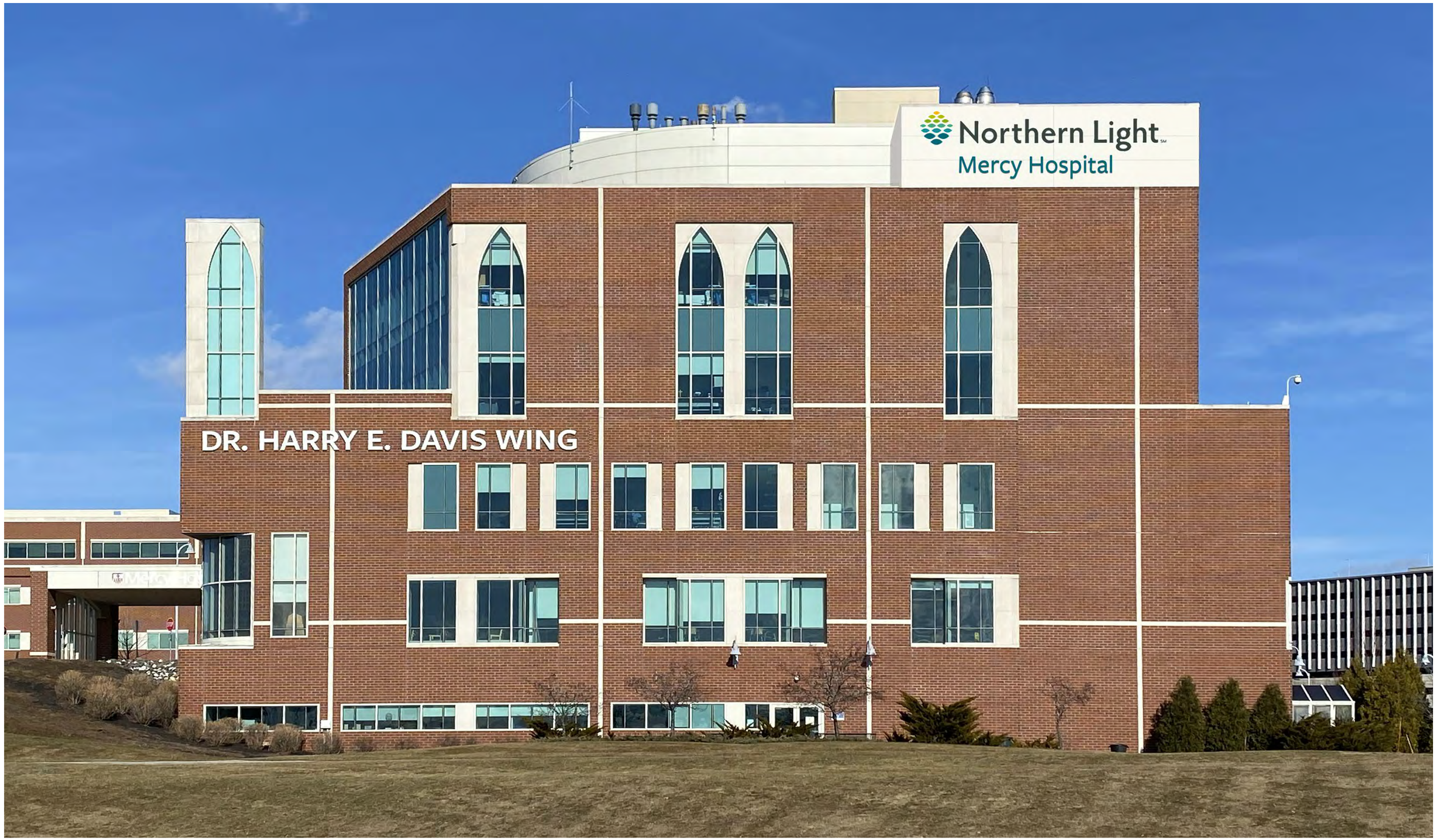


Signs 070-073



Signs 074-075

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Hospital Addition

Northern Light Mercy Specialty & Surgery Center

West Elevation
Proposed Signage

SMRT
Architecture • Engineering • Planning



Hospital Addition

Northern Light Mercy Specialty & Surgery Center

Southwest View
Proposed Signage

SMRT
Architecture • Engineering • Planning



ASC Building

Northern Light Mercy Specialty & Surgery Center

West Elevation
Proposed Signage

SMRT
Architecture • Engineering • Planning



ASC Building

Northern Light Mercy Specialty & Surgery Center

South Elevation
Proposed Signage

SMRT
Architecture • Engineering • Planning



ASC Building

Northern Light Mercy Specialty & Surgery Center

Southwest View
Proposed Signage

SMRT
Architecture • Engineering • Planning

Att. BB

Unitil
Northern Utilities, Inc.

November 27, 2019

Kaleb Bourassa
Gorrill Palmer
707 Sable Oaks Drive
Suite 30
South Portland, ME 04106

RE: Mercy Hospital – Ability to Serve Request

Dear Kaleb:

This letter is in response to your November 22, 2019 letter to Unitil requesting confirmation of Unitil's ability to serve the Mercy Hospital Phase II Development. Until currently has natural gas infrastructure serving the existing Mercy Hospital Fore River Campus. Based on the preliminary design provided, our gas facilities have the capacity to serve the proposed Development.

If you have any questions, please contact me at 207-541-2534.

Sincerely,

Michael T. Smith
Manager, Business Services

Att. CC

From: Cough, Jamie
To: Kaleb Bourassa
Subject: CMP Ability to Serve Request and Three Phase Service Process-Mercy Hospital Fore River Phase II
Date: Monday, November 25, 2019 6:54:51 AM
Attachments: image001.jpg
Easement_Information_Worksheet.doc
Standard Easement Sample.pdf
Draft April 2019 EDET.XLSX

11/25/2019

Kaleb Bourassa, EI
Design Engineer
Gorrill Palmer
707 Sable Oaks Drive, Suite 30
South Portland, ME 04106

Subject: Mercy Hospital - Phase II Development
Fore River Parkway – Portland, Maine
Letter of Ability to Serve Request

SAP Notification Temp is TBD
SAP Notification Permanent is TBD

(please set these up asap)

Project Description:

The proposed development includes construction of Phase II at the Northern Light℠ Mercy Hospital – Fore River Campus. The project includes an approximately 20,140 SF footprint expansion of the existing hospital facility, construction of an approximately 17,574 SF footprint stand-alone Ambulatory Surgical Center (ASC), and associated pedestrian and vehicular infrastructure.

CMP has the ability to serve the proposed project in accordance with our CMP Handbook (web link below). We can provide you the desired pad or pole mounted transformers per your request and city approval, in accordance with our CMP Handbook of Standard Requirements. If you have any questions on the process, or need help in completion of the documents, **please contact me at 207-629-1489.**

Here is our typical process for getting your three phase or CT rated single phase service installed. If you have any questions, please let me know. The underlined links will redirect you to the appropriate site for additional information. If this is a single phase service with all self-contained metering, the process is simplified, but still begins with a call to CMP.

Service Milestones for Three Phase Services and CT Rated Single Phase Services. Please refer to

CMP Installation Checklists for other installations.

- Call 1-800-565-3181 to establish a new account (if needed) and an SAP work order. Please provide both of these to me.
- Submit Load information. Please complete the attached EDET (excel file) using load information. . Please complete this and email back to me.
- Submit the easement information worksheet. Please complete this form and either email or fax back to me.
- Submit any electronic drawings (PDF (preferred) or DWG files) of the site layout and proposed electrical connections if you have them.
- Preliminary meetings with CMP Advisor and Engineer to determine details of job (I will need to schedule with your electrician/contractor-please let me know who this is)
- Field planner design appointment to cost out job and develop CMP Invoice. The invoice is typically generated 5-6 weeks after the design appointment. This expires after 90 days from the invoice date.
- CMP submits invoice to the customer for payment (typically via email). Payment received from customer.
- Easements (based on easement information worksheet) sent out, signed and originals returned to CMP.
- Job scheduled for completion after the electrical inspection has been received.

This process can take several months, depending upon several factors including transformer or materials delivery, return of completed paperwork, and other jobs in the system that may be ahead of yours. In addition, contact with the other utilities, including telephone and cable, should be commenced as soon as practical. They may have additional work or charges in addition to the CMP work required to bring your project on line.

Please complete the attached forms (the specific instructions are on each form) and email them back to me at your earliest convenience.

For your convenience, here is a link to the CMP Website which contains our Handbook with details on most service requirements: CMP Handbook of Standard Requirements

You will be responsible for installing the customer connections, conduits, and metering in accordance with the CMP Handbook of Standard Requirements. The transformer will be sized based on your submitted load sheets.

Your deposit amount will be typically based on an estimated two month bill, calculated from your completed load sheet unless otherwise determined by CMP.

Metering:

All metering (including locations) must be preapproved by CMP.

Chapter 324 Interconnections:

Please be advised that if you plan to install solar/wind/hydro generation, you must complete an application under the MPUC mandated Chapter 324 Interconnection Standards. If you go to Chapter 324 Interconnection Standards and follow the instructions for the Small Generator Interconnection Procedures, CMP can do this work in parallel to your service request that will be handled by me. If you project is under 660 KW You will be able to have a Customer Net Energy Billing contract. Information concerning Customer Net Energy Billing can be accessed thru the Chapter 324 website or by clicking here: Net Energy Billing

Reallocation/Line Extensions:

Recently, changes were made to the three-phase construction policy, which require CMP to reallocate construction costs paid by customers. If applicable, those projects identified as "developments" do not qualify for reallocation of funds. Please see this document at our website for details about the reallocation conditions. Any reallocation charges will be specifically denoted on your invoice. The website address for this is: PolyphaseLineExtension .

This line extension will be part of Central Maine Power's distribution system. In the event the property served under this Agreement is sold or otherwise conveyed, all rights and obligations of the Agreement shall stay with the property. Please note that if you rent or lease this property to another and you want to receive the reimbursement payments, you must make special arrangements with the Central Maine Power Company. Otherwise, any reimbursement payments will be sent to the "Customer" taking service at the service location.

Electricity Supplier Information:

Central Maine Power Company (CMP) will provide your facility with electric delivery service. If you don't already have a provider, you will need to make arrangements with a competitive electricity provider in order to receive electricity supply for your facility. In the event you fail to choose a competitive electricity provider, you will receive Standard Offer service arranged by the Maine Public Utilities Commission. If you wish to be served by a competitive electricity provider immediately upon establishment of delivery service, you must arrange for this service directly through your chosen competitive electricity provider, who must enroll your account no later than 5 PM on the business day prior initiation of delivery service by CMP. An up-to-date list of competitive suppliers can be found at the:

1) Maine Public Utilities Commission (MPUC) web site- **Maine PUC**
2) By calling the MPUC at (207) 287-3831

Attachments:

Excel Load Sheet (EDET)
Easement Worksheet and Sample Standard Easement

Regards,

Jamie

Jamie Cough
Energy Services Advisor
Central Maine Power Company
162 Canco Road
Portland, ME 04103
207-629-1489 office



==========

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==========

Att. DD

Portland Water District

FROM SEBAGO LAKE TO CASCO BAY

November 15, 2019

Stephen Bushey P.E.
707 Sable Oaks Drive, Suite 30
South Portland, ME 04106

Re: 175/195 Fore River Parkway, PO
Ability to Serve with PWD Water

Dear Mr. Bushey:

The Portland Water District has received your request for an Ability to Serve Determination for the noted site submitted on August 13, 2019. Based on the information provided per plans dated November 14, 2019, we can confirm that the District will be able to serve the proposed project as further described in this letter. **Please note that this letter constitutes approval of the water system as currently designed. Any changes affecting the approved water system will require further review and approval by PWD.**

Conditions of Service

The following conditions of service apply:

- A new 6-inch fire service and 4-inch domestic service with a 1.5-inch meter may be installed to the ASC Facility from the 12-inch PVC water main in the Mercy Hospital ROW. The service(s) should enter through the properties frontage at least 10-feet from any side property lines.
- An approved backflow prevention device must be installed on the service lines directly after the meter and before the fire sprinkler riser prior to service activation. Please refer to the PWD website for more information on cross-connection control policies.
- The existing 12-inch PVC service to Mercy Hospital may be used for the proposed building expansion as long as the project team determines that it will provide adequate flow and pressure for the proposed use. The existing 8-inch meter has sufficient capacity to handle the additional demand of the site.

Prior to construction, the owner or contractor will need to make an appointment to complete a service application form and pay all necessary fees. The appointment shall be requested through MEANS@pwd.org or by calling 207-774-5961 ext. 3199. Please allow (3) business days to process the service application paperwork. PWD will guide the applicant through the new development process during the appointment.

Existing Site Service

According to District records, the project site does currently have existing water service. A 12-inch diameter PVC combined fire and domestic service line provides water service to the site. Please refer to the "Conditions of Service" section of this letter for requirements related to the use of this service.

Water System Characteristics

According to District records, there is an 12-inch diameter PVC water main in Mercy Hospital ROW and a public fire hydrant located adjacent to the site. Recent flow data is not available in this area. The most recent static pressure reading was 99 psi.

Public Fire Protection

The installation of new public hydrants to be accepted into the District water system will most likely not be required. It is your responsibility to contact the City of Portland Fire Department to ensure that this project is adequately served by existing and/or proposed hydrants.

Domestic Water Needs

The data noted above indicates there should be adequate pressure and volume of water to serve the domestic water needs of your proposed project. Based on the high water pressure in this area, we recommend that you consider the installation of pressure reducing devices that comply with state plumbing codes.

Private Fire Protection Water Needs

You have indicated that this project will require water service to provide private fire protection to the site. Please note that the District does not guarantee any quantity of water or pressure through a fire protection service. Please share these results with your sprinkler system designer so that they can design the fire protection system to best fit the noted conditions. If the data is out of date or insufficient for their needs, please contact MEANS to request a hydrant flow test and we will work with you to get more complete data.

Should you disagree with this determination, you may request a review by the District's Internal Review Team. Your request for review must be in writing and state the reason for your disagreement with the determination. The request must be sent to MEANS@PWD.org or mailed to 225 Douglass Street, Portland Maine, 04104 c/o MEANS. The Internal Review Team will undertake review as requested within 2 weeks of receipt of a request for review.

If the District can be of further assistance in this matter, please let us know.

Sincerely,
Portland Water District



Robert A. Bartels, P.E.
Senior Project Engineer

Att. EE

Neighborhood Meeting Certification

I, Stephen R. Bushey, P.E., hereby certify that a neighborhood meeting was held on Wednesday, December 11, 2019 at the Fore River Hospital Cafeteria, 175 Fore River Parkway, Portland, Maine at 5:30 P.M.

I also certify that on November 22, 2019, invitations were mailed to the following:

1. All addresses on the mailing list provided by the Planning Division, including property owners within 500 feet of the proposed development or within 1000 feet of a proposed industrial subdivision or industrial zone change.

2. Residents on the "interested parties" list.

3. A digital copy of the notice was also provided to the Planning Division (jmy@portlandmaine.gov and ldobson@portlandmaine.gov) and the assigned planner to be forwarded to those on the interested citizen list who receive e-mail notices.

Signed,

12/17/19 — December 17, 2019

(date)

Attached to this certification are:

1. Copy of invitation sent
2. Sign-in sheet
3. Meeting minutes

GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, Maine 04106
207.772.2515

November 21, 2019

Dear Neighbor:

Please join us for a Neighborhood Meeting to discuss our plans for the proposed development at Mercy Hospital Fore River Campus in Portland, ME (Tax Map/Block/Lot - 73 A-1, B-2, B-7; Map 74 A-1, A-2, B-3, B-11, B-12; 74A A-1, U-2; 75 A-3, B-4, B-30; 75AA-1, A-17; 76 B-33, B-1, B-2).

The proposed project includes a 19,260 SF footprint building addition to the existing Mercy Hospital at Fore River Parkway and a 17,610 SF footprint Ambulatory Surgical Center and parking at 175 Fore River Parkway in Portland, ME. Mercy Hospital dba Northern Light Mercy Hospital has filed a Level III Site Plan Application with the Planning Authority.

Meeting Location:	**Mercy Hospital – 175 Fore River Parkway, Portland, ME**
	Cafeteria on Level 1
Meeting Date:	**December 11, 2019**
Meeting Time:	**5:30 PM**

The City Code requires that property owners within 500 feet (except notices must be sent to property owners within 1,000 feet for industrial zoning map amendments and industrial subdivisions) of the proposed development and residents on an "interested parties list", be invited to participate in a neighborhood meeting. A sign-in sheet will be circulated and minutes of the meeting will be taken. Both the sign-in sheet and minutes will be submitted to the Planning Board. The meeting will last no more than 30-45 minutes.

If you have any questions, please feel free to contact Steve Bushey, P.E. at 207.772.2515 x286.

Sincerely,

GORRILL PALMER

Stephen R. Bushey, P.E.
Associate/Sr. Project Manager
sbushey@gorrillpalmer.com

Note: Under Section 14-32(C) and 14-525 of the City Code of Ordinances, an applicant for a Level III development, subdivision of over five lots/units, or zone change is required to hold a neighborhood meeting within three weeks of submitting a preliminary application or two weeks of submitting a final site plan application, if a preliminary plan was not submitted. The neighborhood meeting must be held at least seven days prior to the Planning Board public hearing on the proposal. Should you wish to offer additional comments on this proposed development, you may contact the Planning Division at 874-8721 or send written correspondence to the Planning and Urban Development Department, Planning Division 4th Floor, 389 Congress Street, Portland, ME 04101 or by email to: cdg@portlandmaine.gov

u:\3257.04_mercy hospital_expansion_dd_permits\p applications\local\level iii site plan\neighborhood meeting\neighborhood meeting_final_11.22.19.docx

Neighborhood Meeting Sign-In Sheet
Project: Mercy Hospital – Fore River Parkway

Date: December 11, 2019
Time: 5:30 PM
Location: Mercy Hospital – 175 Fore River Parkway – Cafeteria on Level 1

Name	Company	Telephone No.	Email Address
Steve Bushey	Gorrill Palmer	207.772.2515	Sbushey@gorrillpalmer.com
Ed Gilman	Mercy	202/657/9363	gilmane@northernlight.org
Nick Munro	Northern Light Health	207.232.8285	nmunro@northernlight.org
Wendy Napolitano	Mercy	207.232.6255	napolitanow@northernlight.org
Melissa Skahan	Mercy	207-232-1229	Skahanm@emh.s.org
Liz Parsons	neighbor	207-899-2206	ecparsons33@hotmail.com
Lin Parsons	neighbor	"	linparson@maine.rr.com
Mary Costigan	Bernstein Shur	207-228-7147	mcostigan@bernsteinshur.com
KAREN BELKNAP	SMRT	207-232-2931	ebelknap@smrtinc.com

GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, Maine 04106
207.772.2515

MEETING MINUTES

Project: **Mercy Hospital Phase 2 Expansion, Portland, Maine**

Job #: **3257.04**

Date: **December 11, 2019 – 5:30 PM**

Location: **Project Site – 175 Fore River Parkway – Hospital Cafeteria**

Subject: **Neighborhood Meeting**

Attendees: **See Attached Sign-in Sheet**

In accordance with the City of Portland Planning Board Requirements, a Neighborhood Meeting was scheduled to discuss the proposed Phase 2 Hospital Expansion and Ambulatory Surgical Center (ASC) buildings which includes new surface parking facilities and related utility improvements.

The meeting was held on Wednesday, December 11, 2019 at 5:30 P.M. and various Mercy representatives were present on site from 5:15 PM–6:45 PM. Two (2) members of the public attended the meeting. The following is a synopsis of the meeting:

Mercy Overview

- Meeting held at the Fore River Hospital Cafeteria
- Meeting started promptly at 5:30 pm
- Charlie T. provided brief overview of project proposal using overhead slide graphics.
    - Mercy focus on both Acute care delivery with Hospital expansion, that will allow full departure from State Street facility
    - Patient care shifting to outpatient services and proposed Ambulatory Surgical Center is a result of that shift in care delivery.
    - Outpatient services are purposely separated from the acute care infrastructure. Buildings are not connected but can share certain site features including access, service, utilities.
- Charlie T. explained purpose behind filling of the pit.
    - Cost effective- saves money
    - Mercy has received permits from the Maine DEP and US Army corps of Engineers
- Renderings of the Hospital Expansion onto the existing building were shown and reviewed with key points made about continuity of architecture etc. The proposed expansion will include new ED with dedicated entrances for Ambulances and patients.
- Rendering of the proposed ASC and its positioning within the former gravel pit.

- Melissa S provided a brief overview of Mercy's community outreach and specific discussions with Portland Trails. Current themes under discussion include:
    - Trail System enhancement, both on campus and off campus.
    - Community gardens
    - Waterfront enhancement for activating use
    - Neighborhood association meetings
- SRB provided brief comments about other site features include where utilities are located, VRAP aspects and ash, and the stormwater management pond.

Public Comment

Mr. and Mrs. Parsons offered numerous questions including:

- What was Portland Trails reaction to the filling of the pond? Mercy responded that PT is not supportive of filling the pond but have acknowledged they will work with Mercy on mitigation strategies.
- The pond provides holistic value to the campus, so what can Mercy develop to maintain those attributes?
- There were comments regarding the services that will be transferred to the Fore River. Does Mercy intend to eliminate any services currently offered at State Street? Charlie T. replied that all services offered at State Street will move to the Fore River, although delivery is changing all the time. Fewer beds are required at the new campus, simply because so many services now no longer need overnight stay at the Hospital.
- There were questions and comments regarding architecture, energy efficiency, solar applicability, air quality. Ellen B. of SMRT offered incite to these topics. The Mercy buildings will be specifically designed for these criteria; solar is not currently contemplated for the site.
- It might be worthy of obtaining some old photos of the site to better understand the genesis off the gravel pit.
- Brief mention of the Fore River Parkway trail and the underpass beneath the Parkway as the trail extends to Frederick Street. Not a pleasant little length of the trail, due to poor visibility, etc. this might be an area to focus some enhancement to make it more comfortable for users.

The meeting adjourned around 6:30 pm.

GORRILL PALMER

707 Sable Oaks Drive, Suite 30
South Portland, Maine 04106
207.772.2515

Att. FF

February 12, 2020

Mr. Matthew Grooms
Planning and Development Department
City of Portland, Maine
389 Congress Street
Portland, Maine 04101-3509

Subject: Application for Level III Site Plan Application
Northern Light Mercy Hospital – Fore River Campus Consolidation
Project #: PL-000570-2019
Supplemental Information Prior to Public Hearing

Dear Matt:

We are pleased to provide the following supplemental information associated with the Staff and Planning Board comments we have received thus far on the Mercy Hospital Phase 2 Expansion project and as discussed at our January 28, 2020 meeting with the Planning Board. Our team has prepared materials related to the following topics outlined under your next steps of action for the project:

1. **Updated TDM Plan** – Mercy Hospital and Gorrill Palmer are currently in the process of completing updates to the Transportation Demand Management Plan to bring the plan up to date with current City standards. The work will continue over the next few weeks as additional information gathering and coordination is completed. The goal is to have an updated Draft TDM document submitted to the City by February 18, 2020. Understanding that the City review and any further revisions to the TDM will likely require additional time that may extend beyond the Planning Board Public Hearing, we are requesting that the finalization of the Mercy TDM be made a condition of approval tied to the issuance of a Certificate of occupancy for the ASC building.

2. **Updated Master Plan Document** – The accompanying Contract Zone Compliance document has been updated to reflect the Planning Board deliberations and Mercy's commitment to preserving and maintaining the proposed wet pond and the pedestrian trails in perpetuity as part of the overall master plan for the campus. The updated Figure 1 of the document reflects long term programming on the campus to include:

   - Future vertical expansion of the Hospital;
   - Future expansion of the proposed Ambulatory Surgical Center (ASC);
   - Future structured parking within identified locations north of the ASC and/or north of the MOB (Medical Office Building);
   - Future outpatient facilities located off the Southerly drive/entrance; and

- Preservation of the Proposed Phase 2 wet pond and its surrounding landscape zones dedicated to pedestrian access and recreational use.

Mary Costigan of Bernstein Shur continues to coordinate with the City's Corporation Counsel Office on the documentation to memorialize Mercy's commitment. The document is expected to be ready for review the week of February 10th. We trust that Corporation Counsel will share this with you and advise you of the status. Figure 5 has also been updated based on the City staff comments.

3. Responses to Staff Comments

- **Pedestrian Circulation** – The accompanying Figure 5, *Master Plan Pedestrian Access Routes*, that supports the CZA compliance document, has been updated to reflect the following City Staff comments:

  - Crosswalk at the Northerly Driveway – This has been added to the figure and the plans with the understanding that the crosswalk will not be installed unless a METRO Bus Stop location is established on the north side of the driveway. Currently, there is no sidewalk to the north side of the driveway, thus precluding the need for a driveway crosswalk, unless the bus stop is created. The positioning of the bus stop remains subject to ongoing METRO planning efforts associated with upcoming route changes and enhancements. Mercy has a tentative meeting scheduled with Greg Jordon of METRO the week of February 10th to discuss their ongoing Service Route updates.

  - Bike Markings Along the Fore River Parkway – Figure 5 has also been updated to include pavement markings along the Parkway from the south driveway, north to the northerly driveway. Bicycle path markings will be painted along the existing road shoulder up to and thru the right turn lane into the north driveway.

  - Crosswalk at the ASC/South D/W Intersection – A crosswalk connecting the staff parking lot to the ASC driveway will be provided as shown on the updated C-3.1 Overall Site Plan and C-3.2 The Site Wayfinding plans.

  - Crosswalk Maintenance – Maintenance of the existing crosswalk surface material at the southerly driveway crosswalk has been referenced by City staff. The original thermoplastic material has deteriorated and needs to be replaced. We propose to remove the thermoplastic material and replace with pavement paint marking that is compliant with City and MDOT standards.



South D/W Crosswalk

- Campus Access Routes/Wet Pond Pedestrian Path – the latest site plans and landscape plans from SMRT include the installation of a pedestrian pathway partially along the perimeter of the wet pond and connecting to the rear of the existing hospital and over to the existing sidewalk that has circled the existing pond since the original site construction. This naturalized pathway will contain the following aesthetic/recreational enhancements:
  - Stone dust surface;
  - Field Stone wall alcoves with bench seating overlooking the wet pond;
  - Several boardwalks extending over drainage paths to allow close connectivity to the water; and
  - A variety of landscape seed mixes to provide coverages that span from mowed lawn around the development edges to naturalized seed mixes that will offer a high quality natural environmental around the pond, seasonal color variation and visual interest throughout the year. These areas will extend along the west side of the ASC parking lots and building, while covering over an acre of area.

  The pathway is expected to be maintained year-round to provide access for ASC staff to the Hospital ground level entrances.

- Rectangular Rapid Flashing Beacon (RRFB) installation at the existing Fore River Parkway crosswalk at the Mercy northerly driveway – City staff have requested the installation of a RRFB at this location. Existing conditions include the following:
  - There is an existing 8' wide painted crosswalk at this location to cross from the existing Mercy Sidewalk over to the Fore River Parkway Trail.
  - There is an existing 8' wide raised divider island that functions as a respite zone for pedestrians during the crossing.
  - Sight distances in each direction exceed 400 feet.
  - The posted speed on the Parkway is 40 MPH
  - The signaled intersection of Mercy's southerly entrance and the parkway is located approximately 850 LF south of the crossing. The signalized intersection contains push button activated signal heads and a pedestrian crossing phase for Trail users crossing the road at this location.
  - There is a set of RRFB at a pedestrian crossing of the Parkway off the end of Frederick Street, located approximately 1,500 LF north of the Mercy driveway. This pedestrian crossing connects the sidewalk system off the end of Frederick Street to the Fore River Parkway Trail. This location is also identified as a METRO bus stop location.
  - Based on the existing conditions, Gorrill Palmer suggests that prior to Mercy Hospital participating in the installation of the RRFB at the Northerly driveway pedestrian crossing, the City of Portland complete the following actions:
    - Examine the accident history along the Parkway to determine whether there are any high accident locations/conditions, per MaineDOT criteria.

- Contact the MaineDOT for authorization to install the RRFB along the Parkway;
- Contact the Portland Trails representatives to solicit their input as to the need/desire for the RRFB installation at this proposed location.
- Verify that the installation of RRFB will not result in conditions that may lead to increased accident issues including the proclivity for rear end collisions that have resulted at other locations where RRFBs have been installed.

It is the opinion of Gorrill Palmer Consulting Engineers that the placement of a RRFB at the Mercy Northerly driveway is not warranted based on the existing crossing conditions along the parkway. There are already two other signaled pedestrian crossings to both sides of this location and adding an RRFB will not substantially improve safety, while posing the risk that vehicular movements may actually be less safe. We believe it is also necessary to better understand the METRO transit bus routing planning and programming before firm consideration and action is taken for the RRFB installation.

4. **Updated Construction Management Plan (CMP)** – Consigli has prepared the accompanying updated CMP to address dewatering and other supporting plans in accordance with the City's CMP template.

5. **Lighting** – SMRT has completed the site lighting and photometrics plans accompanying this letter. The proposed area lighting will consist of the following:

- Area lights – RA17 and RA25 Era® LED fixture from Kim Lighting
- Bollard lights – Pavilion Round Bollard PA7R by Kim Lighting



Catalog cuts for each of these fixtures have been previously uploaded to Eplan.

6. **Waiver Requests** – As outlined in the January 28, 2020 Planning Board Staff report, Mercy is requesting several waivers for Planning Board consideration. First, we have modified the latest site plans to increase the provided bicycle spaces to the required total of 58 bike spots on the site. We have placed bike racks

at several locations around the campus for ease of use and proximity to building entries. A waiver for the bicycle parking is no longer requested as we believe we are compliant with the Code requirements for bike parking on the Campus.

The first request for a waiver of the Flooding standards remains applicable and we understand that both Staff and the Planning Board seem supportive of the request. No further information will be provided.

Our remaining waiver request pertains to our request to omit curb and sidewalk along the Fore River Parkway between the southerly and northerly driveways. In accordance with Section 14-506 of the Code we offer the following evidence that at least the two following conditions outlined in this section exist at the site:

Applicable Condition

"A safe alternative-walking route is reasonably and safely available, for example, by way of a sidewalk on the other side of the street that is lightly traveled."

Supporting Evidence:

There is an existing paved sidewalk that extends from the southerly driveway to the northerly driveway, within the site. This sidewalk is maintained by Mercy Hospital and it runs within the front yard area of the site, while passing by the ground level hospital entrance and over to the south side of the northerly driveway. Crosswalks connecting this sidewalk to the Fore River Parkway Trail are located at both the Southerly and northerly driveways. Secondly, the Fore River parkway trail is located on the waterfront side of the Parkway. The Parkway Trail begins at the Congress Street intersection and generally runs the length of the Parkway from Congress Street to the Veterans Bridge. This 8'-10' multi-use path crosses the Parkway at Mercy's southerly signalized driveway where it extends to the south to the Veteran's Bridge. The Parkway does not contain any further sidewalks on Mercy's side of the road. The existing bridges just north of the Mercy site, preclude the ability to place a sidewalk on the east side of the Parkway from Mercy's northerly driveway to the I-295 interchange ramps.

Applicable Condition

"Runoff from the development site or within the street does not require curbing for stormwater management."

Supporting Evidence:

The Fore River Parkway was constructed by the MaineDOT without curbing along the roadway for the section of road between Mercy's southerly and northerly driveways. Drainage is accomplished by several catch basin field inlets positioned in the lower grassed/landscaped areas off the roadway edge of pavement. The structures on Mercy's side of the road serve to also collect water runoff from Mercy's front yard area, including the sidewalk identified above. The installation of curbing along the Mercy road frontage would require significant modifications for drainage.

Other Topics

Street Trees: Gorrill Palmer and Mark Johnson of SMRT have exchanged messages with Jeff Tarling regarding the installation of new tree plantings along the Parkway. We expect to meet with Mr. Tarling during the week of February 10th in order to review new planting locations and species selection. We can advise the planning staff what the outcome of these discussions are upon completion of our coordination with Mr. Tarling.

Mechanical Equipment Screening for ASC: As discussed at the Planning Board Workshop, Mercy agrees to provide the rooftop HVAC Equipment screening measures on the ASC. Unless required by staff no further information will be provided on this item.

Building Signage: Mercy continues to work on updates to the signage materials and the team is continuing to coordinate with City Staff, including the urban designer on the signage package. Mercy is seeking a condition of approval that will allow continued coordination and staff level review as the site signage undergoes adjustments over time.

Portland Trails: Mercy has conducted several meetings with Portland Trails Staff and we have discussed the landscape enhancements proposed around the wet pond. Mercy's team looks forward to finalizing the easement agreement permanently preserving the proposed pond as part of the overall pedestrian access easement held by Portland Trails. Mercy also looks forward to a continued dialogue with Portland Trail's Staff as Mercy explores more ways to enhance the campus experience for patients, visitors, staff and the general public.

METRO Bus Route: Mercy will continue to work with Greg Jordan and METRO as they refine and formulize their updated transit routing services for the peninsula. Mercy is committed to assisting with the placement of transit stops along Mercy's Fore River Parkway frontage. We continue to update City staff as meetings occur with METRO on this topic.

***Final Plan Documents*:** The site plans have been updated in full and will be uploaded to Eplan for final staff review and inclusion in the Public Hearing materials for consideration by the Planning Board. These plans include the civil plans, the landscape plans and the updated Building elevations.

Summary

On behalf of the Mercy team, we extend our appreciation to City Staff for your cooperation and assistance with the review process. We look forward to the upcoming Public Hearing and Planning Board consideration for an approval action at that time. It is Mercy's goal to immediate submit building permit applications upon Planning Board approval. The current schedule contemplates a sitework construction start in mid-March to allow foundation construction to begin in May or June of 2020.

If you have any questions regarding the materials being submitted, please contact this office.

Sincerely,

GORRILL-PALMER

Stephen Bushey, PE
Senior Associate
Phone: 207-772-2515 x286
sbushey@gorrillpalmer.com

Attachments

c: Nick Munro, Northern Light℠ Mercy Hospital
Ed Gilman, Northern Light℠ Mercy Hospital
Mary Costigan, Bernstein Shur
Ellen Belknap, SMRT

U:\3257.04_Mercy Hospital_Expansion_DD_Permits\P Applications\Local\Level III site plan\LOR\LOR#4 2020.02.06\lor_4_grooms_addl_info_2020.02.12 final.docx

August 5, 2019

Mercy Hospital Fore River Expansion Construction Management Plan

Prepared For: Portland Department of Planning & Urban Development Department

Project Proponent: Northern Light Health - Mercy Hospital Fore River

Construction Manager: Consigli Construction

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Construction Principles

The purpose of this Construction Management plan is to identify, mitigate and plan for all potential impacts throughout the duration of building the Mercy Hospital Fore River campus expansion. Northern Light Health (Mercy Hospital) and Consigli Construction will strive for a seamless, incident free project by means of typical practices used to ensure that public safety and community are at the forefront of priorities.

Throughout this CM plan, we will refer to specific examples of potentially invasive construction practices, traffic control concerns, neighboring building considerations and public safety hazards; as well as measures in which these items will be managed, mitigated and avoided at all cost throughout the project. Along with our subcontractor team members, it is imperative that we have complete participation from all parties affiliated with the project to maintain our strict safety requirements and ensure a quality building for Northern Light Health (Mercy Hospital).

Northern Light is in the process of consolidating their services and facilities to the Fore River campus. Consigli Construction has been commissioned to aid in the development of a 50,000 square foot 4-story addition to the existing hospital that will allow for new emergency department, nuclear imaging, observations suite and inpatient units. In addition, Northern Light Health will construct a new 35,000 square foot 2-story standing ambulatory surgery center to accommodate wound care, endoscopy/GI and outpatient surgery. A 12,000 square foot renovation of the adjacent Medical Office Building for imaging, pain, cardiology and administrative spaces is also planned.

Consigli has planned the project's schedule, site logistics and safety protocols that will be covered in this report with graphics and narratives. This CM plan will be updated to meet the needs of the project, community and the city as the project progresses. We aim to deliver a safe and quality project to Northern Light Health, their employees and the City of Portland by means of communication, teamwork and stewardship.

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Construction Administration and Communication

Consigli Construction will be the Construction Manager on site throughout the duration of the project. As such, there will be a dedicated team of individuals tasked with managing quality, schedule, site logistics and safety. These personnel will be stationed on site to manage and enforce the proposed CMP with all associated subcontractors and material vendors.

Dave Thomas – Project Executive
207-650-8665, dthomas@consigli.com

Chad Whalen – Senior Project Manager
207-446-3341, cwhalen@consigli.com

Brian Campbell – Project Superintendent
207-754-0820, bcampbell@consigli.com

Larry Chouinard – General Superintendent
207-650-5204, lchouinard@consigli.com

Site Communication

Communication will be imperative throughout construction to keep the public informed of the expected changes to site logistics as the project progresses. Site signage will be prominently displayed to show vehicular and pedestrian access around the site.

Continuous reporting and updating of the CMP will be provided for the following activities:

1) Material deliveries, including notice of any oversized loads that may impact public traffic
2) Requests for upcoming off-hours work including weekends and holidays
3) Notice of any upcoming activities that may produce strong noise, vibration or dust that could adversely affect the neighboring communities.

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Construction Schedule

Project Work Hours

Construction work hours will be in accordance with section 17-18 of the City of Portland Code of Ordinances.

The project site is located within zoning group C26 – Due to Mercy Hospital's location on Fore River Pkwy, this project will have minimal impact to buildings used for residential purposes. Work hours are planned for Monday – Friday 7:00am – 6:00pm. Should work extend into weekends or holidays, the use of heavy equipment will be kept within the time constraints of the ordinance.

Project Schedule/Logistics

The project is anticipated to be approximately 20 months in duration. Beginning in March 2020, the project will be turned over to Northern Light in November 2021.

Regarding scheduled work to take place within public streets and sidewalks, this work will comply with Section 25-129 – Noise, dust and debris of the City of Portland Code of Ordinances. not Work outside of Mercy Hospital property is not anticipated at this time.

Material Deliveries

The construction projects will require coordination of material deliveries throughout the duration of the project. The following logistical plans show the planned lay-down areas, truck routes and safety protocols that will be in place prior to the start of construction.

1. All construction traffic will enter and exit the site through Fore River Pkwy by the south lot (see attached PDF for reference). This will allow for all construction vehicles to pull straight onto the site without impacting the public right away.

Material Storage and Laydown Areas

All construction staging, laydown and temporary storage will be within the project limits on Mercy property and secured by temporary fencing. Designated areas for storage will allow the site to remain accessible by incoming trucks without causing a queuing affect outside of the fence.

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Contractor Parking

At the peak of construction activity, it is anticipated that up to 150 tradespeople will be on site working various trades associated with the building. Tradespeople will be required to park in designated areas within Mercy Hospital property. No offsite contractor parking is anticipated. (See attached site logistics plan)

Fire Protection for Construction Activities

Consigli and its subcontractors will comply with Mercy Hospital safety protocols and will execute the following measures to provide a safe and secure work place:

1) On Site Fuel Storage: The requirement for different flammable liquids will be required throughout construction. A free standing, 30-minute fire-rated enclosure will be built to safely and securely store all flammable liquids and gases. Fueling trucks will be used as needed but under no circumstances be allowed to be parked or stored on site for any extended period.

2) Means of Egress: The construction projects will be permanently equipped with (2) 2-way stair assemblies for means of egress. Our team will also be connecting into the existing emergency egress stairwells in the main hospital. These stairs will be identified with temporary signage throughout construction indicating the floor level and exit path direction

3) Good Housekeeping: Consigli Construction will provide necessary dumpsters for the removal of debris from the site. All subcontractors are responsible for the daily clean-up of their work areas to ensure that no materials or tools are left out over night that could pose a hazard to the building. Daily safety walks by Consigli will be utilized to ensure that all working floors are equipped with an inspected fire extinguisher and clear means of egress in the event of an emergency.

4) On-site Security: The project site will be secured at the end of everyday by means of a temporary, post driven construction fence and scrim. Lockable gates will be located at various locations for site access.

5) Rapid Communication: Evacuation notification will be provided by means of 2-way radios/cellular devises as well as strategically positioned air horns. Upon evacuation of the building all project personnel will report to the muster point location where the

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Consigli and all subcontractor foremen will perform accountability checks. Consigli field staff will then be dispatched to all project entry points. Upon arrival of the first responders to the site Consigli will provide and incident briefing.

Public Safety

The construction process will minimally interact with public traffic throughout the duration of the project. Material deliveries have the potential to have minor impact to typical public activity.

Noise

Construction activities throughout the project will create noise that leaves the project site. It is the intent of the project team to limit the exposure to the noise by following section 17-18 of the City of Portland Code of Ordinances. This project site is not located within 500 feet of buildings classified as residential.

Work related to earthwork, foundations and structural steel will likely be the loudest activity experienced during construction. Most of this work will take place in 2020. Recently, many local projects have utilized similar means of construction to much success around Portland.

Dust Control/Air Quality

Maintaining an environmentally conscious project site will be a priority for the project team to ensure safety not only for the neighboring communities but also for the construction workers on site day after day. All soils and debris will be kept within the project limits following Maine DEP erosion control BMPs:

1) Erosion controlled construction entrances
2) Tarped dump trucks leaving the site with soil/debris
3) On-going sidewalk and street cleaning activities
4) The installation of temporary, compacted roads within the job site
5) Using wetting agents to control dust
6) Covering stock piles when material stored is to be piled for long periods of time
7) Smoking will not be allowed on the job site

DRAFT

Vibration Monitoring

Many construction practices required for this project may result in ground vibration waves that transmit to nearby buildings. Prior to any potential vibration causing activities taking place a pre-construction survey will be conducted to review and document existing conditions for structures on Mercy Hospital property.

Construction activities such as vibratory compaction and support of excavation will be monitored diligently by a third-party monitoring company within Mercy Hospital property boundaries.

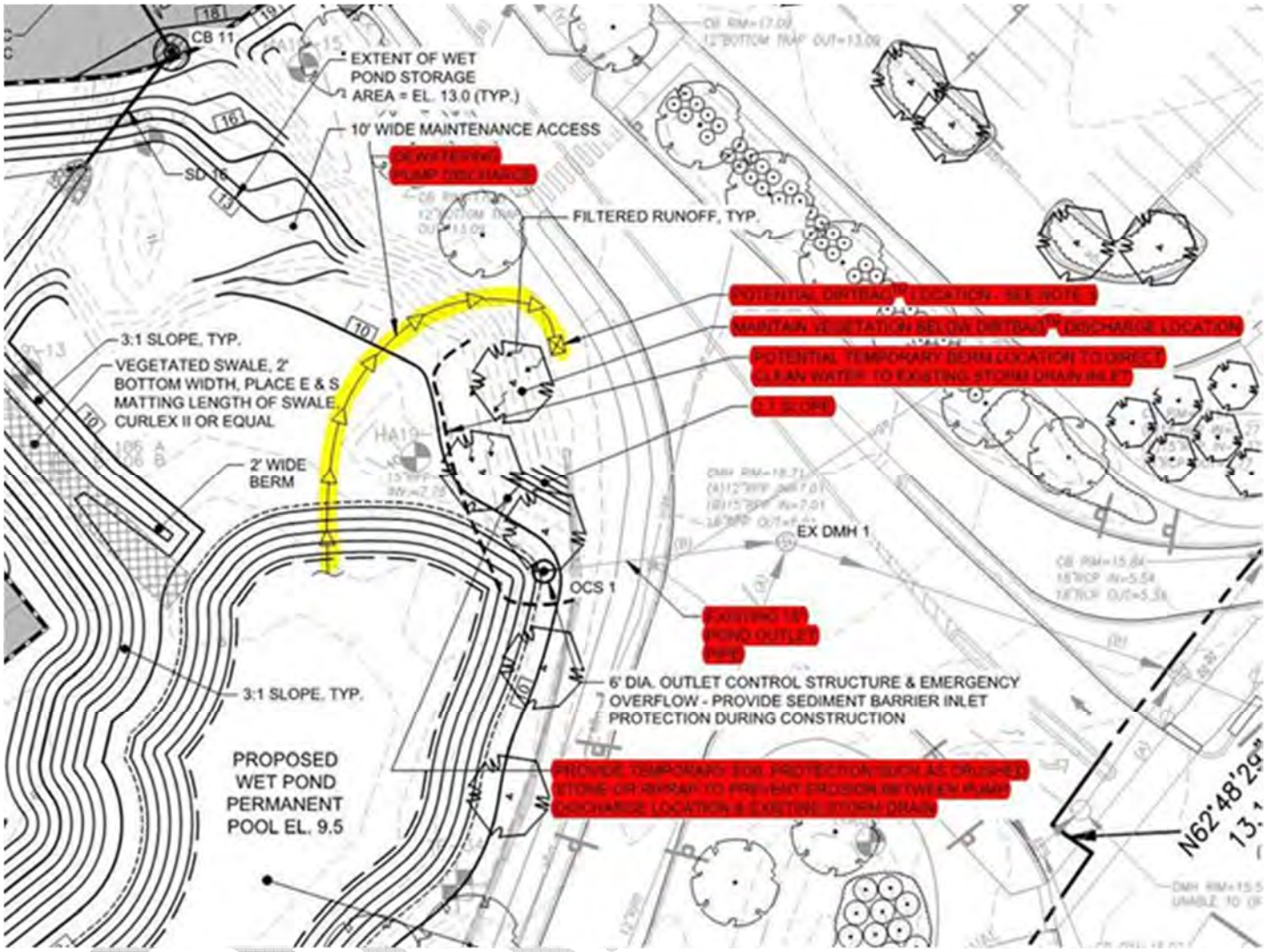
Traffic Control

The main access point to the construction project will be through the private roads located on the Mercy Hospital campus. All efforts will be made to minimize the impact to traffic flow and patterns to the patients and staff of Mercy Hospital.

Dewatering operation

The projects dewatering operation will be as shown in the below copy from the engineered plans and will not result in any groundwater being introduced into the cities stormwater management system.

DRAFT


CB 11
EXTENT OF WET POND STORAGE AREA = EL. 13.0 (TYP.)
10' WIDE MAINTENANCE ACCESS
SD 16
FILTERED RUNOFF, TYP.
3:1 SLOPE, TYP.
VEGETATED SWALE, 2' BOTTOM WIDTH, PLACE E & S MATTING LENGTH OF SWALE, CURLEX II OR EQUAL
2' WIDE BERM
EX DMH 1
OCS 1
6' DIA. OUTLET CONTROL STRUCTURE & EMERGENCY OVERFLOW - PROVIDE SEDIMENT BARRIER INLET PROTECTION DURING CONSTRUCTION
3:1 SLOPE, TYP.
PROPOSED WET POND PERMANENT POOL EL. 9.5

Location Map

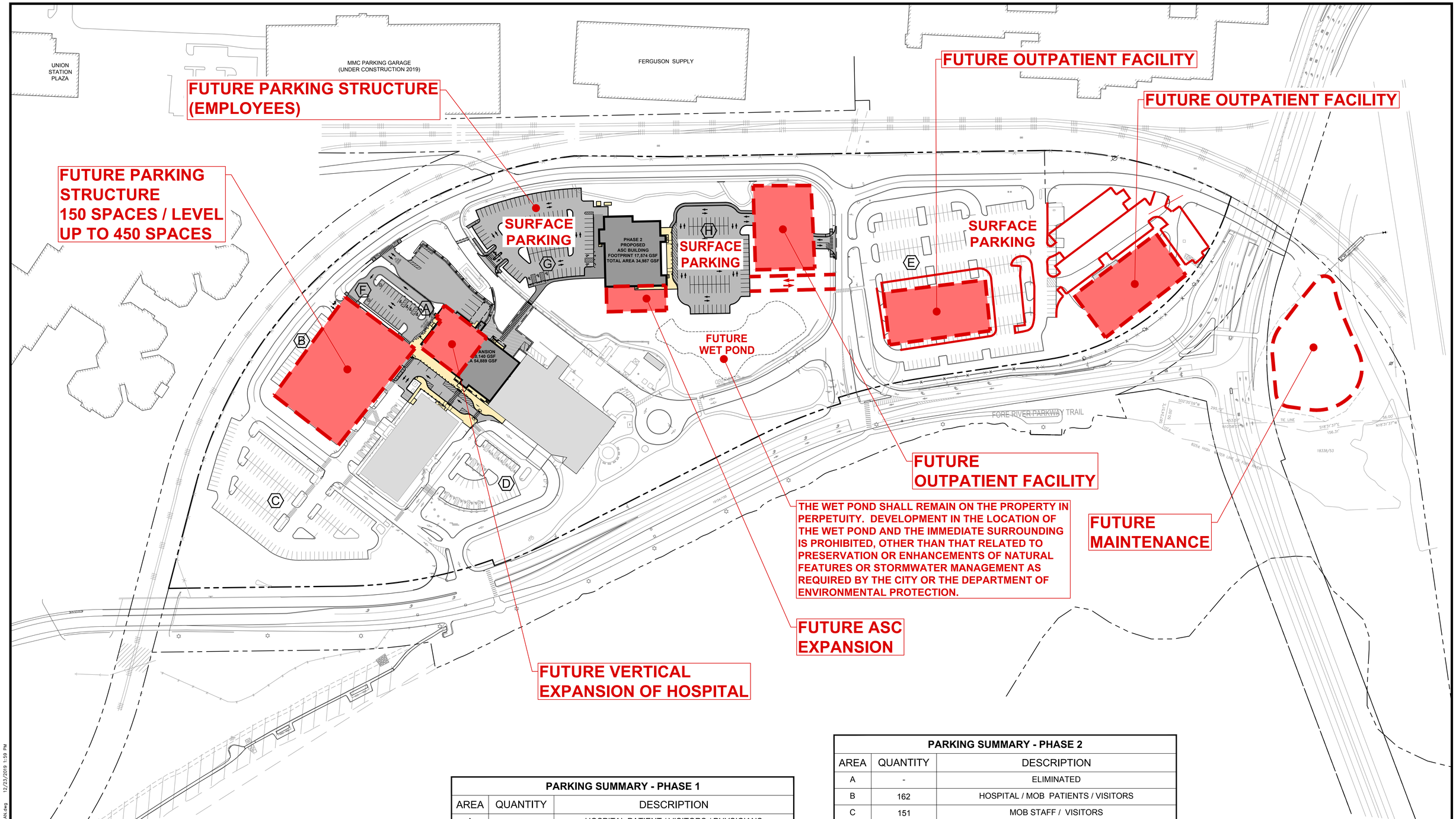
Figure No. 1



MERCY EXPANSION
PORTLAND, MAINE

Design:	ET	Scale:	NONE
Draft:	LAN	Date:	FEB 2017
Checked:	RED	File Name:	3257-TRAFF.dwg

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207.772.2515



PARKING SUMMARY - PHASE 1

AREA	QUANTITY	DESCRIPTION
A	105	HOSPITAL PATIENT / VISITORS / PHYSICIANS
B	162	MOB PATIENT / VISITORS
C	151	MOB STAFF / VISITORS
D	34	HOSPITAL / MOB PATIENTS
E	310	HOSPITAL STAFF
TOTAL	762	

PARKING SUMMARY - PHASE 2

AREA	QUANTITY	DESCRIPTION
A	-	ELIMINATED
B	162	HOSPITAL / MOB PATIENTS / VISITORS
C	151	MOB STAFF / VISITORS
D	34	HOSPITAL / MOB PATIENTS
E	310	HOSPITAL / MOB / ASC FACILITY STAFF
F	24	HOSPITAL PATIENTS / VISITORS / AMBULANCE
G	103	HOSPITAL / ASC FACILITY STAFF / SERVICE
H	73	ASC FACILITY PATIENTS / VISITORS
TOTAL	857	

NORTH

GRAPHIC SCALE

75 0 37.5 75 150

(IN FEET)

1 inch = 75 ft.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE STEPHEN R. BUSHEY 11.22.19 REGISTERED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
1	11.04.19	PREPARED FOR L.O.R. #1 & SUBMITTED TO CITY

Issued For	Date	By
CONSTRUCTION DOCUMENTS FOR PRICING ONLY	11.22.19	SRB
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB | Draft: CDD | Date: AUG. 2019
Checked: SRB | Scale: NTS | Job No.: 3257.04
File Name: 325704-MASTER PLAN.dwg

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Drawing Name: Master Plan – Phases
Project: Fore River Campus Consolidation, Portland, Maine
Client: Northern Light Mercy Hospital, 144 State Street, Portland, Maine 04101

Drawing No. FIG. 1

U:\3257.04_Mercy Hospital_Expansion_DD_Permits\STANTEC\civil\cadd\permit\dwg\325704-MASTER PLAN.dwg 12/23/2019 1:59 PM

UNION STATION PLAZA

MMC PARKING GARAGE (UNDER CONSTRUCTION 2019)

FERGUSON SUPPLY

EXISTING PERIMETER ACCESS ROAD

PAN AM RAILWAY

TYSON FOODS

PROPOSED CROSSWALK RAMPS & SIDEWALK CONNECTIONS

COUNTY WAY

CUMBERLAND COUNTY JAIL

BIKE RACK

STAFF PARKING

PHASE 2 PROPOSED ASC BUILDING FOOTPRINT 17,574 GSF TOTAL AREA 34,987 GSF

PATIENT / VISITOR PARKING

PATIENT / VISITOR PARKING

PHASE 2 HOSPITAL EXPANSION FOOTPRINT 20,140 GSF TOTAL AREA 54,889 GSF

PATIENT / VISITOR PARKING

PHASE 1 EXISTING MERCY HOSPITAL 4 STORY BRICK BUILDING FOOTPRINT - 37,566 GSF TOTAL AREA - 138,099 GSF

PHASE 1 EXISTING MEDICAL OFFICE BUILDING 1 STORY BRICK FOOTPRINT - 20,047 GSF TOTAL AREA - 62,186 GSF

STAFF / PATIENT PARKING

BIKE RACK

BIKE RACK

STAFF PARKING

MAINTENANCE FACILITY

EXISTING SNOW STORAGE FACILITY

SOUTH OPEN SPACE

FORE RIVER TRAIL

EXISTING PUSH BUTTON FLASHING PEDESTRIAN CROSSING

EXISTING OVERLOOK WITH BENCHES

EXISTING THERMOPLASTIC MARKINGS TO BE REMOVED AND REPLACED WITH PAINTED PAVEMENT MARKINGS IN ACCORDANCE WITH CITY STANDARDS

FORE RIVER MUD FLATS

FUTURE METRO BUS STOP

NATURE PATH

EX. FORE RIVER TRAIL - 10' WIDE, SHARED USE

SEE ENLARGEMENT PLANS FOR BIKE LANE PAVEMENT MARKINGS ALONG FORE RIVER PARKWAY

FORE RIVER

FORE RIVER MUD FLATS

INSTALLATION OF RECTANGULAR RAPID FLASHING BEACONS SUBJECT TO MDOT REVIEW AND COORDINATION BY THE CITY

FUTURE CROSSWALK SUBJECT TO METRO BUS STOP LOCATION
MERCY TO INSTALL CROSSWALK, INCLUDING THE FOLLOWING MODIFICATIONS:

- INSTALL ADA COMPLIANT RAMPS AT EACH END
- MODIFY EXISTING CENTER ISLAND BY CURB REMOVAL / REPLACE AND PAVEMENT PLACEMENT
- PROVIDE PAINTED PAVEMENT MARKINGS PER CITY STANDARDS
- PROVIDE PEDESTRIAN CROSSING SIGNAGE
- CONNECT CROSSWALK / SIDEWALK TO FUTURE METRO BUS STOP / SHELTER

EXISTING BUS SHELTER TO BE REMOVED / RELOCATED UPON METRO ROUTE UPDATES

NORTH OPEN SPACE

FUTURE METRO BUS STOP

FUTURE PEDESTRIAN CONNECTION PENDING METRO

EXISTING OVERLOOKS WITH BENCHES

FUTURE PEDESTRIAN CONNECTION

VETERANS MEMORIAL BRIDGE (FORE RIVER) U.S. ROUTE ONE

TYPICAL STAFF / PEDESTRIAN ACCESS ROUTE TO / FROM PARKING TO BUILDINGS

TYPICAL ACCESS ROUTES TO OPEN SPACE

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE

75 0 37.5 75 150

(IN FEET)
1 inch = 75 ft.

STATE OF MAINE
STEPHEN R. BUSHEY
02.06.20
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
4	02.06.20	PREPARED FOR L.O.R. #4 & SUBMITTED TO CITY
3	01.30.20	REVISED / RESUBMITTED CONSTRUCTION DOCUMENTS
2	01.29.20	REVISED / RESUBMITTED TO DEP – L.O.R. #2
1	11.04.19	PREPARED FOR L.O.R. #1 & SUBMITTED TO CITY

Issued For	Date	By
CONSTRUCTION DOCUMENTS FOR PRICING ONLY	11.22.19	SRB
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB	Draft: CDD	Date: AUG. 2019
Checked: SRB	Scale: NTS	Job No.: 3257.04

File Name: 325704–MASTER PLAN.dwg

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Drawing Name: Master Plan – Pedestrian Access Routes

Project: Fore River Campus Consolidation
Portland, Maine

Client: Northern Light Mercy Hospital
144 State Street, Portland, Maine 04101

Drawing No. FIG. 5

U:\3257.04_Mercy Hospital_Expansion_DD_Permits\STANTEC\civil\cadd\permit\dwg\325704–MASTER PLAN.dwg 2/6/2020 6:14 PM

SITE DEVELOPMENT PLANS

FOR

Northern Light℠ Mercy Hospital

FORE RIVER CAMPUS CONSOLIDATION

PORTLAND, MAINE

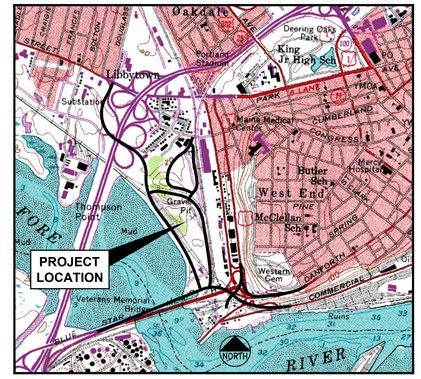
JANUARY 2020

CONSTRUCTION DOCUMENTS / PERMIT APPROVAL

OWNER	TAX MAP-BLOCK-LOT NUMBER
MERCY HOSPITAL	73-A-1
MERCY HOSPITAL	73-B-2 (MUD FLATS)
MERCY HOSPITAL	73-B-7
MERCY HOSPITAL	74-A-1
MERCY HOSPITAL	74-A-2
MERCY HOSPITAL	74-B-3 (MUD FLATS)
MERCY HOSPITAL	74-B-11
MERCY HOSPITAL	74-B-12
MERCY HOSPITAL	75-B-30 (MUD FLATS)
MERCY HOSPITAL	74A-A-1 (MUD FLATS)
MERCY HOSPITAL	74A-A-2 (MUD FLATS)
MERCY HOSPITAL	75-A-3
MERCY HOSPITAL	75-B-4
MERCY HOSPITAL	75A-A-1 (MUD FLATS)
MERCY HOSPITAL	75A-A-17
MERCY HOSPITAL	76-B-33
MERCY HOSPITAL	76A-B-1 (MUD FLATS)
MERCY HOSPITAL	76A-B-2

CURRENT OWNER / APPLICANT

MERCY HOSPITAL d/b/a Northern Light Mercy Hospital
144 STATE STREET
PORTLAND, MAINE 04101
CONTACT: NICK MUNRO - FACILITY PROJECT MANAGER
NORTHERN LIGHT HEALTH
PORTLAND OFFICE - 207.553.6633
cell - 207.232.3285
nmunro@northernlight.org



LOCATION MAP
N.T.S.

INDEX

C-1.0	COVER SHEET
C-1.1	GENERAL NOTES & LEGEND
C-2.0A	EXISTING CONDITIONS - 1 OF 2 (BY OWEN HASKELL, INC.)
C-2.0B	EXISTING CONDITIONS - 2 OF 2 (BY OWEN HASKELL, INC.)
C-2.1	OVERALL EXISTING CONDITIONS & REMOVALS PLAN
C-3.0	OVERALL CAMPUS MAP
C-3.1	OVERALL SITE LAYOUT PLAN
C-3.2	WAYFINDING PLAN
C-4.0	OVERALL GRADING, DRAINAGE & EROSION CONTROL PLAN
C-4.1	DETAILED GRADING PLAN
C-5.0	OVERALL UTILITY PLAN - NORTH
C-7.0	SITE DETAILS
C-7.1	SITE DETAILS
C-7.2	STORM DRAIN & UTILITY DETAILS
C-7.3	STORM DRAIN & UTILITY DETAILS
C-7.4	STORM DRAIN & UTILITY DETAILS
C-7.5	EROSION CONTROL DETAILS
C-7.6	EROSION CONTROL NOTES & SEEDING PLAN
C-8.0	WET POND PLAN & CROSS SECTIONS
C-8.1	WET POND DETAILS
C-9.0	SITE SECTIONS
C-9.1	SITE SECTION FROM MMC PARKING GARAGE TO FORE RIVER
C-10.0	STORM DRAIN PROFILES
C-11.0	UTILITY PROFILES
W-1	CURRENT CONDITIONS LANDCOVER MAP
W-2	POST-DEVELOPMENT LANDCOVER MAP
W-3	POST-DEVELOPMENT WATERSHED MAP
WQ	WATER QUALITY MAP
LP101	POND WALK TRAIL PLANTING PLAN - BY SMRT
LP102	POND WALK TRAIL SEEDING PLAN - BY SMRT
LP501	POND WALK TRAIL PLANTING DETAILS - BY SMRT
LP502	POND WALK TRAIL PLANTING DETAILS - BY SMRT

I HEREBY ACKNOWLEDGE THAT THESE PLANS AND SPECIFICATIONS WERE PREPARED UNDER MY DIRECT SUPERVISION, AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MAINE AND THAT I AM COMPETENT TO PREPARE THIS DOCUMENT.

UTILITIES

WATER:
PORTLAND WATER DISTRICT
22 DOUGLASS STREET
P.O. BOX 3553
PORTLAND, MAINE 04104
207.761.8310
CONTACT: ROBERT BARTELS
rbartels@pwd.org

SEWER:
CITY OF PORTLAND
PUBLIC SERVICES DIVISION
212 CANCO ROAD
PORTLAND, MAINE 04103
207.874.8840
CONTACT: KEITH GRAY / BRAD ROLAND

ELECTRIC:
CENTRAL MAINE POWER
162 CANCO ROAD
PORTLAND, MAINE 04103
207.842.2367
CONTACT: JAMIE COUGH

TELEPHONE:
CONSOLIDATED COMMUNICATIONS
5 DAVIS HILL FARM ROAD
PORTLAND, MAINE 04103
207.797.1866
CONTACT: PATRICK MORRISON

NATURAL GAS:
NORTHERN UTILITIES / UNITIL
1075 FOREST AVENUE
PORTLAND, MAINE 04103
207.797.8002, EXT. 6220
CONTACT: CRAIG CAMPBELL / SCOTT CARPENTER
207.650.6716

CABLE TV:
TIME WARNER CABLE / SPECTRUM
115 JOHNSON ROAD
PORTLAND, MAINE 04102
207.253.2324
CONTACT: MARK PELLETIER

DIG SAFE:
CALL BEFORE YOU DIG
DIAL 811 (AT LEAST 72 HRS IN ADVANCE)

PERMITS / APPROVALS

TYPE:	GOVERNING BODY:	STATUS/DATE ISSUED:
LOCAL		
SITE PLAN PERMIT:	CITY OF PORTLAND PLANNING AUTHORITY CITY HALL, CONGRESS STREET PORTLAND, MAINE 04103 207.874.8608 CONTACT: MATTHEW GROOMS	LEVEL III SITE PLAN APPLICATION - WORKSHOP MEETING 11/26/2019 & 01/28/2020
BUILDING PERMIT:	CITY OF PORTLAND CODE ENFORCEMENT OFFICE CITY HALL, CONGRESS STREET PORTLAND, MAINE 04103 207.874.8900	TO BE DETERMINED
STATE		
MAINE DEP SITE LOCATION OF DEVELOPMENT ACT PERMIT:	MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION 312 CANCO ROAD PORTLAND, MAINE 04103 207.822.6300 CONTACT: CHRISTINE WOODRUFF	PERMIT ORDER L-20775-19-W-B (APPROVAL) 11/27/2017 L-20775-TG-X-M (APPROVAL) 11/27/2017 PROJECT TO COMMENCE NO LATER THAN 11/27/2021 AND BE COMPLETED BY 11/27/2024
MAINE DEP NATURAL RESOURCE PROTECTION ACT (NRPA) PERMIT:	MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION 312 CANCO ROAD PORTLAND, MAINE 04103 207.822.6300 CONTACT: CHRISTINE WOODRUFF	L-20775-TG-X-M (APPROVAL) IN LIEU FEE PAID PREVIOUSLY BY OWNER
UTILITY OPENING PERMITS:	CITY OF PORTLAND PUBLIC SERVICES DIVISION 212 CANCO ROAD PORTLAND, ME 04103	TO BE DETERMINED
MAINE DOT TRAFFIC PERMIT:	MAINE DEPARTMENT OF TRANSPORTATION SOUTHERN REGION (REGION 1) 51 PLEASANT HILL ROAD SCARBOROUGH, MAINE 04074 207.885.7000	ORIGINAL TRAFFIC MOVEMENT PERMIT APPROVED 05/13/2002 DIV. 06-00035-A-N
MAINE VOLUNTARY RESPONSE ACTION PLAN (VRAP):	MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION BUREAU OF REMEDIATION AND WASTE MANAGEMENT 17 STATE HOUSE STATION AUGUSTA, MAINE 04333-0017 ATTN: NICHOLAS HODGKINS 207.623.8367	CERTIFICATE OF COMPLETION ISSUED 04/12/2011
FEDERAL		
NPDES PERMIT:	U.S. ENVIRONMENTAL PROTECTION AGENCY REGION 1 JFK FEDERAL BUILDING, ROOM 2209 BOSTON, MASSACHUSETTS 02203-2211	-
ARMY CORPS OF ENGINEERS SECTION 404 PERMIT	U.S.ARMY CORPS OF ENGINEERS 442 CIVIC CENTER DRIVE, SUITE 350 AUGUSTA, MAINE 04330 207.623.8367 ATTENTION: JAY CLEMENT	NAE-2012-00084 AND EXTENSION APPROVED TIME LIMIT TO COMPLETE WORK IS DECEMBER 31, 2022

CONSULTANT LIST

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707 SABLE OAKS DRIVE, SUITE 30
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ebrewer@owenhaskell.com

GEOTECHNICAL ENGINEER:
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CONTACT: WAYNE CHADBOURNE / BRYAN STEINERT
bsteinert@haleyaldrich.com

ENVIRONMENTAL ENGINEER:
Hoffman Engineering, Inc.
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NORTH KINGSTOWN, RHODE ISLAND 02852
401.294.9032
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207.791.2502
CONTACT: DAVE THOMAS
dthomas@consigli.com

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.30.20
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
3	01.30.20	REVISED / RESUBMITTED CONSTRUCTION DOCUMENTS
2	01.29.20	REVISED / RESUBMITTED TO DEP - L.O.R. #2
1	11.04.19	PREPARED FOR L.O.R. #1 & SUBMITTED TO CITY

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Design: SRB	Draft: CDD	Date: AUG. 2019
Checked: SRB	Scale: NTS	Job No.: 3257.04
File Name: 325704-COVER.dwg		

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Drawing Name: Cover Sheet
Project: Fore River Campus Consolidation, Portland, Maine
Client: Northern Light Mercy Hospital, 144 State Street, Portland, Maine 04101

Drawing No. C-1.0

U:\3257.04_Mercy Hospital_Expansion_DD_Permits\STANTEC\civil\cadd\permit\dwg\325704-COVER.dwg 1/30/2020 5:13 PM

GENERAL NOTES:

1. THE CONTRACTOR SHALL REFER TO THE PROJECT MANUAL FOR CONSTRUCTION SPECIFICATIONS AND BIDDING PROCEDURES.
2. THIS PROJECT WILL BE SUBJECT TO THE TERMS AND CONDITIONS OF ALL PERMITS ISSUED BY THE MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, THE U.S. DEPARTMENT OF THE ARMY CORPS OF ENGINEERS, LOCAL UTILITY COMPANIES AND THE CITY OF PORTLAND.
3. THE CONTRACTOR SHALL REFER TO THE ARCHITECTURAL PLANS FOR EXACT LOCATIONS AND DIMENSIONS OF THE ENTRANCE, PAVING, PRECISE BUILDING DIMENSIONS, AND EXACT BUILDING UTILITY ENTRANCE POINTS. ENTRANCES IN MOST LOCATIONS REQUIRE STRUCTURAL SLABS. REFER TO THE ARCHITECTURAL AND STRUCTURAL DRAWINGS FOR INFORMATION ON THE STRUCTURAL SLAB ENTRANCES.
4. ALL REQUIRED AND NECESSARY INSPECTIONS AND/OR CERTIFICATIONS REQUIRED BY CODES AND/OR UTILITY SERVICE COMPANIES SHALL BE PERFORMED PRIOR TO ANNOUNCED BUILDING POSSESSIONS AND THE FINAL SERVICE CONNECTIONS.
5. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT THE LOCATION AND/OR THE ELEVATION OF THE EXISTING UTILITIES AS SHOWN ON THESE PLANS IS BASED ON RECORDS OF THE VARIOUS UTILITY COMPANIES AND, WHERE POSSIBLE, MEASUREMENTS TAKEN IN THE FIELD. THIS INFORMATION IS NOT TO BE RELIED ON AS BEING EXACT OR COMPLETE. THE CONTRACTOR MUST CALL THE APPROPRIATE UTILITY COMPANY AND DIG SAFE AT LEAST 72 HOURS PRIOR TO ANY EXCAVATION TO REQUEST EXACT FIELD LOCATION OF UTILITIES. IT SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR TO RELOCATE ALL EXISTING UTILITIES WHICH CONFLICT WITH THE PROPOSED IMPROVEMENTS SHOWN ON THE PLANS.
6. MAINTENANCE OF EROSION CONTROL MEASURES IS OF PARAMOUNT IMPORTANCE TO THE APPLICANT AND THE CONTRACTOR IS RESPONSIBLE FOR COMPLYING WITH ALL EROSION CONTROL MEASURES SHOWN ON THE PLANS. ADDITIONAL EROSION CONTROL MEASURES SHALL BE INSTALLED IF DEEMED NECESSARY BY ONSITE INSPECTIONS OF THE OWNER, THEIR REPRESENTATIVES, OR THE CITY, AT NO ADDITIONAL COST TO THE OWNER.
7. ALL MATERIAL SCHEDULES SHOWN ON THE PLANS ARE FOR GENERAL INFORMATION ONLY. THE CONTRACTOR SHALL PREPARE HIS OWN MATERIAL SCHEDULES BASED UPON HIS PLAN REVIEW. ALL SCHEDULES SHALL BE VERIFIED IN THE FIELD BY THE CONTRACTOR PRIOR TO ORDERING MATERIALS OR PERFORMING WORK.
8. ALL MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE PROJECT SPECIFICATIONS, THE CITY OF PORTLAND AND SERVICING UTILITY REQUIREMENTS, IN CASES WHERE THESE CONFLICT THE MOST STRINGENT SHALL APPLY AT NO EXTRA COST TO THE OWNER.
9. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING RECORD DRAWINGS THROUGHOUT THE PROJECT AND PROVIDING THE OWNER WITH A SET OF THE FINAL RECORD DRAWINGS WHEN THE PROJECT IS COMPLETE.
10. THE CONTRACTOR IS RESPONSIBLE FOR MAINTAINING ACCESS AT ALL TIMES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL TEMPORARY MARKINGS, SIGNAGE AND INCIDENTALS TO MAINTAIN SAFE VEHICLE AND PEDESTRIAN ACCESS THROUGH OUT THE LIFE OF THE PROJECT.

SITE LAYOUT NOTES:

1. ALL HANDICAP PARKING SPACES ARE TO RECEIVE HANDICAP SIGNS AND PAVEMENT MARKINGS AS ILLUSTRATED ON THE DETAIL SHEETS.
2. BITUMINOUS CONCRETE CURB AND GRANITE CURB SHALL MEET THE REQUIREMENTS OF MDOT 702.01, 703.07, AND 609.04.
3. ALL DIMENSIONING, UNLESS NOTED OTHERWISE, IS TO THE FACE OF CURB OR THE FACE OF THE BUILDING.
4. EXCEPT WHERE INDICATED OTHERWISE, THE PAVEMENT IS TO BE STANDARD DUTY PAVEMENT.
5. ALL TRAFFIC CONTROL SIGNS INDICATED ON THE SITE LAYOUT PLAN ARE TO MEET ALL REQUIREMENTS AND STANDARDS OF THE MAINE DEPARTMENT OF TRANSPORTATION, AND THE MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES, LATEST EDITIONS AND THE AMERICANS WITH DISABILITIES ACT REQUIREMENTS.
6. STRIPE PARKING AREAS, DRIVES AND ROADWAY AS SHOWN, INCLUDING PARKING SPACES, STOP BARS, CROSSWALKS, HANDICAP SYMBOLS, PAINTED ISLANDS AND FIRE LANES. (ALL MARKINGS EXCEPT MEDIAN ISLANDS AND CENTERLINES TO BE CONSTRUCTED USING WHITE TRAFFIC PAINT.) ALL TRAFFIC PAINT SHALL MEET THE REQUIREMENTS OF AASHTO M248 TYPE 'F'. MEDIAN ISLANDS AND CENTERLINES TO BE CONSTRUCTED USING YELLOW TRAFFIC PAINT.
7. SEE DETAILS FOR PARKING STALL DIMENSIONS, HANDICAP SYMBOLS, SIGNS AND SIGN POSTS.
8. STOP BARS SHALL BE 12" WIDE.
9. PAINTED ISLANDS SHALL BE 4" WIDE DIAGONAL LINES @ 3'-0" O.C. BORDERED BY 4" WIDE LINES.

GRADING & DRAINAGE NOTES:

1. ALL STORM DRAIN PIPE SHALL BE SMOOTH BORE INTERIOR PROVIDING A MANNINGS ROUGHNESS COEFFICIENT OF n = 0.013 OR LESS.
2. PROVIDE TURF REINFORCEMENT IN AREAS INDICATED ON THE PLANS.
3. AN "AS-BUILT" CERTIFICATION OF THE STORMWATER DRAINAGE SYSTEM BY A REGISTERED ENGINEER IS REQUIRED PRIOR TO THE OWNER ACCEPTING THE BUILDING AND PROPERTY. THE CONTRACTOR IS SPECIFICALLY CAUTIONED THAT ANY DEVIATION FROM THE PLANS MAY DELAY THE ACCEPTANCE OF THE PROJECT.
4. A DETAILED O&M MANUAL FOR STORMWATER MANAGEMENT SYSTEMS IS (WILL BE) FILED WITH THE CITY OF PORTLAND AND MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION DURING THE PERMIT REVIEW PROCESS. A SPECIFIC MANUAL HAS BEEN PREPARED FOR O&M OF THE DRAINAGE SYSTEM. REFER TO SECTION 12 OF THE MEDEP SITE LOCATION OF DEVELOPMENT PERMIT APPLICATION.
5. SEE EXISTING CONDITIONS FOR BENCHMARK INFORMATION.
6. SEE GRADING, DRAINAGE AND EROSION/SEDIMENT CONTROL FOR PROPOSED GRADING AND EROSION CONTROL MEASURES.
7. ALL DISTURBED AREAS NOT TO BE PAVED, SODDED OR OTHERWISE TREATED SHALL RECEIVE 4" LOAM, SEED, FERTILIZER AND MULCH.
8. COMPACTION REQUIREMENTS:

LOCATION	MINIMUM COMPACTION
SUBBASE AND BASE GRAVEL BELOW PAVED OR CONCRETE AREAS	95%
SUBGRADE FILL BELOW PAVED AREAS	90%
TRENCH BEDDING MATERIAL AND SAND BLANKET BACKFILL	95%
BELOW LOAM AND SEED AREAS	90%
STRUCTURAL FILL WITHIN PROPOSED BUILDING AREA	95%
SELECT FILL ADJACENT BUILDING FOUNDATIONS, EXTERIOR FOUNDATIONS, AND WITHIN 8 INCHES OF THE SLAB-ON-GRADE	95%

*ALL PERCENTAGES OF COMPACTION SHALL BE OF THE MAXIMUM DRY DENSITY AT THE OPTIMUM MOISTURE CONTENT AS DETERMINED AND CONTROLLED IN ACCORDANCE WITH ASTM D-1557.

8. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
9. CONTRACTOR SHALL PROVIDE A FINISH PAVEMENT SURFACE FREE OF LOW SPOTS AND PONDING AREAS. CRITICAL AREAS INCLUDE BUILDING ENTRANCE AND EXIT RAMPS ADJACENT TO THE BUILDING AND ALONG NEW CURBED AREAS. ALL ADA COMPLIANT PARKING SPACES SHALL BE PAVED WITH A MAXIMUM SLOPE OF 2% IN ANY DIRECTION.
10. PROVIDE STABILIZATION OR SEPARATION GEOTEXTILE FABRIC OVER WETLAND AREAS TO BE FILLED OR OVER UNSTABLE SOILS AS DIRECTED BY THE OWNER'S REPRESENTATIVE AND IN ACCORDANCE WITH THE FINAL GEOTECHNICAL RECOMMENDATIONS.
11. NATIVE SOILS RANGE FROM GRANULAR TO CLAYEY AND SILTY. CARE MUST BE EXERCISED TO LIMIT DISTURBANCE OF THE BEARING SOILS. THE NATIVE CLAYEY OR SILTY SOILS SHOULD NOT BE PROOF-ROLLED. SHOULD THE SUBGRADE BECOME YIELDING OR DIFFICULT TO WORK, DISTURBED AREAS SHOULD BE EXCAVATED AND BACKFILLED WITH COMPACTED SELECT FILL OR CRUSHED STONE AT NO EXTRA EXPENSE TO THE OWNER.
12. FIVE (5.0) FEET OF CLEAN GRANULAR SOIL MEETING THE SELECT FILL GRADATION SPECIFICATIONS SHALL BE PROVIDED BELOW THE ENTRANCE SLABS AND ADJACENT SIDEWALKS. GRADUAL TRANSITION (3 HORIZONTAL TO 1 VERTICAL) OF SELECT FILL THICKNESS SHALL BE PROVIDED FROM THE 5.0 FOOT DEPTH TO THE GRAVEL BASE THICKNESS AT THE SIDEWALKS AND PAVED AREAS AWAY FROM THE BUILDINGS.

LOCAL APPROVALS, WAIVERS, AND VARIANCES:
(ADDITIONAL INFORMATION TO BE PROVIDED UPON RECEIPT OF APPROVALS)

THE CONSTRUCTION PLANS ARE TO BE SUBMITTED TO THE CITY OF PORTLAND FOR THEIR REVIEW AND APPROVAL.

UTILITY NOTES:

1. ALL REQUIRED UTILITIES SERVING THE PROJECT SHALL BE COORDINATED AND CONSTRUCTED BY THE DIVISION 2 CONTRACTOR TO WITHIN 5 FEET OF THE BUILDINGS, AT A LOCATION COORDINATED WITH THE DIVISION 15 OR 16 CONTRACTOR AND THE BUILDING PLANS. DIVISION 2 WORK WITHIN 5 FEET OF UNDERSLAB UTILITIES SHALL CONSIST OF TRENCHING AND BACKFILLING. ACTUAL UTILITY INSTALLATION SHALL BE BY THE DIVISION 15/16 CONTRACTOR. ALL REQUIRED CONNECTION FEES SHALL BE PAID BY THE GENERAL CONTRACTOR.
2. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF AND/OR RELOCATION OF OVERHEAD AND UNDERGROUND TELEPHONE WITH VERIZON. CONTRACTOR SHALL BE RESPONSIBLE FOR CONDUITS, PULL WIRES, TRENCHING AND BACKFILLING NECESSARY TO COMPLETE THE WORK.
3. ALL SANITARY SEWER WORK SHALL MEET THE STANDARDS OF THE MAINE STATE PLUMBING CODE AND CITY OF PORTLAND PUBLIC WORKS DEPARTMENT.
4. THE CONTRACTOR SHALL COORDINATE THE INSTALLATION OF ELECTRIC SERVICE WITH CENTRAL MAINE POWER.
5. COORDINATE ALL UTILITY WORK WITH THE APPROPRIATE UTILITY COMPANY. ALL UTILITY WORK SHALL CONFORM TO THE STANDARDS OF THE UTILITY COMPANY AND PROJECT SPECIFICATIONS.
6. THE LOCATIONS OF THE NEW UTILITY SERVICES AND CONNECTIONS SHALL BE COORDINATED WITH THE SERVING UTILITY COMPANY.
7. UNDERGROUND ELECTRICAL, CONDUIT MATERIAL AND INSTALLATION SHALL CONFORM TO UTILITY COMPANY STANDARDS AND PROJECT SPECIFICATIONS, WHICH EVER IS MORE STRINGENT.
8. ADJUST ALL MANHOLES, CATCH BASINS, CURB BOXES, ETC. WITHIN LIMITS OF WORK TO FINISH GRADE.
9. ALL UNDERGROUND CONDUITS SHALL HAVE NYLON PULL ROPES TO FACILITATE PULLING CABLES.
10. THE CONTRACTOR SHALL OBTAIN, PAY FOR, AND COMPLY WITH ALL REQUIRED PERMITS, ARRANGE FOR ALL INSPECTIONS, AND SUBMIT COPIES OF ACCEPTANCE CERTIFICATES TO THE OWNER PRIOR TO COMPLETION OF THE PROJECT.
11. THE CONTRACTOR SHALL PROVIDE AND INSTALL ALL BOXES, FITTINGS, CONNECTORS, COVER PLATES AND OTHER MISCELLANEOUS ITEMS NOT NECESSARILY DETAILED ON THE DRAWINGS TO RENDER INSTALLATION OF UTILITIES COMPLETE AND OPERATIONAL, AT NO EXTRA EXPENSE TO THE OWNER.
12. A 10 FOOT MINIMUM EDGE TO EDGE HORIZONTAL SEPARATION SHALL BE PROVIDED BETWEEN ALL WATER AND SANITARY SEWER LINES. AN 18 INCH OUTSIDE TO OUTSIDE VERTICAL SEPARATION SHALL BE PROVIDED AT ALL WATER AND SANITARY SEWER CROSSINGS.
13. THE CONTRACTOR SHALL PHASE UTILITY CONSTRUCTION AND PROVIDE TEMPORARY SERVICES AS REQUIRED TO PROVIDE CONTINUOUS SERVICE TO THE JOBSITE. TEMPORARY SERVICES SHALL COMPLY WITH ALL FEDERAL, STATE, LOCAL AND UTILITY COMPANY STANDARDS. COORDINATE ALL TEMPORARY SERVICES WITH UTILITY COMPANY, OWNER AND AFFECTED BUSINESSES.

LANDSCAPE NOTES:

(SUBJECT TO COORDINATION WITH LANDSCAPE DRAWINGS. IN CASE OF CONFLICT, THE LANDSCAPING DRAWINGS SHALL GOVERN.)

1. ALL PLANTS SHALL BE NURSERY GROWN AND WORKMANSHIP SHALL CONFORM TO THE AMERICAN ASSOCIATION OF NURSERYMEN, STANDARDS AND SHALL BE SUBJECT TO THE APPROVAL OF THE OWNERS REPRESENTATIVE BEFORE AND AFTER PLANTING.
2. PLANTS SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER INSPECTION AND ACCEPTANCE, AND SHALL HAVE AT LEAST 80% HEALTHY GROWTH AT THE END OF THE GUARANTEED PERIOD.
3. ALL DISTURBED AREAS NOT TO BE PAVED OR OTHERWISE TREATED SHALL RECEIVE 4" LOAM AND SEED.
4. THREE (3) INCH BARK MULCH IS TO BE USED AROUND THE TREE AND SHRUB PLANTING AS SPECIFIED IN THE DETAILS. WHERE BARK MULCH IS USED IN A CURBED ISLAND, THE BARK SHALL MEET THE TOP INSIDE EDGE OF THE CURB. ALL OTHER AREAS SHALL RECEIVE 4" LOAM AND SEED.
5. THE CONTRACTOR SHALL SUPPLY ALL PLANT MATERIALS IN QUANTITIES SUFFICIENT TO COMPLETE THE PLANTING AS SHOWN.
6. PARKING AREA PLANTED ISLANDS TO HAVE A MINIMUM OF 4" TOPSOIL. REMOVE ALL CONSTRUCTION DEBRIS BEFORE TOPSOILING. TOPSOIL SHALL BE PLACED TO TOP OF CURB.
7. ALL PLANT MATERIAL SHALL BE APPROVED BY THE OWNER OR THE OWNERS REPRESENTATIVE PRIOR TO ARRIVAL ON THE SITE.
8. PLANT MATERIAL SHALL BEAR THE SAME RELATIONSHIP TO FINISHED GRADE AS TO THE ORIGINAL PLANTING GRADE PRIOR TO DIGGING.
9. THE CONTRACTOR SHALL LOCATE, VERIFY, AND MARK ALL EXISTING AND NEWLY INSTALLED UNDERGROUND UTILITIES PRIOR TO ANY LAWN WORK OR PLANTING. ANY CONFLICTS WHICH MIGHT OCCUR BETWEEN PLANTINGS AND UTILITIES SHALL BE IMMEDIATELY REPORTED TO THE OWNER SO THAT ALTERNATE PLANTING LOCATIONS CAN BE DETERMINED.
10. NO SUBSTITUTION OF PLANT MATERIALS SHALL BE ALLOWED WITHOUT THE PRIOR WRITTEN APPROVAL OF THE OWNER.
11. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL PLANTING AND LAWNS AGAINST DAMAGE FROM ONGOING CONSTRUCTION. THIS PROTECTION SHALL BEGIN AT THE TIME THE PLANT IS INSTALLED AND CONTINUE UNTIL THE FORMAL ACCEPTANCE OF ALL THE PLANTINGS.
12. SEE PLANTING DETAILS FOR WEED BARRIER INFORMATION.
13. ALL PLANTING LOCATED AT THE ENTRANCE TO THE PROJECT OR AT INTERSECTIONS WITHIN THE SITE WILL BE MAINTAINED AND WILL NOT EXCEED 3 FEET IN HEIGHT WITHIN A TRIANGLE FORMED 25' INTO THE DRIVEWAY AND 25' ALONG THE TRAVEL WAY.

EROSION CONTROL NOTES:

1. PRIOR TO BEGINNING ANY LAND DISTURBING ACTIVITIES. CLEARING AND GRADING LIMITS SHALL BE STAKED BY THE CONTRACTOR BASED ON THE LIMITS OF GRADING SHOWN ON THE DRAWINGS AND ACCEPTED BY THE OWNER'S REPRESENTATIVE IN THE FIELD. AFTER THE CLEARING AND GRADING LIMITS HAVE BEEN ACCEPTED, THE CONTRACTOR SHALL INSTALL THE PERIMETER SILT FENCES AND THE CONSTRUCTION ENTRANCES ASSOCIATED WITH THE PROJECT.
2. ALL GROUND AREAS GRADED FOR CONSTRUCTION SHALL BE GRADED, LOAMED, SEEDED AND MULCHED AS SOON AS POSSIBLE. TEMPORARY/PERMANENT SEED MIXTURES SHALL CONFORM TO THE SEEDING PLAN CONTAINED IN THE EROSION CONTROL PROJECT PREPARED FOR THIS PROJECT.
3. PRIOR TO PAVING, THE CONTRACTOR SHALL FLUSH SILT FROM ALL STORM LINES.
4. ALL STORM DRAIN INLETS AND OUTLETS NOT IN PAVED AREAS ARE TO RECEIVE RIPRAP PROTECTION APRONS DURING CONSTRUCTION.
5. SILT FENCES SHALL BE INSPECTED, REPAIRED AND CLEANED AS NOTED IN THE EROSION CONTROL NOTES SHOWN ON THE EROSION CONTROL DETAIL SHEET.
6. THE CONTRACTOR SHALL REPAIR AND ADD STONE TO THE CONSTRUCTION ENTRANCE AS IT BECOMES SATURATED WITH MUD TO ENSURE THAT IT FUNCTIONS TO CAPTURE MUD FROM THE TIRES OF CONSTRUCTION VEHICLES DURING CONSTRUCTION. THE PURPOSE OF THE CONSTRUCTION ENTRANCE IS TO KEEP ADJACENT STREETS CLEAR OF DIRT AND MUD, SWEEPING OF THE ROADWAYS SHALL BE PERFORMED BY THE CONTRACTOR.
7. SILT REMOVED FROM AROUND INLETS AND BEHIND THE SILT FENCES SHALL BE PLACED ON A TOPSOIL STOCKPILE AND MIXED INTO TOPSOIL FOR USE IN LANDSCAPING OPERATIONS.
8. LAND DISTURBING ACTIVITIES SHALL BE ACCOMPLISHED IN A MANNER AND SEQUENCE WHICH CAUSE THE LEAST PRACTICAL UNPROTECTED DENUDED AREAS ON THE SITE DURING CONSTRUCTION.
9. THE CONTRACTOR IS CAUTIONED THAT FAILURE TO COMPLY WITH THE SEQUENCE OF CONSTRUCTION, EROSION / SEDIMENT CONTROL PLAN, AND OTHER PERMIT REQUIREMENTS MAY RESULT IN MONETARY PENALTIES AS ENFORCED BY THE MEDEP OR LOCAL AGENCIES. THE CONTRACTOR SHALL BE ASSESSED ALL SUCH PENALTIES AT NO COST TO THE OWNER OR PERMITTEE.
10. A FULL EROSION/SEDIMENTATION CONTROL PLAN ACCOMPANIES THIS DRAWING SET AND IS ALSO CONTAINED IN THE DIV 2 SPECIFICATIONS.
11. PROVIDE INLET PROTECTION BARRIERS AROUND ALL EXISTING AND PROPOSED STORM DRAINAGE INLETS AS SHOWN AND MAINTAIN FOR THE DURATION OF THE PROJECT UNTIL PAVEMENT HAS BEEN INSTALLED.
12. INSPECT EROSION AND SEDIMENT CONTROL DEVICES AFTER EACH RAIN STORM OF 0.25 INCH OR GREATER. REPAIR/MODIFY PROTECTION AS NECESSARY TO MAXIMIZE EFFICIENCY FILTER. REPLACE ALL FILTERS WHEN SEDIMENT IS $\frac{1}{3}$ THE STRUCTURE HEIGHT.
13. INSTALL CURLEX EROSION CONTROL MAT OR EQUAL ON ALL SLOPES STEEPER THAN 3:1.
14. THE CONTRACTOR SHALL INSTALL ALL EROSION CONTROL MEASURES IN ACCORDANCE WITH THE "MAINE EROSION & SEDIMENT CONTROL HANDBOOK FOR CONSTRUCTION: BEST MANAGEMENT PRACTICES, CUMBERLAND COUNTY SOIL AND WATER CONVERSATION DISTRICT AND MAINE DEPARTMENT OF ENVIRONMENTAL PROTECTION, MARCH 1991"

CITY OF PORTLAND
SPACE AND BULK REQUIREMENTS

1. EXISTING ZONE: CONTRACT ZONE AGREEMENT
2. PARCEL SIZE (TO MEAN HIGH WATER): 33.51 ACRES±
3. SPACE AND BULK:

	REQUIRED	PROVIDED (UPON COMPLETION OF PHASE II)
MAXIMUM IMPERVIOUS SURFACE RATIO	80%	66%±
MAXIMUM BUILDING HEIGHT	90 FT.	90 FT.
MINIMUM FRONT YARD LANDSCAPED BUFFER	20 FT.	20 FT.
MINIMUM SIDE YARD	10 FT.	121 FT.
MINIMUM REAR YARD	10 FT.	121 FT.
PAVEMENT SETBACK FROM LOT BOUNDARIES	15 FT.	> 15 FT.

4. PARKING REQUIREMENT:

HOSPITAL - 1 SPACE/500SF		
EXISTING HOSPITAL 138,099 SF	277 SPACES	306 SPACES
HOSPITAL EXPANSION 54,889 SF	110 SPACES	200 SPACES
MEDICAL OFFICE - 1 SPACE/400SF		
EXISTING MED. OFFICE 82,186 SF	206 SPACES	255 SPACES
PROPOSED ASC BLDG. 34,987 SF	88 SPACES	100 SPACES
TOTAL ONSITE PARKING	681 SPACES	861 SPACES

LEGEND

EXISTING

- EXISTING STRUCTURE
- EDGE OF TRAVEL WAY, PAVEMENT, ROADS, DRIVES
- CURBING
- PROPERTY LINE
- OHE — OVERHEAD ELECTRIC LINES
- uge — UNDERGROUND ELECTRIC LINE
- UGT — UNDERGROUND TELEPHONE LINE
- 8"w — WATER LINE
- 12"SD — STORM DRAIN LINE
- 8"san — SANITARY SEWER LINE
- OX — OXYGEN
- G — GAS
- FENCE
- 50 — EXISTING CONTOUR LINE
- EXISTING WETLANDS
- RAILROAD TRACKS
- RAILROAD SIGNAL CONTROL BOX
- UTILITY POLE
- SIGN
- LIGHT POLE
- CATCH BASIN
- SEWER MANHOLE
- ELECTRICAL/COMMUNICATIONS PULL BOX
- HYDRANT
- GATE VALVE
- TREE
- TRANSFORMER
- ELECTRICAL MANHOLE
- RIPRAP AREA

PROPOSED

- BUILDING
- RETAINING WALL
- CURBING
  - VERTICAL GRANITE
  - SLOPED GRANITE
- EDGE OF PAVEMENT
- GRADING CONTOUR LINE — 100
- SPOT ELEVATION — 100.31
- GUARD POST/BOLLARD
- POLE WITH LIGHT FIXTURE(S)
- FREESTANDING SIGN
- PYLON SIGN
- BARRIER FREE PARKING SYMBOL
- PEDESTRIAN CROSSWALK
- PAINTED DIRECTIONAL TRAFFIC ARROW
- UNDERGROUND TELEPHONE / CABLE — UGT/C
- UNDERGROUND ELECTRIC/TELEPHONE — UGE/T
- WATER LINE — W
- SEWER LINE — SAN1
- GAS LINE — G
- STORM DRAIN LINE — SD1
- HYDRANT
- WATER GATE VALVE
- WATER SHUT OFF VALVE
- MANHOLE
- CATCH BASIN
- EXISTING CATCH BASIN TO BE ALTERED
- RIPRAP
- SILT FENCE — SF
- CHAIN LINK OR SAFETY FENCE
- WOOD FENCE
- GUIDE RAIL
- LIMIT OF WORK
- EXISTING UTILITY LINE TO BE REMOVED — X X X X
- STONE SEDIMENT BARRIER
- TRANSFORMER PAD

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE — STEPHEN R. BUSHEY — 01.30.20 — LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
3	01.30.20	REVISED / RESUBMITTED CONSTRUCTION DOCUMENTS
2	01.29.20	REVISED / RESUBMITTED TO DEP – L.O.R. #2
1	11.04.19	PREPARED FOR L.O.R. #1 & SUBMITTED TO CITY

Issued For	Date	By
CONSTRUCTION DOCUMENTS FOR PRICING ONLY	11.22.19	SRB
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB	Draft: CDD	Date: AUG. 2019	
Checked: SRB	Scale: NTS	Job No.: 3257.04	
File Name: 325704-GEN.dwg			

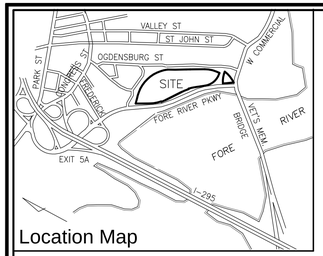
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Drawing Name: General Notes & Legend
Project: Fore River Campus Consolidation, Portland, Maine
Client: Northern Light Mercy Hospital, 144 State Street, Portland, Maine 04101

Drawing No. C–1.1

U:\3257.04_Mercy Hospital_Expansion_DD_Permits\STANTEC\civil\cadd\permit\dwg\325704-GEN.dwg 1/30/2020 5:15 PM



Location Map

Legend:

- IRON PIPE OR ROD FOUND
- UTILITY POLE
- MANHOLE
- EM ELECTRIC BOX/METER
- SIGN
- CATCH BASIN
- HYDRANT
- WATER VALVE OR SHUTOFF
- GAS VALVE
- LIGHT POLE
- ICV IRRIGATION CONTROL VALVE
- T TRANSFORMER PAD
- FENCE
- CURB
- OVERHEAD WIRES
- UGE UNDERGROUND POWER
- UGC UNDERGROUND COMMUNICATION
- W WATER LINE
- G GAS LINE
- SD STORM DRAIN
- SS SANITARY SEWER
- 30 1' CONTOUR
- IPF/IRF IRON PIPE OR ROD FOUND
- INV. INVERT
- FFE FINISHED FLOOR ELEVATION
- N/F NOW OR FORMERLY
- 000/000 DEED BOOK AND PAGE

GRID NORTH WEST ZONE

N/F UNION STATION LIMITED PARTNERSHIP 10144/23

S11°03'06"E 86.50'

S11°04'37"E 150.16'

N78°56'54"E 67.78'

S78°55'23"W 62.13'

PARCEL A TRACT TWO UTILITY AREA 1 23723/214 26738/60 22764/198 17783/298

42" SEWER 3975/262 SMH

N/F ST. JOHN STREET ASSOCIATES LIMITED PARTNERSHIP 6864/210

GAS FACILITIES EASEMENT 25696/212

N79°02'06"E 88.25'

N10°46'19"W

S09°29'00"E 197.09'

S10°57'07"E 290.08'

PARCEL A TRACT THREE LICENSE AGREEMENT 17783/322 LICENSE AGREEMENT 14203/252

L=176.13'

R=988.37' L=535°35'48"E 175.90

N09°42'42"E 110.67'

N78°59'25"W 142.80'

S10°55'38"E 580.68'

UNDERGROUND UTILITY LINE EASEMENT MAIN LINE

PORTLAND WATER DISTRICT WATER LINE EASEMENT 25624/210

RECREATIONAL TRAIL EASEMENT 25855/253 26346/137

UNDERGROUND UTILITY LINE EASEMENT MAIN LINE 25971/306

L=1102.20'

GAS FACILITIES EASEMENT 25696/212

N/F INHABITANTS CUMBERLAND COUNTY STATE OF MAINE 9382/61 9820/263

POND EASEMENT AREA 25591/149

PARCEL A

PARCEL B

S78°59'25"W 1165'± TO LOW WATER

R=922.37' L=502.60'

PARCEL A TRACT 1

UNDERGROUND UTILITY LINE EASEMENT SPUR 25971/306

S27°46'25"W 136.00'

S62°13'35"E 136.00'

N27°46'25"E 210.00'

S27°46'25"W 276.95'

N62°13'35"W 232.00'

S62°13'35"E 24.00'

S27°46'25"W 210.00'

N62°13'35"W 90.00'

S27°46'25"W 114.37'

N27°46'25"E 194.62'

27" FORCE MAIN SEWER LINE 3975/262

MERCY HOSPITAL 4 STORY BRICK BUILDING

MEDICAL OFFICE BUILDING 4 STORY BRICK

CONNECTOR

OVERHANG BRICK

PAVED WALK

PAVED ISLAND

CHAIN LINK FENCE

CONCRETE

FLAG POLES

SIGNS

BUS ENCLOSURE

DOWNSTREAM DEFENDER

ICV

TRANS #9.4 GENERATOR

CHILLER

GENERATOR

OXYGEN

CONC PAD

CRASH DOOR

THRES= 17.57

THRES= 17.54

THRES= 32.06

THRES= 32.01

THRES= 30.04

THRES= 30.13

THRES= 30.14

THRES= 30.10

THRES= 30.12

THRES= 13.39

THRES= 17.46

THRES= 17.61

RIM=15.62

S27°46'25"W 43.64'

S85°15'29"E 216.19'

N27°46'25"E 207.26'

172.55'

216.11' N11°13'35"W

364.57' N10°36'53"W

RIPRAP

15"RCP INV.=29.65

L=309.49' R=935.04'

S60°25'15"W 13.12'

L=118.68' R=948.16'

12"RCP INV.=12.69

(FORE RIVER PARKWAY)

HIGH WATER LINE OF FORE RIVER

FORE RIVER

BRIDGE OVER RAILROAD

136.09'

PARCEL A TRACT FOUR 50' WIDE ABOVE GRADE CROSSING EASEMENT

18338/53 OPEN SPACE-NORTH

S10°36'53"E

L=185.42' R=1197.50'

N62°48'29"E 13.12'

L=197.60' R=1184.38'

472.69' N36°45'03"W

I-295 CONNECTOR 19154/155

138'± TO HIGHWATER

SIDELINE PER 19154/555

RECREATIONAL TRAIL EASEMENT 25855/253 26346/137

STORM SEWER OUTLET 22266/52

PORTLAND WATER

WATER LINE E

AREA BETWEEN HIGH & LOW WATER OWNED BY MERCY HOSPITAL

SIGNAL POLE

X-ING SIGNAL POLE

UNABLE TO OPEN

UNABLE TO SEE

Owner of Record:

MERCY HOSPITAL
144 STATE STREET
PORTLAND, MAINE 04101
C.C.R.D. BOOK 17783 PAGE 289 (PORTLAND TERMINAL COMPANY PARCEL)
C.C.R.D. BOOK 18203 PAGE 128 (MERRILL PARCEL)

Utility Note:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

SCALE : 1" = 50'

0' 25' 50' 100'

Notes:

1. THERE IS ACCESS TO THE SUBJECT PROPERTY PER AN INGRESS AND EGRESS EASEMENT SET FORTH IN VOLUME 24969, PAGE 25 FROM FORE RIVER PARKWAY, A.K.A. I-295 CONNECTOR, A PUBLIC RIGHT-OF-WAY.
2. BEARINGS ARE GRID NORTH (MAINE STATE COORDINATE SYSTEM WEST ZONE) BASED ON MARKERS FOUND ON PLAN REFERENCE 4.
3. ELEVATIONS ARE BASED ON NGVD 1929.
4. MEDICAL OFFICE BUILDING TOTAL LEASE PARCEL AREA = 3.88 ACRES.
5. TOTAL AREA OF PROPERTY TO MEAN HIGH WATER IS 33.51 ACRES ±.
6. UNDERGROUND UTILITIES WERE MARKED BY CENTERLINE UTILITY LOCATING. GAS LINE LOCATION WAS NOT MARKED, ITS LOCATION HAS BEEN TAKEN FROM PLAN REFERENCE 22.

EXISTING CONDITIONS PLAN

AT

175 FORE RIVER PARKWAY, PORTLAND, MAINE

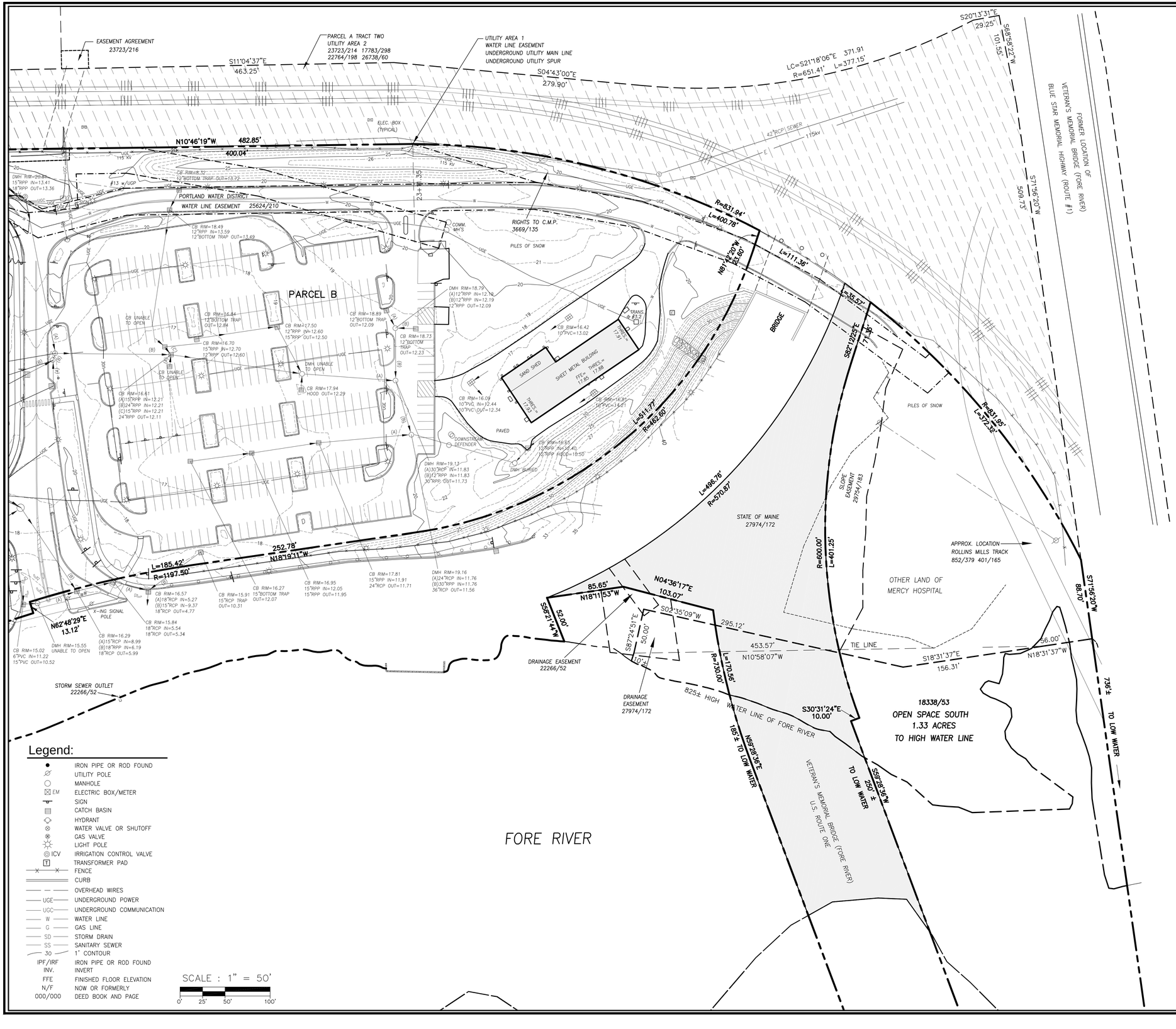
MADE FOR

MERCY HOSPITAL

175 FORE RIVER PARKWAY, PORTLAND, MAINE

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE ONE, FALMOUTH, ME 04105 (207)774-0424

Drawn By SDG	Date MARCH 20, 2017	Job No. 2013-024P
Trace By JLW		
Check By SDG	Scale 1" = 50'	Drwg. No. 1 OF 2
Book No. FILE		



Plan References:

1. STANDARD BOUNDARY SURVEY ROUTE 1 BLUE STAR MEMORIAL HIGHWAY PORTLAND, MAINE PORTLAND TERMINAL COMPANY TO MERRILL INDUSTRIES, INC." DATED MAY 19, 1998 BY OWEN HASKELL, INC.
2. TOPOGRAPHIC AND SITE CONDITIONS PLAN PORTLAND; RAIL UNDERPASS; VETERANS MEMORIAL BRIDGE" DATED FEB. 28, 1996 BY OWEN HASKELL, INC.
3. RECORDING PLAT FOR CUMBERLAND COUNTY COMMISSIONERS . . . CUMBERLAND COUNTY JAIL" DATED 11-08-90 BY SMRT RECORDED IN PLAN BOOK 191 PAGE 200.
4. PLAN OF PROPERTY IN PORTLAND MAINE MADE FOR PORTLAND CARGO ASSOCIATES" DATED 4-26-88 BY HI & EC JORDAN.
5. PLAN OF PROPERTY IN PORTLAND MAINE MADE FOR MERRILL INDUSTRIES, INC. DATED FEB. 11, 1987 BY HI & EC JORDAN.
6. MAINE STATE HIGHWAY COMMISSION RIGHT OF WAY MAP STATE HIGH 295" SHC FILE NO. 3-185 DATED MAY 1967.
7. RIGHT OF WAY AND TRACK MAP PORTLAND TERMINAL COMPANY OPERATED BY THE PORTLAND TERMINAL COMPANY" DATED JUNE 30, 1916 DWG V-1-D/1.
8. PLAN OF PROPERTY IN PORTLAND AND DEERING MAINE AT LIBBYS CORNER SURVEYED FOR JAMES H. SMITH" DATED SEPT 1886 BY HI & EC JORDAN.
9. PLAN OF AREA CLAIMED BY J.F. PROCTOR ON FILE AT OWEN HASKELL, INC. (ECJ FILE # 331).
10. THE PORTLAND AND OGDENSBURG RAILWAY PLAN OF LOCATION OF BRANCH RAILROAD TRACK TO PORTLAND UNION RAILWAY STATION PORTLAND MAINE DATED JULY 16, 1906.
11. PLAN OF PART OF CITY FARM AND ADJACENT STREETS DATED AUGUST 1878 BY WILLIAM A. GOODWIN C.C.E. RECORDED IN PLAN BOOK 4 PAGE 16.
12. PLAN OF PROPERTY BOUGHT OF J.B. BROWN BY THE BOSTON & MAINE RAILROAD PORTLAND DATED MARCH 15, 1873 RECORDED IN PLAN BOOK 3 PAGES 38 & 39.
13. PLAN OF PROPERTY IN PORTLAND MAINE MADE FOR PORTLAND WATER DISTRICT – EASEMENT PLAN FORE RIVER FORCE MAIN" DATED 5-4-1976 BY HI & EC JORDAN.
14. RIGHT OF WAY MAP STATE HIGHWAY 10, CITY OF PORTLAND DATED SEPTEMBER 2002 DOT FILE NO. 3-483
15. LAND TITLE SURVEY OFF CONGRESS STREET, PORTLAND, MAINE MADE FOR MERCY HOSPITAL DATED JUNE 29, 2002 BY OWEN HASKELL, INC.
16. RIGHT OF WAY AND TRACK MAP THE PORTLAND AND OGDENSBURG RY OWNED AND OPERATED BY THE PORTLAND TERMINAL COMPANY DATED JUNE 30, 1916 DWG V-2/2.
17. RIGHT OF WAY AND TRACK MAP THE PORTLAND AND OGDENSBURG RY OWNED AND OPERATED BY THE PORTLAND TERMINAL COMPANY DATED JUNE 30, 1916 DWG V-2/1.
18. RIGHT OF WAY AND TRACK MAP THE PORTLAND AND OGDENSBURG RY OWNED AND OPERATED BY THE PORTLAND TERMINAL COMPANY DATED JUNE 30, 1916 DWG V-1-D/1-A.
19. AS-BUILT ACSM LAND TITLE SURVEY ON I-295 CONNECTOR, PORTLAND, MAINE MADE FOR LANDMARK HEALTHCARE FACILITIES, LLC DATED SEPTEMBER 8, 2009 BY OWEN HASKELL, INC.
20. ALTA/ACSM LAND TITLE SURVEY PREPARED FOR: HEALTH CARE REIT, INC., FORE RIVER MEDICAL COMPLEX, LLC, 175 FORE RIVER PARKWAY, CITY OF PORTLAND, COUNTY OF CUMBERLAND, STATE OF MAINE DATED 08/18/11 REVISED THRU 10/06/11 FOR MILLMAN LAND BY OWEN HASKELL, INC.
21. ALTA/ACSM LAND TITLE SURVEY, 175 FORE RIVER PARKWAY, PORTLAND, CUMBERLAND COUNTY, MAINE MADE FOR STEWARD HEALTH CARE SYSTEMS, LLC DATED NOVEMBER 12, 2012 BY OWEN HASKELL, INC.
22. ALTA/ACSM LAND TITLE SURVEY, 175 FORE RIVER PARKWAY, PORTLAND, CUMBERLAND COUNTY, MAINE MADE FOR MERCY HOSPITAL AND EASTERN MAINE HEALTHCARE SYSTEMS DATED MARCH 1, 2013 LAST REVISED SEPT. 20, 2013 BY OWEN HASKELL, INC.

Utility Note:

THE UNDERGROUND UTILITIES SHOWN HAVE BEEN LOCATED FROM FIELD SURVEY INFORMATION AND EXISTING DRAWINGS. THE SURVEYOR MAKES NO GUARANTEES THAT THE UNDERGROUND UTILITIES SHOWN COMPRISE ALL SUCH UTILITIES IN THE AREA, EITHER IN SERVICE OR ABANDONED. THE SURVEYOR FURTHER DOES NOT WARRANT THAT THE UNDERGROUND UTILITIES SHOWN ARE IN THE EXACT LOCATION INDICATED ALTHOUGH HE DOES CERTIFY THAT THEY ARE LOCATED AS ACCURATELY AS POSSIBLE FROM INFORMATION AVAILABLE. THE SURVEYOR HAS NOT PHYSICALLY LOCATED THE UNDERGROUND UTILITIES. CALL 1-888-DIGSAFE AT LEAST THREE BUSINESS DAYS BEFORE PERFORMING ANY CONSTRUCTION. DUE TO OSHA CONFINED SPACE REQUIREMENTS, ALL INVERTS AND PIPE SIZES MUST BE VERIFIED PRIOR TO ANY CONSTRUCTION.

Legend:

●	IRON PIPE OR ROD FOUND
⌀	UTILITY POLE
○	MANHOLE
☒ EM	ELECTRIC BOX/METER
⊢	SIGN
▤	CATCH BASIN
⌭	HYDRANT
⊗	WATER VALVE OR SHUTOFF
⊛	GAS VALVE
☼	LIGHT POLE
◎ ICV	IRRIGATION CONTROL VALVE
T	TRANSFORMER PAD
X X	FENCE
	CURB
— —	OVERHEAD WIRES
UGE	UNDERGROUND POWER
UGC	UNDERGROUND COMMUNICATION
W	WATER LINE
G	GAS LINE
SD	STORM DRAIN
SS	SANITARY SEWER
30	1' CONTOUR
IPF/IRF	IRON PIPE OR ROD FOUND
INV.	INVERT
FFE	FINISHED FLOOR ELEVATION
N/F	NOW OR FORMERLY
000/000	DEED BOOK AND PAGE

SCALE : 1" = 50'

0' 25' 50' 100'

EXISTING CONDITIONS PLAN

AT

175 FORE RIVER PARKWAY, PORTLAND, MAINE

MADE FOR

MERCY HOSPITAL

175 FORE RIVER PARKWAY, PORTLAND, MAINE

OWEN HASKELL, INC.
PROFESSIONAL LAND SURVEYORS
390 U.S. ROUTE ONE, FALMOUTH, ME 04105 (207)774-0424

Drawn By SDG	Date	Job No.
Trace By JLW	MARCH 10, 2017	2013-024P
Check By SDG	Scale	Drwg. No.
Book No. FILE	1" = 50'	2 OF 2

VRAP SURFACE TREATMENT LEGEND

- ASH CONSOLIDATION AREA MINIMUM 3' BELOW GRADE
- MINIMUM 6" OF TERRASEED OVERLYING BLACK GEOTEXTILE FABRIC EXCEPT IN DENSE TREES (3" OF TERRASEED ONLY)
- MINIMUM 3" OF TERRASEED
- MINIMUM 3" OF TERRASEED OVER 6" OF GRANULAR BORROW OVERLYING BLACK GEOGRID
- MINIMUM 12" OF CLEAN SOIL OVERLYING ORANGE SNOW FENCE DEMARCATION AND ASH
- MINIMUM 24" OF CLEAN SOIL OVERLYING RESIDUAL ASH
- MINIMUM 36" OF CLEAN SOIL OVERLYING RESIDUAL ASH
- MINIMUM 36" OF CLEAN SOIL OVERLYING RESIDUAL ASH
- MINIMUM 5' OF CLEAN SOIL OVERLYING RESIDUAL ASH
- MINIMUM 8' OF CLEAN SOIL OVERLYING RESIDUAL ASH
- 4" STONE DUST OVER 8" SUBBASE GRAVEL OVER GEOGRID SEPARATION FABRIC
- MINIMUM 14" OF HEAVY RIPRAP OVER GEOTEXTILE SEPARATION FABRIC

PAN AM RAILWAY

N/F
ST. JOHN STREET ASSOCIATES
LIMITED PARTNERSHIP
6864/210

EXISTING PERIMETER ACCESS ROAD

GAS FACILITIES EASEMENT 25696/212

PARCEL A TRACT TWO UTILITY AREA 1
23723/214 & 25738/60
22764/139 & 17783/296

UNDERGROUND UTILITY LINE EASEMENT MAIN LINE

PORTLAND WATER DISTRICT WATER LINE EASEMENT 25624/210

RECREATIONAL TRAIL EASEMENT 25855/253 26346/137

POND

POND EASEMENT AREA 25591/149

EDGE OF POND

(SEE NOTE 7) EDGE OF POND

UNDERGROUND UTILITY LINE EASEMENT SPUR 25971/306

N/F
UNION STATION
LIMITED PARTNERSHIP
10144/23

PARCEL A TRACT THREE
LICENSE AGREEMENT
17783/322
LICENSE AGREEMENT
14203/252

COUNTY WAY

N/F
INHABITANTS
CUMBERLAND COUNTY
STATE OF MAINE
9382/61
9820/263

CUMBERLAND COUNTY JAIL

MERCY HOSPITAL
4 STORY BRICK BUILDING
FOOTPRINT - 37,566 GSF
TOTAL AREA - 138,099 GSF

MEDICAL OFFICE BUILDING
4 STORY BRICK
FOOTPRINT - 20,047 GSF
TOTAL AREA - 82,186 GSF

I-295 CONNECTOR (FORE RIVER PARKWAY)

FORE RIVER MUD FLATS

AREA BETWEEN HIGH & LOW WATER OWNED BY MERCY HOSPITAL

HIGH WATER LINE OF FORE RIVER

FORE RIVER

EX. FORE RIVER TRAIL - 10' WIDE, SHARED USE

APPROXIMATE LIMIT OF DISTURBANCE

SEE GEOTECHNICAL RECOMMENDATIONS BY HALEY & ALDRICH FOR ALL GRUBBING AND SOIL BACKFILL REQUIREMENTS

REMOVE / RESET CURB AS NECESSARY

PROTECT EXISTING PRECAST WALL UNITS

SAWCUT PAVEMENT

SAWCUT & REMOVE PAVEMENT

REMOVE / RESET LIGHT POLE AS NECESSARY

REMOVE PORTION OF EX. GUARDRAIL & CURB

SAWCUT & REMOVE PAVEMENT

REMOVE / RESET LIGHT POLE & SIGN AS NECESSARY

REMOVE & RELOCATE RETAINING WALL (SEE NOTE 1)

PROTECT UNDERGROUND UTILITIES, TYP.

SOLID WASTE CONTAINERS (TO REMAIN)

SAWCUT & REMOVE PAVEMENT

ALTER CATCH BASIN

PROTECT CHAIN LINK FENCE, OIL TANK & OIL LINES

REMOVE FENCE

REMOVE GUARDRAIL
REMOVE CURB
REMOVE CATCH BASIN & DRAIN PIPE
REMOVE UGE & LIGHT POLE
REMOVE ASPHALT
REMOVE SIGNS
REMOVE SIGN
REMOVE UGE & LIGHT POLE
REMOVE CATCH BASIN & DRAIN PIPE
REMOVE / SALVAGE CURB
REMOVE ASPHALT
REMOVE SIGNS
REMOVE CURBED ISLAND & GATE SYSTEM
PLUG EX. CB INLET & ADJUST RIM TO GRADE
RESET SMH RIM TO GRADE

EXISTING FIRE DEPT. CONNECTIONS TO BE RELOCATED - SEE SHEET FP100CD

PROTECT EXISTING BUILDING

PROTECT SMH, TYP.

REMOVE CONCRETE SIDEWALK TO NEAREST JOINT, TYP.

REMOVE SIGNS

PROTECT EXISTING BUILDING

PROTECT EX. LIGHT / GAS SERVICE METER

PROTECT EXISTING UTILITIES

PROTECT EXISTING ASPHALT

PROTECT EXISTING HYDRANT, SIGN, LIGHT POLE & UGE, TYP.

REMOVE CURB

PROTECT CURB

EX. 4" FM (CONNECTS TO TERMINUS MANHOLE AT FRONT OF BLDG.

EX. WATER MAIN TO ST. JOHN STREET

EX. FIRE LINE SUPPLY METER PIT

THIS AREA INCLUDED IS VOLUME CALCULATION (SEE NOTE 7)

EX. SMH RIM 21.47± INV. IN 11.67 INV. OUT 11.62

EX. SMH RIM 25.27± INV. IN 12.95± INV. OUT 12.91±

EX. SMH RIM 21.61± INV. IN 12.32± INV. OUT 12.21±

S10°57'07"E 290.08'

S09°28'00"E 437.09'

S11°04'37"E 151.16'

S11°06'10"E 180.50' 42" SEWER 20125/262

S22°56'45"E 417.28'

S14°34'54"E 364.94'

L=1102.20'

R=922.37'

L=82.60'

L=185.42'
R=197.50'

L=197.60'
R=1184.38'

S62°48'26"E 13.12'

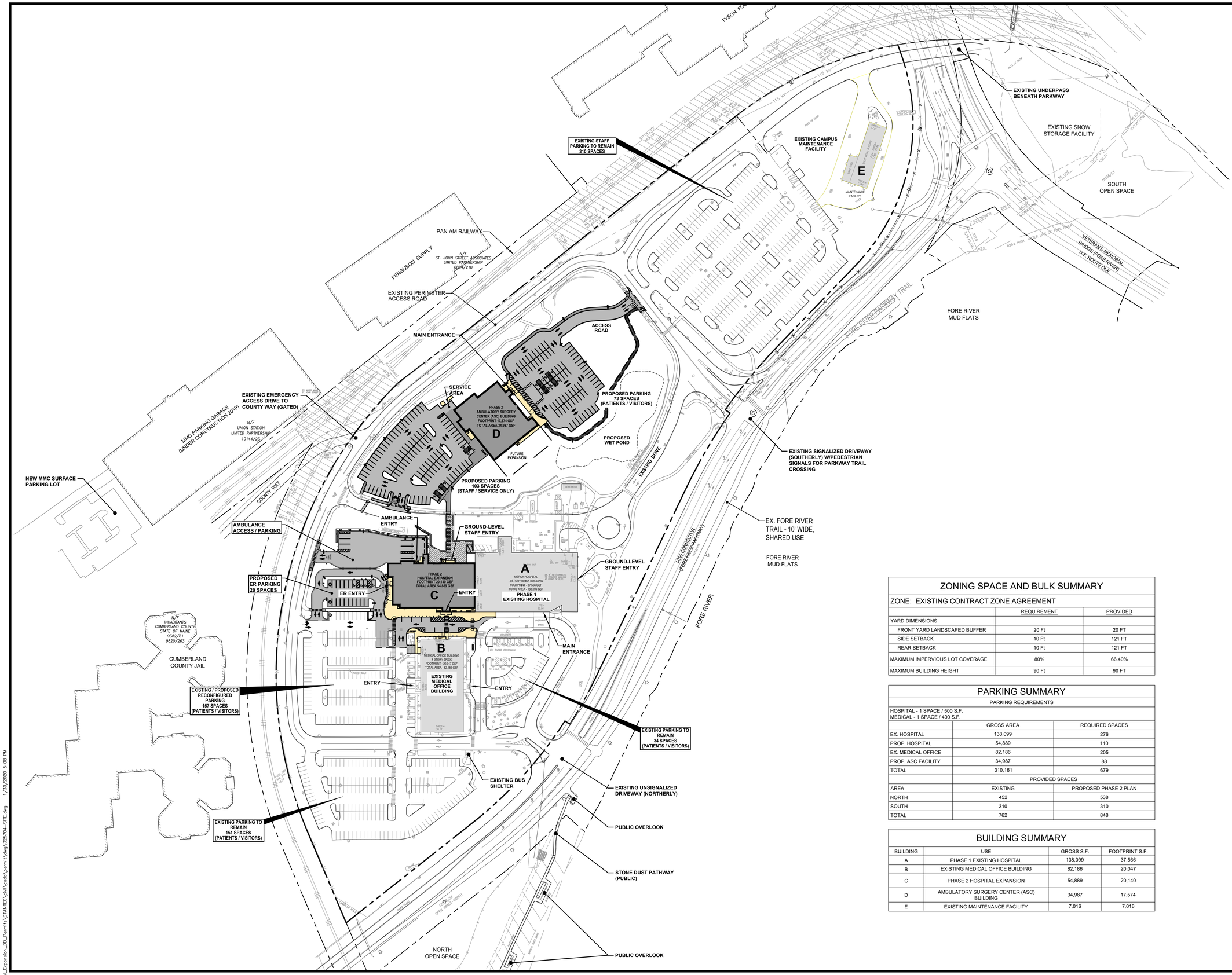
S36°45'05"W 472.62'

N48°19'11"W 252.78'

N48°17'54"E 66.00'

R=950.37'

CB RIM=18.63 12"RPP OUT=14.53
CB RIM=18.61 12"RPP IN=13.61 15"RPP OUT=13.81
CB RIM=19.91 12"RPP IN=15.41 12"BOTTOM TRAP OUT=15.31
CB RIM=19.90 12"BOTTOM TRAP OUT=15.92
CB RIM=21.81 12"BOTTOM TRAP OUT=16.81
SMH RIM=21.79 12"RPP IN=15.49 12"RPP OUT=15.49 15"RPP OUT=15.39
CB RIM=23.51 12"BOTTOM TRAP OUT=18.61
CB RIM=23.65 12"RPP IN=19.05
CB RIM=28.85 12"BOTTOM TRAP OUT=25.25
SMH RIM=29.37 8"SS IN=18.87 8"PVC OUT=18.77
CB RIM=29.36 12"BOTTOM TRAP OUT=23.86
CB RIM=29.34 (A)12"RPP IN=23.44 (B)12"RPP IN=24.44 12"BOTTOM TRAP OUT=23.34
CB RIM=29.33 18"RPP IN=22.13 18"RPP OUT=21.93
CB RIM=30.13 (A)12"RPP IN=18.73 (B)12"RPP IN=18.73 (C)18"RPP IN=18.63 24"RPP OUT=18.58
SMH RIM=30.14 (A)8"SS IN=22.04 (B)8"SS IN=22.04 12"RPP OUT=21.94
CB RIM=31.74 (A)12"RPP IN=25.84 (B)8"SS IN=25.82
SMH RIM=31.72 (A)8"PVC IN=25.82 (B)8"SS IN=25.82
CB RIM=32.06 12"RPP IN=14.23
CB RIM=32.08 12"RPP IN=14.23



ZONING SPACE AND BULK SUMMARY

ZONE: EXISTING CONTRACT ZONE AGREEMENT

	REQUIREMENT	PROVIDED
YARD DIMENSIONS		
FRONT YARD LANDSCAPED BUFFER	20 Ft	20 FT
SIDE SETBACK	10 Ft	121 FT
REAR SETBACK	10 Ft	121 FT
MAXIMUM IMPERVIOUS LOT COVERAGE	80%	66.40%
MAXIMUM BUILDING HEIGHT	90 Ft	90 FT

PARKING SUMMARY

PARKING REQUIREMENTS

HOSPITAL - 1 SPACE / 500 S.F.
MEDICAL - 1 SPACE / 400 S.F.

	GROSS AREA	REQUIRED SPACES
EX. HOSPITAL	138,099	276
PROP. HOSPITAL	54,889	110
EX. MEDICAL OFFICE	82,186	205
PROP. ASC FACILITY	34,987	88
TOTAL	310,161	679

PROVIDED SPACES

AREA	EXISTING	PROPOSED PHASE 2 PLAN
NORTH	452	538
SOUTH	310	310
TOTAL	762	848

BUILDING SUMMARY

BUILDING	USE	GROSS S.F.	FOOTPRINT S.F.
A	PHASE 1 EXISTING HOSPITAL	138,099	37,566
B	EXISTING MEDICAL OFFICE BUILDING	82,186	20,047
C	PHASE 2 HOSPITAL EXPANSION	54,889	20,140
D	AMBULATORY SURGERY CENTER (ASC) BUILDING	34,987	17,574
E	EXISTING MAINTENANCE FACILITY	7,016	7,016

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE

80 0 40 80 160

(IN FEET)

1 inch = 80 ft.

STATE OF MAINE
STEPHEN R. BUSHEY
01.30.20
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
3	01.30.20	REVISED / RESUBMITTED CONSTRUCTION DOCUMENTS
2	01.29.20	REVISED / RESUBMITTED TO DEP – L.O.R. #2
1	11.04.19	PREPARED FOR L.O.R. #1 & SUBMITTED TO CITY

Issued For	Date	By
CONSTRUCTION DOCUMENTS FOR PRICING ONLY	11.22.19	SRB
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB | Draft: CDD | Date: AUG. 2019
Checked: SRB | Scale: NTS | Job No.: 3257.04
File Name: 325704--SITE.dwg

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Drawing Name: Overall Campus Map
Project: Fore River Campus Consolidation
Portland, Maine
Client: Northern Light Mercy Hospital
144 State Street, Portland, Maine 04101

Drawing No. C-3.0

U:\3257.04_Mercy Hospital_Expansion_DD_Permits\STANTEC\civil\cadd\permit\dwg\325704--SITE.dwg 1/30/2020 5:08 PM

SIGN LEGEND

R1-1 24"x24" A	R7-8A 18"x12" R7-8 12"x6" B	R4-7 24"x30" C	18"x12" D	R8-4EVO 30"x24" E	18"x12" F	R3-5L 30"x36" G	R3-5A 30"x36" H	R5-1 30"x30" I	W11-2A 30"x30" J
STOP	RESERVED PARKING VAN ACCESSIBLE		EMERGENCY VEHICLE PARKING ONLY	EMERGENCY VEHICLES ONLY	DROP-OFF ONLY NO PARKING	ONLY	ONLY	DO NOT ENTER	

SURFACE LEGEND

- STANDARD-DUTY BITUMINOUS ASPHALT PAVEMENT
- HEAVY-DUTY BITUMINOUS ASPHALT PAVEMENT
- BITUMINOUS SIDEWALK
- CONCRETE SIDEWALK

ABBREVIATIONS

L/S	LANDSCAPED AREA
4'TD	4' LONG CURB TIPDOWN (WHERE CURB IS ADJACENT TO LAWN AREA)
7'TD	7' LONG CURB TIPDOWN (WHERE CURB IS ADJACENT TO SIDEWALK)

NOTES:

1. ALL DIMENSIONING, UNLESS OTHERWISE NOTED, IS TO THE FACE OF BUILDING, FACE OF CURB OR TO THE EDGE OF PAVEMENT.
2. SNOW WILL BE REMOVED FROM PARKING AREAS AND HAULED TO THE SNOW DUMP AT THE SOUTH END OF THE SITE, TYP.

PHASE 2
AMBULATORY SURGERY CENTER (ASC) BUILDING
FOOTPRINT 17,574 GSF
TOTAL AREA 34,987 GSF

PHASE 2
HOSPITAL EXPANSION
FOOTPRINT 20,140 GSF
TOTAL AREA 54,889 GSF

MERCY HOSPITAL
4 STORY BRICK BUILDING
FOOTPRINT - 37,566 GSF
TOTAL AREA - 138,099 GSF
PHASE 1
EXISTING HOSPITAL

MEDICAL OFFICE BUILDING
4 STORY BRICK
FOOTPRINT - 20,047 GSF
TOTAL AREA - 82,186 GSF

FUTURE EXPANSION

PROPOSED PARKING 73 SPACES (PATIENTS / VISITORS)

PROPOSED PARKING 103 SPACES (STAFF / SERVICE ONLY)

PROPOSED ER PARKING 20 SPACES

PROPOSED WET POND

EXISTING DRIVE

COUNTY WAY

I-295 CONNECTOR (FORE RIVER PARKWAY)

EXISTING PERIMETER ACCESS ROAD

MATCH LINE - SEE INSET BELOW

ACCESS ROAD

6' WIDE BITUMINOUS ASPHALT SIDEWALK, TYP.

VERTICAL CURB / WALL AT BACK OF SIDEWALK 120 LF±

121.86' SETBACK

100.12' SETBACK

ADA COMPLIANT RAMP & DETECTABLE WARNING PANEL, TYP.

REMOVE / RESET LIGHT POLE AS NECESSARY

SIGNAGE FOR ASC FACILITY (T.B.D.)

PROPOSED TRAIL CONNECTION

PROPOSED GRANITE OR SLIPFORM CURB, TYP.

CANOPY OVER CONCRETE SLAB

MAIN ENTRY DOOR

NEW BIKE RACK (9 BIKES)

DROP-OFF ZONE

REINFORCED CONCRETE PADS FOR TRANSFORMER & GENERATOR

SERVICE AREA

6" DIA. x 4' HIGH CONCRETE FILLED PIPE BOLLARD, 8' O.C.

DOOR

6" DIA. x 4' HIGH BOLLARD, 8' O.C.

CANOPY OVER CONCRETE SLAB

FLUSH W / SIDEWALK

PROPOSED REINFORCED CONCRETE SIDEWALK

STRUCTURAL SLAB AT ALL DOORS (SEE STRUCTURAL PLANS) TYP.

NEW BIKE RACK (9 BIKES)

PROPOSED BITUMINOUS SIDEWALK

PROPOSED GRANITE OR SLIPFORM CURB, TYP.

EXISTING RETAINING WALL TO REMAIN

ADA COMPLIANT RAMP & DETECTABLE WARNING PANEL, TYP.

MATCH EXISTING PAVEMENT, TYP.

6" DIA. x 4' HIGH BOLLARDS, 8' O.C.

HOSPITAL RESERVES THE RIGHT TO INSTALL GATE CONTROLS

REMOVE & RESET CURB AS NECESSARY, TYP.

PROPOSED RETAINING WALL LARGE BLOCK UNITS TO BE SALVAGED FOR REUSE - STRUCTURAL DESIGN REQUIRED SEE NOTE ON SHEET C-2.1

REMOVE / RESET LIGHT POLE AS NECESSARY

METAL GUIDERAIL AT TOP OF WALL, BEHIND CURB, WHERE SHOWN (APPROX. 240 LF)

COLUMNS

10' WIDE TEXTURED ASPHALT OR PAINTED CROSSWALK

REMOVE EXISTING RETAINING WALL & MATCH EXISTING HEAVY-DUTY PAVEMENT IN THIS AREA

EXISTING LOADING DOCK

AMBULANCE PARKING

AMBULANCE STANDING / ACCESS AREA

HEAVY-DUTY PVMT.

MODULAR BLOCK RETAINING WALL WALL HEIGHT TO EL. 17.5± - TO PROVIDE FOR COVER OVER EXISTING BLDG. FOUNDATION (TYP.) PROVIDE GRANULAR BORROW INFILL AND 6" OF ¾" CRUSHED STONE SURFACE COVER

EXISTING BIKE RACK (9 BIKES)

LOWER LEVEL STAFF ENTRANCE ONLY

FENCE / BARRIER T.B.D.

ADA COMPLIANT RAMP & DETECTABLE WARNING PANEL, TYP.

PATIENT EMERGENCY DROP OFF

REINFORCED CONCRETE LANDING, STEPS & RAMP - SEE STRUCTURAL PLANS

STRUCTURAL SLAB AT ALL DOORS (SEE STRUCTURAL PLANS) TYP.

FLUSH CURB / SIDEWALK

4' HIGH BOLLARD, 8' O.C.

NEW BIKE RACK (4 BIKES)

MAIN ENTRANCE / VESTIBULE

PATIENT DROP OFF

PAINTED CHEVRON PAVEMENT MARKINGS, TYP.

EXISTING PERIMETER ACCESS ROAD

MATCH EXISTING CURB & SIDEWALK, TYP.

PROPOSED REINFORCED CONCRETE SIDEWALK

EX. BIT. WALK - WIDTH VARIES

8' WIDE PAINTED CROSSWALK, TYP.

NEW BIKE RACK (9 BIKES)

ADA COMPLIANT RAMP & DETECTABLE WARNING PANEL, TYP.

REMOVE CONCRETE SIDEWALKS TO NEAREST JOINT, TYP.

8' WIDE PAINTED CROSSWALK

MATCH EXISTING PAVEMENT, TYP.

END RAILING

5' x 6' LANDING

5' x 16' LONG RAMP

WALL WITH RAILING

5' x 5' LANDING

8' WIDE PAINTED CROSSWALK

MATCH EXISTING PAVEMENT, TYP.

RECONSTRUCT BIT. SIDEWALK, CURB & ADA RAMPS

MATCH EXISTING CURB & SIDEWALK

PHARMACY ENTRANCE

EXISTING HOSPITAL MAIN ENTRANCE DRIVE

NEW DERO BIKE HITCH (4 BIKES)

EXIST. BIKE RACK TO BE RELOCATED HERE (9 BIKES)

EX. FORE RIVER TRAIL - 10' WIDE, SHARED USE

EX. WATER MAIN TO ST. JOHN STREET

EX. FIRE LINE SUPPLY METER PIT

EX. 4" FM (CONNECTS TO TERMINUS MANHOLE AT FRONT OF BLDG.

EX. HYDRANT

EX. LIFT STA.

EX. SMH

EX. GREASE TANK

CHILLER PIPE

OXYGEN

CHILLER

GENERATOR

TRANS.#9 & GENERATOR

EX. CONC.

EX. RAISED CROSSWALK

EX. LIGHT, TYP.

PAVED WALK

CHAIN LINK FENCE

OVERHANG BRICK

CONCRETE

BRICK

SIGNAL POLE #9

SIGNAL POLE #10

#9 w/UCP

#10 w/UCP

N/F
N STATION
PARTNERSHIP
0144/23

N49°17'54"E 66.00'

R=988.17'

L=176.13'

S76°56'54"E 67.28'

S76°56'23"W 82.47'

S15°05'48"E 175.90'

S15°06'16"E 86.50'

NORTH

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)

1 inch = 30 ft.

INSET - SAME SCALE AS MAIN PLAN

SIGNAGE FOR ASC FACILITY (T.B.D.)

EX. SLOPED GRANITE CURB

ADA COMPLIANT RAMP & DETECTABLE WARNING PANEL, TYP.

MATCH EX. PAVEMENT, TYP.

6' WIDE PAINTED CROSSWALK

6' WIDE BITUMINOUS ASPHALT SIDEWALK, TYP.

ACCESS ROAD

ADA COMPLIANT RAMP & DETECTABLE WARNING PANEL, TYP.

REMOVE / RESET LIGHT POLE AS NECESSARY

SIGNAGE FOR ASC FACILITY (T.B.D.)

MATCH LINE - SEE MAIN PLAN

NOTES:

1. INSTALL BIKE RACK FOR 5 BIKES ON EXISTING BUS SHELTER PAD WHEN SHELTER IS RELOCATED TO FORE RIVER PARKWAY.
2. A TOTAL OF 58 BIKE SPACES SHALL BE PROVIDED ONSITE.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
LICENSED PROFESSIONAL ENGINEER
01.30.20

STEPHEN R. BUSHEY, P.E.
LIC. #7429

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File Name: 325704-SITE.dwg

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207.772.2515

Drawing Name: Overall Site Layout Plan
Project: Fore River Campus Consolidation
Portland, Maine
Client: Northern Light Mercy Hospital
144 State Street, Portland, Maine 04101

Drawing No. C–3.1

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UNION STATION PLAZA

FERGUSON SUPPLY

PAN AM RR

EXISTING PERIMETER ACCESS ROAD

TYSON FOODS

COUNTY WAY

SIGN #028
Parking
Physician & Employee Parking
Urgent Care

SIGN #028
Parking
Physician & Employee Parking

SIGN #073
T.B.D.

SIGN #074
T.B.D.

SIGN #033 (SOUTH SIDE)
Pharmacy

SIGN #033 (NORTH SIDE)
Medical Office Building
Pharmacy
Hospital Entrance
Urgent Care

SIGN #032
Medical Office Building
Hospital
Urgent Care

SIGN #031
Medical Office Building
Hospital
Urgent Care

SIGN #022
Hospital
Drop-Off
Urgent Care

SIGN #022
Patient Parking
Pharmacy
Hospital
Drop-Off

SIGN #023
Hospital
Drop-Off
Exit to 295 N/ Congress St.
Urgent Care
Pharmacy

SIGN #023
Parking
Exit to 295 S/ Commercial St.
Pharmacy

SIGN #075
T.B.D.

SIGN #042
Exit
Staff Parking
Service Entrance

SIGN #042
Hospital
Drop-Off
Medical Office Building
Urgent Care

SIGN #072
T.B.D.

SIGN #050
Exit
Staff Parking

SIGN #071
T.B.D.

SIGN #070
T.B.D.

SIGN #052
No Exit

SIGN #052
Hospital
Medical Office Building
Service Entrance

SIGN #048
Employee
Drop-Off
Service Entrance
Medical Office Building
Hospital

STAFF PARKING

LOADING DOCKS

SERVICE ENTRANCE LOADING DOCK

PORTLAND TRAILS SIGN

VISITOR / PATIENT PARKING

STAFF DROP-OFF / PICK-UP

VISITOR / PATIENT PARKING

I-295 CONNECTOR

FORE RIVER PARKWAY

ONE WAY

FORE RIVER

FORE RIVER MUD FLATS

EX. FORE RIVER TRAIL - 10' WIDE SHARED USE

PORTLAND TRAILS SIGN

SIGN #025
Northern Light
Mercy Hospital
Hospital Entrance
Medical Office
Drop-Off
Patient Parking
Urgent Care
175 Fore River Parkway

SIGN #025
Northern Light
Mercy Hospital
Staff Parking
Service Entrance
175 Fore River Parkway

SIGN #015
(LOGO)
Northern Light
Mercy Hospital
Pharmacy
Parking
Patient Drop-Off
Urgent Care

SIGN #014
Urgent Care
Handicap Parking
Pharmacy Parking

SIGN #014
Urgent Care
Handicap Parking
Exit

SIGN #06
Hospital
Drop-Off
Medical Office Building
Drop-Off

SIGN #047
Service
Entrance
Exit

SIGN #049
Northern Light
Mercy Hospital
Hospital Entrance
Medical Office Building
Staff Parking
Service Entrance
175 Fore River Parkway

SIGN #049
Northern Light
Mercy Hospital
Staff Parking
Service Entrance
175 Fore River Parkway

PORTLAND TRAILS SIGN (FACING WEST)

FORE RIVER PARKWAY TRAIL

FORE RIVER MUD FLATS

EXISTING SNOW STORAGE FACILITY

SOUTH OPEN SPACE

VETERANS MEMORIAL BRIDGE (FORE RIVER) U.S. ROUTE ONE

NOT SHOWN:
~~031~~
~~032~~
~~033~~
034 (DELETED)
~~044~~

NOTES: CONTRACTOR SHALL COORDINATE WITH NICK MUNRO OF NORTHERN LIGHT HEALTH RE: SCOPE OF WORK AND CONTRACT BASIS.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
75 0 37.5 75 150
(IN FEET)
1 inch = 75 ft.

STATE OF MAINE
STEPHEN R. BUSHEY
01.30.20
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

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Rev.	Date	Revision
3	01.30.20	REVISED / RESUBMITTED CONSTRUCTION DOCUMENTS
2	01.29.20	REVISED / RESUBMITTED TO DEP - L.O.R. #2
1	11.04.19	PREPARED FOR L.O.R. #1 & SUBMITTED TO CITY

Issued For	Date	By
CONSTRUCTION DOCUMENTS FOR PRICING ONLY	11.22.19	SRB
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DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB	Draft: CDD	Date: AUG. 2019	
Checked: SRB	Scale: NTS	Job No.: 3257.04	

File Name: 3257.04-WAYFINDING.dwg

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Drawing Name: Wayfinding Plan
Project: Fore River Campus Consolidation
Portland, Maine
Client: Northern Light Mercy Hospital
144 State Street, Portland, Maine 04101

Drawing No. C-3.2

SMRT
Architecture • Engineering • Planning

EXISTING PARKING

PROPOSED ACCESS ROAD

PROPOSED PARKING 73 SPACES
(PATIENTS / VISITORS)

3/4 MILE WALKING LOOP

ENTRANCE
(PATIENTS / VISITORS)

SERVICE AREA

PHASE 2
AMBULATORY
SURGURY

STAFF ENTRANCE

POND TRAIL LOOP

PROPOSED PARKING 103 SPACES
(STAFF/ SERVICE ONLY)

3/4 MILE WALKING LOOP

AMBULANCE ONLY

FORE RIVER

PHASE 2
HOSPITAL
EXPANSION

EMERGENCY WALK-IN

PROPOSED PARKING
(20 SPACES)

SECONDARY ENTRANCE

MAIN ENTRANCE

EXISTING PARKING

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)
1 inch = 30 ft.

Rev.	Date	Revision
1	11.04.19	PREPARED FOR L.O.R. #1 & SUBMITTED TO CITY

Issued For	Date	By
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Design: --- Draft: --- Date: AUG. 2019
Checked: --- Scale: AS NOTED Job No.: 3257.04
File Name: 325704-GRADING WITH TRAIL.dwg

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Drawing Name: **EXPANSION AREA PLAN**
Project: **Fore River Campus Consolidation**
Portland, Maine
Client: **Northern Light Mercy Hospital**
144 State Street, Portland, Maine 04101

Drawing No. C-4.0

J:\2019 Projects\19004_Mercy Fore River ASC\400 Design and Documentation\440 Contract Docs\441 Autocad\Xrefs\191209_LandscapeRendering\121819-DWGS\325704-GRADING WITH TRAIL.dwg 12/18/2019 9:03 AM

STORM DRAIN APPURTENANCE SCHEDULE						
ID	RIM	SIZE	INV. IN / SIZE / FROM	INV. OUT / SIZE / TO	NORTHING	EASTING
CB 1	16.35	* 6 ft Ø	11.85 / 18" / CB 2	11.75 / 18" / OUTFALL 1	297091.30	2922462.35
CB 2	17.10	4 ft Ø	12.60 / 18" / DMH 1 13.08 / 12" / DMH 2	12.50 / 18" / CB 1	297109.21	2922496.16
CB 4	27.45	4 ft Ø	23.08 / 15" / CB 5	22.98 / 15" / DMH 3	297408.61	2922444.04
CB 5	27.78	4 ft Ø	23.62 / 12" / CB 6 23.62 / 12" / RD 1	23.52 / 15" / CB 4	297454.60	2922420.34
CB 6	29.75	4 ft Ø		24.00 / 12" / CB 5	297480.04	2922360.50
CB 8	17.29	4 ft Ø	12.08 / 12" / CB 9	11.98 / 12" / OUTFALL 2	296780.03	2922472.55
CB 9	17.30	4 ft Ø	12.72 / 12" / CB 10 12.72 / 8" / RD 3	12.62 / 12" / CB 8	296791.03	2922529.24
CB 10	17.30	4 ft Ø	13.40 / 8" / CB 15	13.30 / 12" / CB 9	296803.07	2922591.29
CB 11	17.80	4 ft Ø	12.50 / 12" / INLET 1	12.40 / 12" / OUTFALL 4	296592.33	2922614.25
CB 12	30.80	10 in Ø		25.90 / 8" / CB 12A	297264.56	2922150.00
CB 12A	30.08	10 in Ø	25.58 / 8" / CB 12	25.48 / 8" / CB 13	297293.96	2922165.61
CB 13	29.80	10 in Ø	25.16 / 8" / CB 12A	25.06 / 8" / CB 14	297323.71	2922180.52
CB 14	30.66	4 ft Ø	24.26 / 8" / CB 13 24.26 / 12" / CB 14A	23.00 / 12" / EX CB 3	297316.76	2922195.95
CB 14A	30.88	4 ft Ø		26.10 / 12" / CB 14	297235.73	2922153.18
CB 15	17.80	2 ft x 2 ft		14.30 / 8" / CB 10	296891.61	2922626.87
DMH 1	20.10	4 ft Ø	14.18 / 15" / DMH 4 14.75 / 15" / DMH 3	13.93 / 18" / CB 2	297224.67	2922545.35
DMH 2	19.30	4 ft Ø	14.23 / 12" / EX CB1	14.13 / 12" / CB 2	297101.28	2922604.48
DMH 3	28.75	4 ft Ø	22.39 / 15" / CB 4	16.24 / 15" / DMH 1	297359.13	2922469.23
DMH 4	21.40	4 ft Ø	14.88 / 15" / EX CB2	14.78 / 15" / DMH 1	297283.94	2922571.03
EX CB 3	30.00	4 ft Ø	22.00 / 12" / CB 14	19.21 / 18" / EXIST	297355.70	2922219.38

*INSTALL WITH DOUBLE GRATE

EXISTING PERIMETER ACCESS ROAD

NOTES:

1. DUE TO CONSTRUCTION ON FILL, A FOUNDATION DRAIN FOR THE ASC BUILDING IS NOT PROPOSED.
2. CATCH BASIN OUTLET HOOD SHALL BE INSTALLED ON ALL CATCH BASIN OUTLET PIPES.
3. THE CONTRACTOR SHALL SUBMIT A DEWATERING PLAN TO THE OWNER FOR APPROVAL PRIOR TO THE START OF CONSTRUCTION. THE DEWATERING PLAN SHALL DESIGNATE A SITE FOR A SEDIMENT CONTAINMENT DEVICE SUCH AS A DIRTBAG™. SEDIMENT-LADEN WATER SHALL NOT BE DISCHARGED TO THE EXISTING STORM DRAIN SYSTEM.

ASC FACILITY F.F.E.: 19.00

GROUND FLOOR F.F.E. 17.55

FIRST FLOOR F.F.E. 32.00

HOSPITAL EXPANSION

MERCY HOSPITAL
4 STORY BRICK BUILDING
FOOTPRINT - 37,566 GSF
TOTAL AREA - 138,099 GSF

PROPOSED WET POND PERMANENT POOL EL. 9.5

SEE SHEET C-4.1 FOR DETAILED GRADING IN THIS AREA

STORM DRAIN PIPE SCHEDULE			
ID	SIZE	LENGTH	SLOPE
SD 1	18"	27'	0.0273
SD 2	18"	33'	0.0195
SD 3	18"	122'	0.0109
SD 4	15"	151'	0.0099
SD 5	15"	52'	0.0114
SD 6	15"	48'	0.0092
SD 7	12"	61'	0.0062
SD 8	15"	61'	0.0099
SD 10	12"	105'	0.0100
SD 12	12"	82'	0.0364
SD 13	12"	54'	0.0100
SD 14	12"	59'	0.0098
SD 15	10"	26'	0.0765
SD 16	12"	37'	0.0107
SD 17	8"	32'	0.0100
SD 17A	8"	32'	0.0100
SD 18	8"	14'	0.0553
SD 19	12"	41'	0.0241
SD 20	12"	50'	0.0101
SD 21	12"	160'	0.0273
SD 22	12"	88'	0.0210
SD 23	8"	92'	0.0075
SD 24	8"	92'	0.0097

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
30 0 15 30 60
(IN FEET)
1 inch = 30 ft.

STATE OF MAINE
STEPHEN R. BUSHEY
01.30.20
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
3	01.30.20	REVISED / RESUBMITTED CONSTRUCTION DOCUMENTS
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Design: SRB | Draft: CDD | Date: AUG. 2019
Checked: SRB | Scale: 1" = 30' | Job No.: 3257.04
File Name: 325704–GRADING WITH TRAIL.dwg

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Drawing Name: Overall Grading, Drainage & Erosion Control Plan
Project: Fore River Campus Consolidation
Portland, Maine
Client: Northern Light Mercy Hospital
144 State Street, Portland, Maine 04101

Drawing No. C–4.0

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MEDICAL OFFICE BUILDING

4 STORY BRICK

HOSPITAL EXPANSION

GROUND FLOOR
F.F.E. 17.55

FIRST FLOOR
F.F.E. 32.00

CANOPY OVERHANG, TYP. SEE ARCHITECTURAL PLANS FOR DETAILS

SEE STRUCTURAL PLANS FOR INTERFACE BETWEEN BLOCK WALL AND BUILDING FOUNDATION

CORE EXISTING CATCH BASIN TO ACCEPT NEW 4" FOUNDATION DRAIN. INV. 9.87

MATCH EX. CB RIM EL.13.97

4" PERFORATED FOUNDATION DRAIN COORDINATE WITH ARCHITECTURAL / STRUCTURAL PLANS

4" FOUNDATION DRAIN OUTLET

DIRECT RUNOFF TO CATCH BASIN

5' x 9' REINFORCED CONCRETE STRUCTURAL PAD, ACCESSIBLE RAMP WITH HAND RAIL AND STAIRS. SEE ARCHITECTURAL / STRUCTURAL PLANS FOR DETAILS.

ROOF / FOUNDATION DRAIN EXIT PT. (SEE PLUMBING PLANS)

SEE ARCHITECTURAL / STRUCTURAL PLANS FOR ALL TRANSITIONS FROM EXISTING HOSPITAL TO EXPANSION SPACE, TYP.

12" ROOF DRAIN EXIT POINT INV. 26.58 COORDINATE WITH ARCHITECTURAL PLANS

RD 1
INV. OUT 26.58

SLIDING DOORS

EMERGENCY DROP-OFF ONLY

PROVIDE FLUSH TRANSITION FROM CONCRETE SIDEWALK TO BIT. PAVEMENT SURFACE, TYP.

SEE STRUCTURAL PLANS FOR FOUNDATION DRAIN REQUIREMENTS, TYP.

PROVIDE FLUSH TRANSITION FROM CONCRETE SIDEWALK TO BIT. PAVEMENT SURFACE, TYP.

SEE ARCHITECTURAL PLANS FOR BUILDING COLUMNS AND INTERFACE WITH EXTERIOR CONCRETE AREAS.

GRADE TO DRAIN, TYP.

MAX. CROSS SLOPE 2% WIDTH TO MATCH EX. BIT. SIDEWALK WIDTH

CORE EXISTING CATCH BASIN TO ACCEPT NEW 12" STORM DRAIN. ADJUST RIM TO GRADE

ADJUST SMH TO GRADE, TYP.

SLIDING DOORS

ADJUST ELEC. MANHOLE RIM TO GRADE, TYP.

EX CB 3

CB 14

CB 14A

CB 13
10" NYLOPLAST WITH DOME GRATE

CB 12
10" NYLOPLAST WITH DOME GRATE

CB 12A
10" NYLOPLAST WITH DROP IN GRATE

SD 17A

SD 17

SD 18

SD 19

SD 22

TEST PIT TO DETERMINE EXACT LOCATION & ELEVATION OF UNDERGROUND UTILITIES, TYP.

UGE MAY REQUIRE REMOVAL / RESETTING TO MAKE WAY FOR SD, TYP.

RAISE TEL. BOX TO GRADE

GRADE TO DIRECT RUNOFF AWAY FROM BLDG.

MATCH EXISTING ELEVATION OF ENTRANCE SLAB

ALTER CATCH BASIN INLET & ADJUST RIM TO GRADE

GRADE TO DIRECT RUNOFF TO CB, TYP.

EXISTING LANDSCAPED BED

GRADE TO DIRECT RUNOFF TO DRIVEWAY

MATCH EXISTING ELEVATION

MATCH EXISTING PAVEMENT ELEVATION

MATCH EXISTING CONCRETE ELEVATION

SMH RIM=31.72
(A)6"PVC IN=25.82
(B)8"SS IN=25.82
8"SS OUT=25.72

SMH RIM=30.14
(A)8"SS IN=22.04
(B)8"SS IN=22.04
8"SS OUT=21.94

CB RIM=28.31

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
10 0 5 10 15 20
(IN FEET)
1 inch = 10 ft.

STATE OF MAINE
STEPHEN R. BUSHEY
01.30.20
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
3	01.30.20	REVISED / RESUBMITTED CONSTRUCTION DOCUMENTS
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Design: SRB	Draft: CDD	Date: AUG. 2019
Checked: SRB	Scale:	Job No.: 3257.04

File Name: 325704–GRADING WITH TRAIL.dwg

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Drawing Name:	Detailed Grading Plan
Project:	Fore River Campus Consolidation Portland, Maine
Client:	Northern Light Mercy Hospital 144 State Street, Portland, Maine 04101

Drawing No. C–4.1

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EXISTING PERIMETER ACCESS ROAD

S10°57'07"E 290.08'

S09°29'00"E 197.09

S11°04'37"E 150.16'

S78°56'23"W 82.43'

N78°56'54"E 67.28'

S11°10'08"E 86.50'

N48°17'54"E 66.00'

L=384.91'

L=176.13'

L=1102.20'

R=922.37'

L=522.60'

R=988.37'

L=455.45'

L=197.60'

R=1184.38'

N62°48'29"E 13.12'

N36°45'03"W 472.62'

COUNTY WAY

I-295 CONNECTOR (FORE RIVER PARKWAY)

FORE RIVER

HIGH WATER LINE OF FORE RIVER

EX. FORE RIVER TRAIL - 10' WIDE SHARED USE

NORTH

GRAPHIC SCALE

30 0 15 30 60

(IN FEET)

1 inch = 30 ft.

N/F
UNION STATION
LIMITED PARTNERSHIP
10144/23

EXISTING 115 KVA POWER UNDERGROUND OIL ENCASED

TEST PIT TO DETERMINE EXACT LOCATION AND DEPTH OF EXISTING UTILITIES, TYP.

CONNECT TO EXISTING SANITARY SEWER MANHOLE 8" INV. IN = 11.72

EX SMH

CROSSING OF THE EXISTING 115KVA OIL ENCASED LINE SHALL INVOLVE HAND EXCAVATION WITH 5 FEET OF THE PIPE, IN ACCORDANCE WITH CENTRAL MAINE POWER CO. (CMP) REQUIREMENTS. CMP SHALL BE NOTIFIED 14 DAYS IN ADVANCE PRIOR TO ANY EXCAVATION WORK, TYP.

PROPOSED 8" SANITARY SEWER

SMH 1

TRENCHING THROUGH EXIST. ASH CONSOLIDATION ZONE FOR UTILITIES IS REQUIRED. IN-PLACE MATERIAL SHALL BE EXCAVATED AND DEPOSITED IN THE DESIGNATED VRAP SOILS AREAS IDENTIFIED ON FIGURE 1. A MARKER LAYER SHALL LINE THE TRENCH AND CLEAN PIPE BEDDING & BACKFILL MATERIAL PLACED UP TO A RESTORED SURFACE TO MATCH EXISTING.

PROPOSED GAS SERVICE - COORDINATE WITH GAS UTILITY CO.

PROPOSED UNDERGROUND ELECTRIC & COMMUNICATIONS
TWO 5" PVC CONDUITS (POWER) TO TRANSFORMER
FOUR 4" PVC CONDUITS (TEL / CABLE / SPARE)

EXISTING 115 KVA POWER UNDERGROUND OIL ENCASED

TEST PIT TO DETERMINE EXACT LOCATION AND DEPTH OF EXISTING UTILITIES, TYP.

PROPOSED FDC

PROPOSED LIGHT POLE LOCATION, TYP.
SEE LIGHTING / PHOTOMETRICS PLAN FOR POLE HEIGHT / FIXTURE TYPE, ETC.

SAN. SEWER EXIT POINT, INV. = 13.84
COORDINATE WITH PLUMBING PLANS

GENERATOR PAD

TWO 1½" MED. GAS LINES
(COORDINATE WITH GAS SUPPLIER)

3.5' MIN. SEPARATION

12"x4" TS & VALVE

12"x6" TS & VALVE

ASC FACILITY
F.F.E. = 19.00

PROPOSED 4" DOMESTIC SERVICE AND 6" FIRE SERVICE

PROPOSED 9x9 TRANSFORMER ON REINFORCED CONCRETE PAD

6" FIRE SERVICE ENTRY POINT

WATER SERVICE ROOM

EXISTING HYDRANT

½ BENDS, TYP.

COMMUNICATIONS HAND HOLE, TYP.

4" DOMESTIC WATER SERVICE ENTRY POINT AN RPZ AND A TESTABLE DOUBLE CHECK BACKFLOW PREVENTER ASSEMBLY IS REQUIRED AFTER THE DOMESTIC METER IN ACCORDANCE WITH P.W.D. REQUIREMENTS

2 SETS OF 2 x 4" CONDUITS FOR TEL. / COMM.

PROPOSED LIGHT POLE LOCATION, TYP. SEE LIGHTING / PHOTOMETRICS PLAN FOR POLE HEIGHT / FIXTURE TYPE, ETC.

RELOCATE LIGHT POLE, TYP.

EXISTING HYDRANT

EXISTING HYDRANT LOCATED APPROXIMATELY 80' SOUTH OF THIS LOCATION

EXISTING P.W.D. 12" SUPPLY MAIN (PVC)

EX. SMH RIM 21.47±
INV. IN 11.67
INV. OUT 11.62

CB RIM=19.91
12"RPP IN=15.41
12"BOTTOM TRAP OUT=15.31

CB RIM=19.52
12"BOTTOM TRAP OUT=15.52

EX. SMH RIM 25.83±
INV. IN 12.32±
INV. OUT 12.27±

EX. FIRE LINE SUPPLY METER PIT

CB RIM=21.81
12"BOTTOM TRAP OUT=16.81

DMH RIM=21.79
12"RPP IN=15.49
12"RPP IN=15.49
15"RPP OUT=15.39

CB RIM=23.51
12" BOTTOM TRAP OUT=18.61

DMH RIM=23.66
12"RPP IN=18.06
12"RPP OUT=18.06

CB RIM=28.85
12"BOTTOM TRAP OUT=25.25

EX. SMH RIM 25.27±
INV. IN 12.96±
INV. OUT 12.91±

SMH RIM=29.37
8"SS IN=18.87
8"PVC OUT=18.77

CB RIM=29.36
12"BOTTOM TRAP OUT=23.86

1,500 GALLON DECONTAMINATION WASTE HOLDING TANK

4" DECON

4" VENT

HAND HOLE

FIRE PUMP TEST HEADER (SEE FP100D)

PROPOSED FDC (RELOCATED)

PROPOSED LIGHT POLE LOCATION, TYP. SEE LIGHTING / PHOTOMETRICS PLAN FOR POLE HEIGHT / FIXTURE TYPE, ETC.

GROUND FLOOR
F.F.E. = 17.55

HOSPITAL ADDITION
FIRST FLOOR
F.F.E. = 32.00

NOTE: WATER & ELECTRICAL SERVICES PROVIDED INTERNALLY FROM EXISTING BUILDING

MERCY HOSPITAL
4 STORY BRICK BUILDING
FOOTPRINT - 37,566 GSF
TOTAL AREA - 138,099 GSF

ADJUST UTILITY MANHOLE RIM TO GRADE, TYP.

6" SAN. EXIT - INV. 27.00

TEST PIT TO DETERMINE EXACT LOCATION AND DEPTH OF EXISTING UTILITIES, TYP.

ADJUST SMH RIM TO GRADE, TYP.

ADJUST VALVE COVERS TO GRADE, TYP.

6" SAN. EXIT - INV. 27.00

TERMINUS SMH (FM DISCHARGE)

ADJUST VALVE BOXES TO GRADE, TYP.

EXISTING HYDRANT

TIE NEW 6" TO EXISTING WITH NEW WYE FITTING, TYP. AT EACH TIE-IN LOCATION

ADJUST PHONE CABINET TO GRADE

EX. 4" FM (CONNECTS TO TERMINUS MANHOLE AT FRONT OF BLDG.

PROPOSED LIGHT POLE LOCATION, TYP.
SEE LIGHTING / PHOTOMETRICS PLAN FOR POLE HEIGHT / FIXTURE TYPE, ETC.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.30.20
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7529

Rev.	Date	Revision
3	01.30.20	REVISED / RESUBMITTED CONSTRUCTION DOCUMENTS
2	01.29.20	REVISED / RESUBMITTED TO DEP – L.O.R. #2
1	11.04.19	PREPARED FOR L.O.R. #1 & SUBMITTED TO CITY

Issued For	Date	By
CONSTRUCTION DOCUMENTS FOR PRICING ONLY	11.22.19	SRB
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB	Draft: CDD	Date: AUG. 2019
Checked: SRB	Scale: 1" = 30'	Job No.: 3257.04

File Name: 325704–UTILITY.dwg

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Drawing Name: Overall Utility Plan – North

Project: Fore River Campus Consolidation
Portland, Maine

Client: Northern Light Mercy Hospital
144 State Street, Portland, Maine 04101

Drawing No. C–5.0

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N/F
ST. JOHN STREET ASSOCIATES
LIMITED PARTNERSHIP
6864/210

EXISTING PERIMETER
ACCESS ROAD

N/F
UNION STATION
LIMITED PARTNERSHIP
10144/23

N/F
INHABITANTS
CUMBERLAND COUNTY
STATE OF MAINE
9382/61
9820/263

CUMBERLAND
COUNTY JAIL

COUNTY WAY

EX. WATER MAIN
ST. JOHN STREET

EX. FIRE LINE
SUPPLY
METER PIT

EXIST. VEG. TO REMAIN

LOW MAINTENANCE

LAWN

NEW 2 - UP

NEW 8 - RW

NEW 12 - GB

NEW 4 - GB

PHASE 2
AMBULATORY SURGERY
CENTER (ASC) BUILDING
FOOTPRINT 17,574 GSF
TOTAL AREA 34,987 GSF

SWM
POND

EX. VEG.
TO REMAIN

FUTURE ASC
BLDG. EXPANSION

GENERATOR

TRANSPLANT 4 - BN

TRANSPLANT 6 - TOT

NEW 6 - MP

PHASE 2
HOSPITAL EXPANSION
FOOTPRINT 20,140 GSF
TOTAL AREA 54,889 GSF

MERCY HOSPITAL
4 STORY BRICK BUILDING
FOOTPRINT - 37,566 GSF
TOTAL AREA - 138,099 GSF

REMOVE / RESET /
TRANSPLANT SHRUBS
AROUND TRANSFORMER
AS NECESSARY

MEDICAL OFFICE BUILDING
4 STORY BRICK
FOOTPRINT - 20,047 GSF
TOTAL AREA - 82,186 GSF

EX. HYDRANT

EX. LIFT STA.

EX. SMH

EX. SAN. OUT

EX. 4" FM (CONNECTS TO TERMINUS MANHOLE AT FRONT OF BLDG.

LOAD DOCK

CONC. RAMP

OVERHANG BRICK

EX. RAISED CROSSWALK

PAVED WALK

PAVED ISLAND

EX. FORE RIVER TRAIL - 10' WIDE, SHARED USE

I-295 CONNECTOR
(FORE RIVER PARKWAY)

FORE RIVER

FORE RIVER
MUD FLATS

LANDSCAPE LEGEND

- EXISTING LANDSCAPING TO REMAIN
- T — EXISTING LANDSCAPING TO BE TRANSPLANTED
- R R — EXISTING LANDSCAPING TO BE REMOVED
- PROPOSED NEW LANDSCAPING
- LOW MAINTENANCE — LOW MAINTENANCE MIX = NEW ENGLAND EROSION CONTROL / RESTORATION MIX BY NEW ENGLAND WETLAND PLANTS, INC., OR EQUAL

NORTH

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 inch = 40 ft.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
11.04.19
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
1	11.04.19	PREPARED FOR L.O.R. #1 & SUBMITTED TO CITY

Issued For	Date	By
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB | Draft: CDD | Date: AUG. 2019
Checked: SRB | Scale: 1" = 40' | Job No.: 3257.04
File Name: 325704-LANDSCAPE.dwg

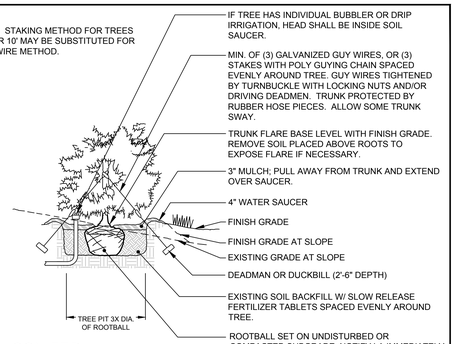
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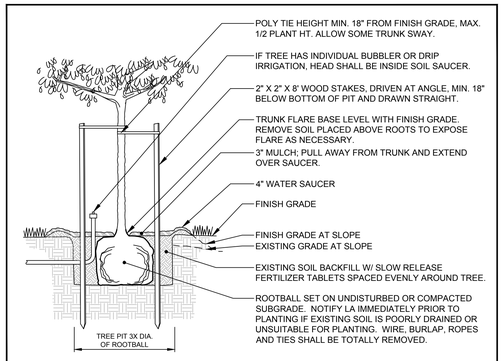
Drawing Name: LANDSCAPE PLAN
Project: Fore River Campus Consolidation
Portland, Maine
Client: Northern Light Mercy Hospital
144 State Street, Portland, Maine 04101

Drawing No. C-6.0

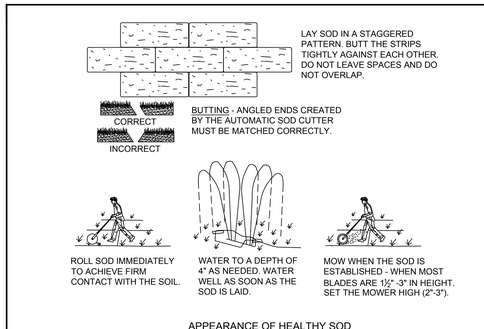
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A CONIFER INSTALLATION DETAIL
N.T.S.



E TREE INSTALLATION DETAIL: <10' HT.
N.T.S.



I SOD PLACEMENT DETAILS (IF SOD IS USED IN LIEU OF LOAM & SEED)
N.T.S.

SPECIFICATIONS

SITE PREPARATION
(a) INSTALL NEEDED WATER CONTROL MEASURES.
(b) GRADE SLOPES 2:1 OR FLATTER.
(c) BEFORE LAYING SOD, PROVIDE ADEQUATE DRAINAGE WHERE INTERNAL WATER MOVEMENT, ESPECIALLY AT THE TOE OF SLOPES, MAY CAUSE SEEPS OR SOIL SLIPPAGE.

SOIL PREPARATION
(a) PROVIDE THE BEST POSSIBLE SOIL CONDITIONS FOR SODDING. THE DESIRABLE SOIL TEXTURES INCLUDE SANDY LOAM, LOAM, AND SILT LOAM. WHERE DROUGHTY OR CLAYEY SOILS ARE ENCOUNTERED, CONSIDER AMENDING THEM WITH IMPORTED MATERIALS (TOPSOIL, COMPOST, SAND, ETC.) TO IMPROVE MOISTURE AND NUTRIENT RETENTION AND DRAINAGE. RESPREAD SCREENED NATIVE TOPSOIL (WHEN AVAILABLE) AFTER GRADING.

(b) IF TIME PERMITS, HAVE SOILS TESTED AND FOLLOW LIME AND FERTILIZER RECOMMENDATIONS.

(c) FILL AREAS MUST BE COMPACTED ENOUGH TO PREVENT UNEVEN SETTLING. THE ENTIRE SURFACE TO BE SODDED SHALL BE FREE FROM LARGE CLODS, STONES, OR OTHER DEBRIS. AT THIS STAGE, INCORPORATE LIME AND FERTILIZER UNIFORMLY INTO THE SURFACE SOIL AS NEEDED. IMMEDIATELY BEFORE SODDING, THE SOIL SHALL BE LOOSENED TO A DEPTH OF 1 INCH AND THOROUGHLY DAMPENED, IF NOT ALREADY MOIST. SOD SHALL NOT BE LAID ON DRY SOIL. THE LAST TILLAGE OPERATION SHOULD BE PERFORMED ACROSS THE SLOPE WHENEVER PRACTICAL.

SELECTION OF SOD
(a) SELECT SOD GROWN FROM SEED OF ADAPTED VARIETIES OR TYPES AND UNDER CULTURAL PRACTICES CONDUCIVE TO HIGH QUALITY SOD FREE OF THATCH, WEED, INSECT, DISEASE, AND OTHER PEST PROBLEMS.

(b) SELECT SPECIES AND VARIETIES BEST SUITED FOR THE SITES TO BE STABILIZED.

(c) SELECT SOD AT LEAST 15 MONTHS OLD AND NO OLDER THAN 3 YEARS. CULTIVATED TURF GRASS IS USUALLY CONSIDERED READY FOR HARVEST WHEN A CUT PORTION OF SOD 3 FEET LONG BY 1 TO 1 1/2 FEET WIDE WILL SUPPORT ITS OWN WEIGHT WHEN SUSPENDED VERTICALLY FROM THE UPPER 10 PERCENT OF THE SECTION. THE MOST COMMON AGE OF SOD WHEN CUT IS 15 TO 24 MONTHS.

(d) SELECT SOD CUTS OF WIDTH AND LENGTH SUITED TO THE PROJECT AND AVAILABLE EQUIPMENT. GENERALLY, SOD PIECES ARE 12 TO 24 INCHES WIDE, AVERAGING 18 INCHES IN WIDTH. LENGTHS OF PIECES VARY FROM 4 TO 8 FEET. SOD MAY BE CUT AND ROLLED OR FOLDED IN THE MIDDLE AND STACKED ON PALLETS. FOLDED SOD IS CUT SHORTER THAN ROLLED SOD - ABOUT 3 TO 4 FEET IN LENGTH. SOD SHOULD BE CUT WITH A 1/4 TO 1/2 INCH LAYER OF SOIL. ABOUT 80 PERCENT OF ALL RHIZOMES ARE IN THE TOP 3/4 INCH OF SOIL. THE THINNER THE SOD IS CUT THE MORE QUICKLY IT WILL KNIT TO THE SITE SOIL, BUT THE SOIL LAYER MUST BE THICK ENOUGH TO HOLD CUT PIECES TOGETHER WITHOUT FALLING APART.

(e) HAVE SOD DELIVERED TO THE SITE AS SOON AS PRACTICAL AFTER LIFTING. DURING HOT WEATHER, DELIVERY SHOULD BE MADE WITHIN 6 HOURS AND MAY BE EXTENDED TO 48 HOURS DURING COOL SEASONS. IT IS GENERALLY UNWISE TO MOVE SOD DURING JULY AND AUGUST. IF MOVED DURING THIS PERIOD, SOD MAY NEED TO BE CUT THICKER AND IT WILL REQUIRE FREQUENT IRRIGATION.

ESTABLISHMENT
(a) DATES: SOD CAN BE ESTABLISHED FROM APRIL 1st TO NOVEMBER 15th (MAY VARY WITH REGION OF STATE).

(b) LAY STRIPS OF SOD AT RIGHT ANGLES TO DIRECTION OF SLOPE OR FLOW OF WATER STARTING AT THE LOWEST ELEVATION. WEDGE THE EDGES AND ENDS OF THE SOD STRIPS TOGETHER AND TAMP OR ROLL. STAGGER JOINTS. LAY SO THE TOP OF THE SOIL LAYER IS FLUSH WITH THE TOP OF THE UNDISTURBED GROUND OR PAVEMENT SURFACE.

(c) USE WIRE STAPLES, FINE MESH WIRE OR WOOD PINS AND BINDER TWINE ON VERY STEEP SLOPES TO HOLD SOD IN PLACE UNTIL SECURED BY PLANT GROWTH.

(d) IRRIGATE SODDED AREA IMMEDIATELY AFTER INSTALLATION. IF UNFAVORABLE DRY WEATHER OR OTHER CONDITIONS PREVAIL, ADDITIONAL WATERING WILL SUBSEQUENTLY BE REQUIRED. IT MAY ALSO BE DESIRABLE TO IRRIGATE AREA FROM WHICH SOD IS TO BE REMOVED PRIOR TO LIFTING.

SODDED WATERWAYS
(a) CARE SHALL BE TAKEN TO PREPARE THE SOIL ADEQUATELY IN ACCORDANCE WITH THE SPECIFICATIONS. THE SOD TYPE SHALL CONSIST OF PLANT MATERIALS ABLE TO WITHSTAND THE DESIGNED VELOCITY.

(b) SOD STRIPS IN WATERWAYS SHALL BE LAID PERPENDICULAR TO THE DIRECTION OF FLOW (FIGURE 4.2). CARE SHOULD BE TAKEN TO BUTT ENDS OF STRIPS TIGHTLY.

(c) AFTER ROLLING OR TAMPING, SOD SHALL BE PEGGED OR STAPLED TO RESIST WASHOUT DURING THE ESTABLISHMENT PERIOD. CHICKEN WIRE, JUTE OR OTHER NETTING MAY BE PEGGED OVER THE SOD FOR EXTRA PROTECTION IN CRITICAL AREAS.

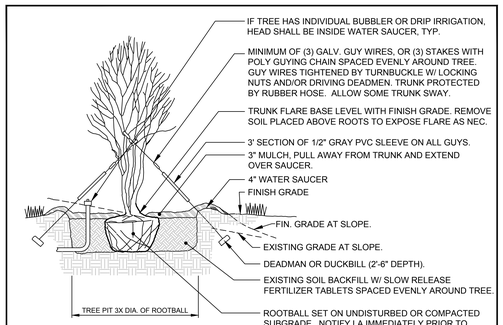
(d) ALL OTHER SPECIFICATIONS FOR THIS PRACTICE SHALL BE ADHERED TO WHEN SODDING A WATERWAY.

TIMING
WHEN SOD IS INSTALLED TO STABILIZE AREAS OF CONCENTRATED FLOW (INLETS, DIVERSIONS, DITCHES, ETC.), INSTALLATION MUST BE COMPLETED BEFORE RUNOFF IS DIRECTED TO THAT AREA.

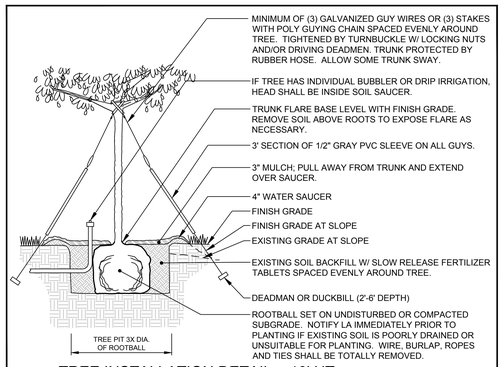
MAINTENANCE
(a) AFTER THE FIRST WEEK, SOD SHALL BE WATERED AS NECESSARY TO MAINTAIN ADEQUATE MOISTURE IN THE ROOT ZONE AND PREVENT DORMANCY OF SOD.

(b) NO MORE THAN 1/3 OF THE SHOOT (GRASS LEAF) SHOULD BE REMOVED IN ANY MOWING. GRASS HEIGHT SHOULD BE MAINTAINED BETWEEN 2 AND 3 INCHES UNLESS OTHERWISE SPECIFIED.

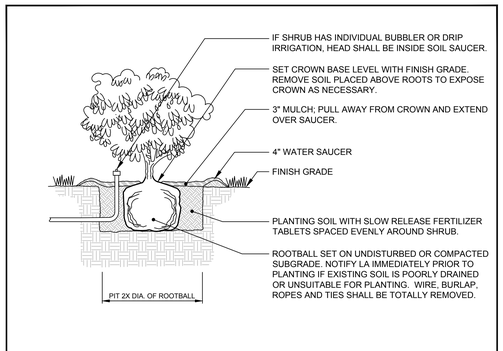
(c) AFTER THE FIRST GROWING SEASON, ESTABLISHED SOD WILL REQUIRE FERTILIZATION AND MAY REQUIRE LIME. FOLLOW SOIL TEST RECOMMENDATIONS.



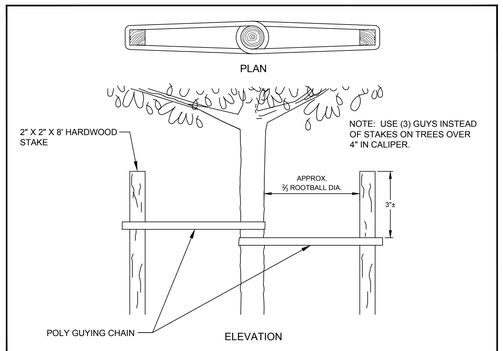
B MULTI-TRUNKED TREE INSTALLATION DETAIL
N.T.S.



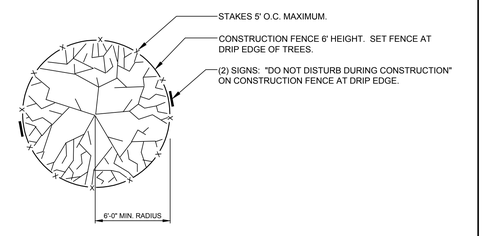
F TREE INSTALLATION DETAIL: >10' HT.
N.T.S.



C SHRUB INSTALLATION DETAIL
N.T.S.



G POLY GUYING DETAIL
N.T.S.



D TREE PROTECTION DETAIL
N.T.S.

H VACANT
N.T.S.

1. PLANTING OF TREES AND SHRUBS SHALL NOT OCCUR UNTIL ALL GRADING AND PAVING IS COMPLETED IN THE AREA.
2. ALL PLANTS SHALL HAVE A NORMAL HABIT OF GROWTH FOR THE SPECIES AND SHALL BE SOUND, HEALTHY AND FREE OF DISEASE AND INSECTS. THEY SHALL CONFORM TO THE SIZE SPECIFICATION INDICATED ON THE PLANT LIST AND SHALL CONFORM TO ANSI Z60.1 - NURSERY STOCK, LATEST REVISION.
3. ALL PLANTS SHALL HAVE ALL ROOTBALL WRAPPING MATERIALS (BURLAP, WIRE, STRING, ROPE, POTS, ETC.) REMOVED AT THE TIME OF PLANTING. REMOVE SOIL PLACED ABOVE ROOTS TO EXPOSE TRUNK FLARE AS NECESSARY TO DETERMINE SETTING LEVEL AND PIT DEPTH. CIRCLING ROOTS OR ROOTS THAT WOULD LATER GIRDLE THE PLANT SHALL BE STRAIGHTENED OR CUT OR THE ROOT BALL SHALL BE CUT UTILIZING THE "BUTTERFLY METHOD".
4. BACKFILL MIX FOR ALL PLANT MATERIAL, EXCEPT TREES, SHALL BE COMPOSED OF TWO PARTS EXISTING SOIL AMENDED WITH ONE PART COMPOST OR TOPSOIL, OR WITH ONE PART SANDY FILL IF HEAVY SOILS. TREE PITS SHALL BE BACKFILLED WITH EXISTING SOIL. PLANTING PITS SHALL BE EXCAVATED TO TWICE THE DIAMETER AND TO THE SAME DEPTH OF THE PLANT ROOT BALL. BACKFILL 1/2 OF DEPTH OF PIT AT A TIME AND COMPACT. REFER TO FERTILIZER RATES AND INSTALL SLOW RELEASE FERTILIZER AFTER FIRST BACKFILL LIFT.
5. ALL PLANTINGS SHALL HAVE SLOW RELEASE FERTILIZER TABLETS INSTALLED. TABLETS SHALL BE AGRIFORM 21-GRAM 20-10-5 PLANTING TABLETS OR AN APPROVED EQUAL. APPLICATION RATE: PERENNIALS - 1 TABLET/PLANT, WOODY SHRUBS TO 3'-0" - 2 TABLETS/PLANT, SHRUBS AND TREES 3'-0" TO 6'-0"-3 TABLETS/PLANT AND TREES 6'-0" AND ABOVE - 4 TABLETS/PLANT. AFTER PLANTS ARE INSTALLED, LIQUID FEED ALL PLANTS WITH ROOTS OR AN APPROVED EQUAL. MIX ACCORDING TO MANUFACTURERS INSTRUCTIONS. APPLICATION RATE: PERENNIALS - 2 QT/PLANT, WOODY SHRUBS TO 4'-0" - 1.5 GAL/PLANT, TREES AND SHRUBS 4'-0" TO 10'-0" 3.0 GAL/PLANT AND TREES 10' AND ABOVE - 4.0 GAL/PLANT.
6. ALL TREES REQUIRE A MINIMUM OF 2 STAKES EACH AND ALL SHALL BE GUYED OR STAKED. TREE STAKING MATERIAL SHALL BE REMOVED BY THE LANDSCAPE CONTRACTOR AFTER ONE GROWING SEASON.
7. ALL SHRUB PLANTINGS ARE IN MULCHED BEDS. ALL PLANTING BEDS SHALL BE FREE OF WEEDS OR GRASS PRIOR TO INSTALLATION OF MULCH. IF VEGETATION EXISTS, TREAT WITH HERBICIDE. MULCH SHALL BE MEDIUM SHREDDED BARK, 3" DEPTH. ALL PLANTINGS NOT IN BEDS OR ISLANDS SHALL HAVE MULCHED WATER RINGS ACCORDING TO THE DETAIL.
8. ALL PLANTS SHALL HAVE THEIR LOCATIONS STAKED AND APPROVED BY THE LANDSCAPE ARCHITECT OR OWNER PRIOR TO PLANT INSTALLATION. ALL PLANTS SHALL BE ORIENTED FOR BEST APPEARANCE.
9. PLANT SPECIES SUBSTITUTIONS WILL NOT BE ALLOWED UNLESS FIRST APPROVED BY THE LANDSCAPE ARCHITECT, OWNER, AND MUNICIPAL AUTHORITY (IF APPLICABLE). ANY CHANGE TO PLANT SPECIES, DUE TO LACK OF AVAILABILITY DURING CONSTRUCTION, SHALL BE APPROVED BY THE LANDSCAPE ARCHITECT.
10. ALL PLANTS SHALL BE GUARANTEED FOR ONE YEAR FROM DATE OF FINAL ACCEPTANCE BY THE OWNER, OR ONE YEAR FROM STORE GRAND OPENING DATE, WHICHEVER IS LONGER. ANY PLANTS THAT DIE DURING THE GUARANTEE PERIOD SHALL BE REPLACED BY THE CONTRACTOR AT NO COST TO THE OWNER. A WRITTEN WARRANTY, WITH CONTRACTOR'S CONTACT INFORMATION, DATE OF ACCEPTANCE AND LENGTH OF GUARANTEE PERIOD SHALL BE SUBMITTED AS PART OF JOB CLOSEOUT. ANY MATURE TREE WHICH WAS USED TO SATISFY THE REQUIRED NUMBER OF PLANT UNITS WHICH DIES WITHIN FIVE YEARS OF THE ISSUANCE OF THE BUILDING PERMIT SHALL BE REPLACED WITH TWO CANOPY OR EVERGREEN TREES WITHIN ONE GROWING SEASON OF ITS DEATH.
11. ALL AREAS NOT IDENTIFIED WITH OTHER SURFACE TREATMENTS SHALL BE LAWN. THE LAWN AREA SHALL BE LOAMED, SEEDED AND STRAW MULCHED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR LAWN MAINTENANCE. MAINTENANCE SHALL COMMENCE AT THE TIME OF PLANTING AND CONTINUE UNTIL GRASS IS FULL AND ESTABLISHED AND ACCEPTED BY THE OWNER.
12. ALLOW SHRUBS AND ORNAMENTAL GRASSES TO GROW TOGETHER TO FORM A NATURAL LOOKING PLANT MASS AND ALLOW EVERGREEN SHRUBS TO GROW TOGETHER TO FORM A SOLID GROUND COVER.
13. IF QUANTITIES OF PLANTS LISTED IN THE PLANT LIST DO NOT CORRELATE WITH THOSE INDICATED ON THE PLAN, THE QUANTITIES ON THE PLAN SHALL GOVERN.
14. ALL LANDSCAPE ISLANDS SHALL HAVE 12" OF LOAM AND BE SLIGHTLY MOUNDED PER THE DETAIL.
15. REMOVE EXISTING GRASS AND WEEDS FROM ALL AREAS TO BE PLANTED PRIOR TO PLANT INSTALLATION. LOAM, SEED AND STRAW MULCH (OR OTHER SURFACE TREATMENT AS INDICATED) ALL AREAS DISTURBED BY CONSTRUCTION.
16. ALL AREAS NOT IDENTIFIED WITH OTHER SURFACE TREATMENTS SHALL BE SEEDED AND STRAW MULCHED WITH SEED MIXES AS NOTED AND AS DESCRIBED IN THE SPECIFICATIONS:
    a. PRIOR TO SEEDING, APPLY FERTILIZER AND LIME IN ACCORDANCE WITH SOIL TEST RECOMMENDATIONS.
    b. LAWNS: 35% KENTUCKY BLUEGRASS, 35% CREEPING RED FESCUE, 20% CHEWING FESCUE, 10% PERENNIAL RYEGRASS. RATE: 5 LBS/1000 SF.
    c. LOW MAINTENANCE AREAS: 35% TALL FESCUE, 30% CREEPING RED FESCUE, 20% PERENNIAL RYEGRASS, 15% ANNUAL RYEGRASS RATE: 5 LBS/1000 SF.
    d. WETLAND SEED MIX: WETLAND SEED MIX AS DISTRIBUTED BY NE WETLAND PLANTS IN AMHERST, MA. RATE: 0.5 LB/1000 SF.
    e. EROSION CONTROL SEED MIX: EROSION CONTROL SEED MIX AS DISTRIBUTED BY NE WETLAND PLANTS IN AMHERST, MA. RATE: 1 LB/1000 SF.

J LANDSCAPE NOTES
N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
08.30.19
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
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PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design:	SRB	Draft: CDD	Date: AUG. 2019
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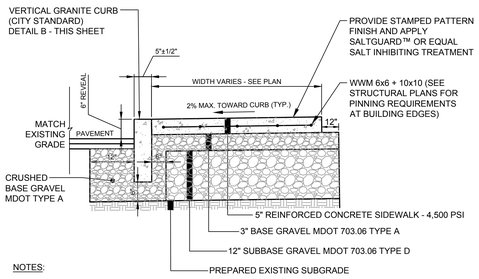
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Drawing Name: LANDSCAPE DETAILS
Project: Fore River Campus Consolidation, Portland, Maine
Client: Northern Light Mercy Hospital, 144 State Street, Portland, Maine 04101

Drawing No. C–6.1

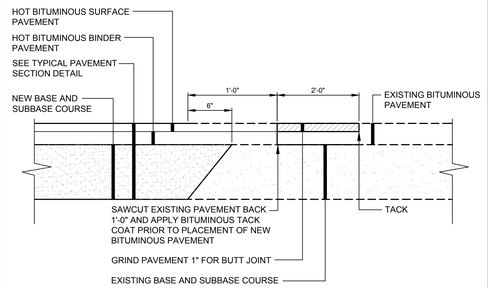
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NOTES:

1. INSTALL CONSTRUCTION JOINTS AT 12' SPACING.
2. PROVIDE ½" WIDE EXPANSION JOINT BETWEEN SIDEWALK AND ALL FIXED OBJECTS.
3. STAMPING PATTERN SHALL BE REVIEWED AND APPROVED BY OWNER PRIOR TO PLACEMENT.

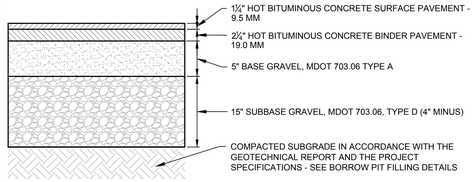
(A) CONCRETE SIDEWALK DETAIL
N.T.S.



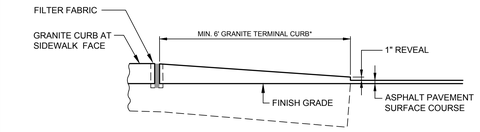
(E) PAVEMENT SAWCUT DETAIL
N.T.S.

NOTES:

1. SEE OVERALL SITE LAYOUT PLAN (SHEET C-3.1) FOR LOCATION(S) OF DIFFERENT PAVEMENT TYPES.
2. APPLY TACK COAT BETWEEN BINDER AND SURFACE COURSES.
3. ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION. COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS AND GEOTECHNICAL REPORTS PREPARED BY THE GEOTECHNICAL ENGINEER, WHICHEVER IS MORE STRINGENT.
4. CONTRACTOR SHALL BE REQUIRED TO PROTECT ALL BEARING SOILS FROM EXCESSIVE DISTURBANCE. SHOULD SUBGRADE BECOME YIELDING OR DIFFICULT TO WORK, DISTURBED AREAS SHOULD BE EXCAVATED AND COMPACTED WITH SELECT GRANULAR FILL OR CRUSHED STONE AT NO EXTRA EXPENSE TO THE OWNER. WOVEN GEOTEXTILE TENSILE FABRIC (MIRAFI 600X OR EQUAL) SHALL BE PLACED OVER UNSUITABLE SUBGRADE AS DIRECTED BY THE OWNER'S REPRESENTATIVE, AT NO EXTRA EXPENSE TO THE OWNER.
5. ALL GRAVELS SHALL EXTEND A MINIMUM OF 12" BEYOND THE EDGE OF PAVEMENT.

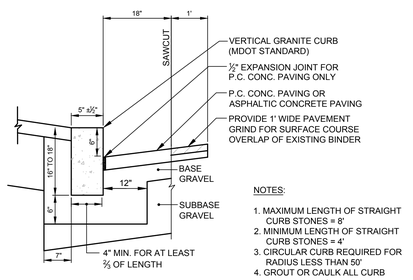


(I) STANDARD DUTY BITUMINOUS CONCRETE PAVEMENT SECTION
N.T.S.



* 6'-0" IS MINIMUM - LENGTH MAY NEED TO BE EXTENDED TO MEET ADA REQUIREMENTS

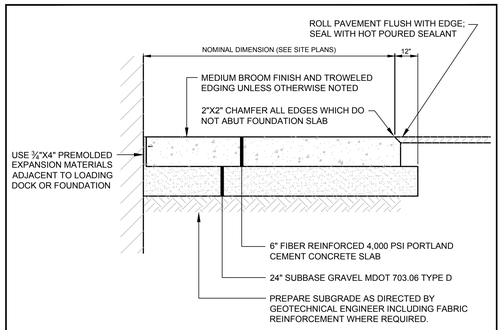
(M) TERMINAL CURB DETAIL
N.T.S.



NOTES:

1. MAXIMUM LENGTH OF STRAIGHT CURB STONES = 8'.
2. MINIMUM LENGTH OF STRAIGHT CURB STONES = 4'.
3. CIRCULAR CURB REQUIRED FOR RADIUS LESS THAN 50'.
4. GROUT OR CAULK ALL CURB JOINTS OVER ½" IN WIDTH. INSTALL STRIP OF FILTER FABRIC BEHIND EACH CURB JOINT.

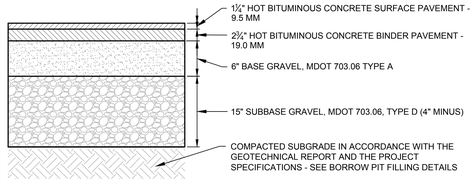
(B) VERTICAL GRANITE CURB DETAIL
N.T.S.



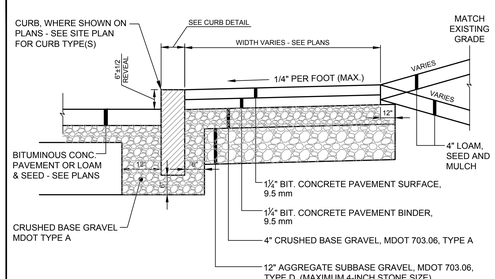
(F) CONCRETE SLAB DETAIL
N.T.S.

NOTES:

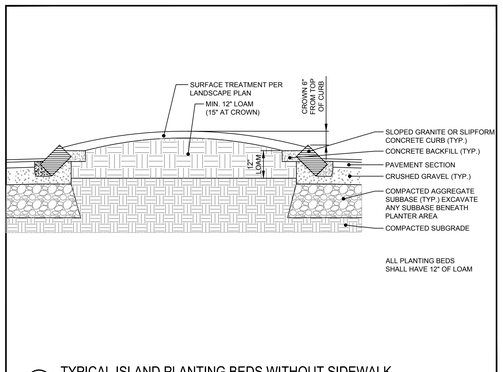
1. SEE OVERALL SITE LAYOUT PLAN (SHEET C-3.1) FOR LOCATION(S) OF DIFFERENT PAVEMENT TYPES.
2. APPLY TACK COAT BETWEEN BINDER AND SURFACE COURSES.
3. ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION. COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS AND GEOTECHNICAL REPORTS PREPARED BY THE GEOTECHNICAL ENGINEER, WHICHEVER IS MORE STRINGENT.
4. CONTRACTOR SHALL BE REQUIRED TO PROTECT ALL BEARING SOILS FROM EXCESSIVE DISTURBANCE. SHOULD SUBGRADE BECOME YIELDING OR DIFFICULT TO WORK, DISTURBED AREAS SHOULD BE EXCAVATED AND COMPACTED WITH SELECT GRANULAR FILL OR CRUSHED STONE AT NO EXTRA EXPENSE TO THE OWNER. WOVEN GEOTEXTILE TENSILE FABRIC (MIRAFI 600X OR EQUAL) SHALL BE PLACED OVER UNSUITABLE SUBGRADE AS DIRECTED BY THE OWNER'S REPRESENTATIVE, AT NO EXTRA EXPENSE TO THE OWNER.
5. ALL GRAVELS SHALL EXTEND A MINIMUM OF 12" BEYOND THE EDGE OF PAVEMENT.



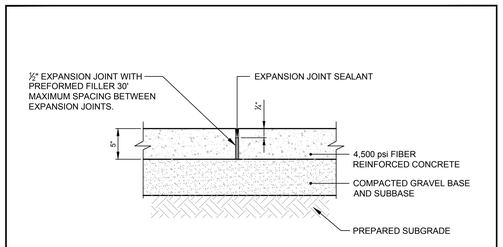
(J) HEAVY DUTY BITUMINOUS CONCRETE PAVEMENT SECTION
N.T.S.



(N) BITUMINOUS SIDEWALK WITH CURB DETAIL
N.T.S.



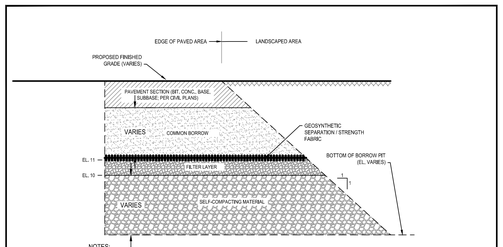
(C) TYPICAL ISLAND PLANTING BEDS WITHOUT SIDEWALK
N.T.S.



NOTE:
CONCRETE SIDEWALK TO HAVE FINE TO MEDIUM BROOM FINISH PERPENDICULAR TO CURB LINE.

PROVIDE 1/2" WIDE EXPANSION JOINT BETWEEN SIDEWALK AND ALL FIXED OBJECTS.

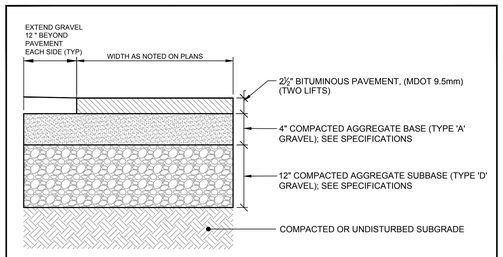
(G) SIDEWALK EXPANSION JOINT
N.T.S.



NOTES:

1. COMMON BORROW SHALL MEET THE MATERIAL REQUIREMENTS OF MAINE DOT 703.18 AND SHALL BE PLACED AND COMPACTED IN APPROXIMATE 12-IN. THICK (MAX.) LOOSE LIFTS AND COMPACTED TO 92 PERCENT MAX. DRY DENSITY UP TO 3 FT BELOW PROPOSED FINISHED GRADE. COMMON BORROW PLACED WITHIN 3 FT OF PROPOSED FINISHED GRADE SHALL BE COMPACTED TO 95 PERCENT MAX. DRY DENSITY.
2. "SELF-COMPACTING" MATERIAL SHALL CONSIST OF 2-IN. CRUSHED STONE (MAINE DOT 703.31).
3. GEOSYNTHETIC SEPARATION/STRENGTH FABRIC SHALL CONSIST OF MIRAFI 600X OR APPROVED EQUAL.
4. FILTER LAYER SHALL CONSIST OF 3/4-IN. CRUSHED STONE (MAINE DOT 703.13).

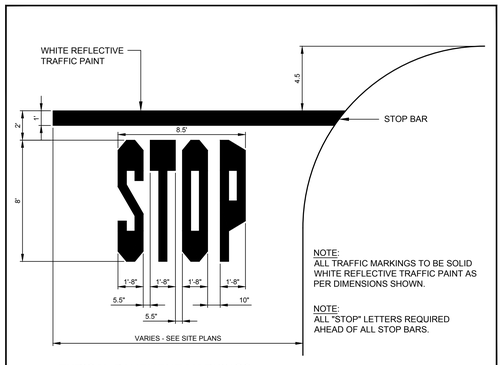
(K) BORROW PIT FILLING DETAIL - BELOW PAVED AREAS
N.T.S.



NOTES:

1. APPLY TACK COAT BETWEEN PAVEMENT COURSES.
2. ALL MATERIALS SHALL CONFORM TO MDOT SPECIFICATIONS, LATEST REVISION.
3. COMPACTION OF ALL MATERIALS TO BE IN ACCORDANCE WITH THE SPECIFICATIONS AND THE GEOTECHNICAL REPORT.

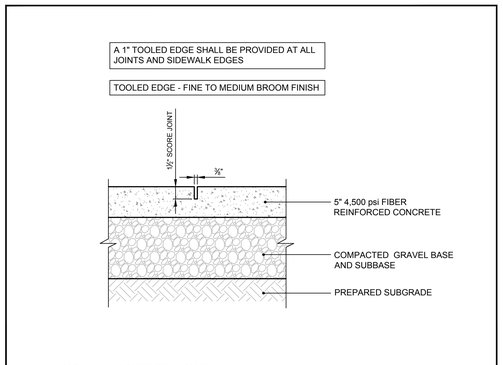
(O) BITUMINOUS ASPHALT SIDEWALK
N.T.S.



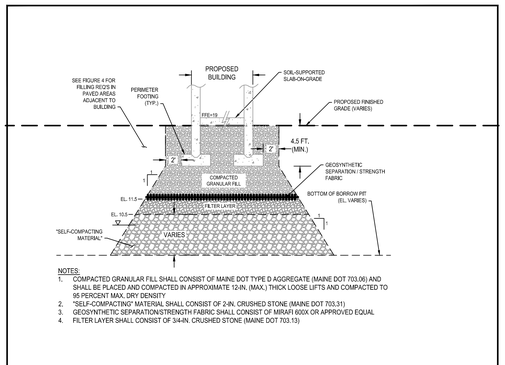
NOTE:
ALL TRAFFIC MARKINGS TO BE SOLID WHITE REFLECTIVE TRAFFIC PAINT AS PER DIMENSIONS SHOWN.

NOTE:
ALL "STOP" LETTERS REQUIRED AHEAD OF ALL STOP BARS.

(D) TYPICAL PAVEMENT MARKINGS
N.T.S.



(H) SIDEWALK SCORE JOINT
N.T.S.



NOTES:

1. COMPACTED GRANULAR FILL SHALL CONSIST OF MAINE DOT TYPE D AGGREGATE (MAINE DOT 703.06) AND SHALL BE PLACED AND COMPACTED IN APPROXIMATE 12-IN. (MAX.) THICK LOOSE LIFTS AND COMPACTED TO 95 PERCENT MAX. DRY DENSITY
2. "SELF-COMPACTING" MATERIAL SHALL CONSIST OF 2-IN. CRUSHED STONE (MAINE DOT 703.31)
3. GEOSYNTHETIC SEPARATION/STRENGTH FABRIC SHALL CONSIST OF MIRAFI 600X OR APPROVED EQUAL
4. FILTER LAYER SHALL CONSIST OF 3/4-IN. CRUSHED STONE (MAINE DOT 703.13)

(L) BORROW PIT FILLING DETAIL - BELOW ASC BLDG. FOOTPRINT
N.T.S.

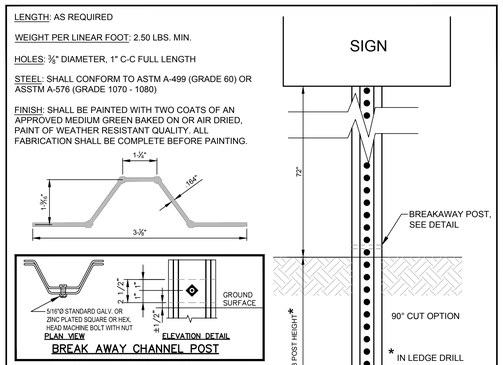
LENGTH: AS REQUIRED

WEIGHT PER LINEAR FOOT: 2.50 LBS. MIN.

HOLES: ⅜" DIAMETER, 1" C-C FULL LENGTH

STEEL: SHALL CONFORM TO ASTM A-499 (GRADE 60) OR ASSTM A-576 (GRADE 1070 - 1080)

FINISH: SHALL BE PAINTED WITH TWO COATS OF AN APPROVED MEDIUM GREEN BAKED ON OR AIR DRIED, PAINT OF WEATHER RESISTANT QUALITY. ALL FABRICATION SHALL BE COMPLETE BEFORE PAINTING.



(P) U-CHANNEL METAL SIGN POST
N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.30.20
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
3	01.30.20	REVISED / RESUBMITTED CONSTRUCTION DOCUMENTS
2	01.29.20	REVISED / RESUBMITTED TO DEP – L.O.R. #2
1	11.04.19	PREPARED FOR L.O.R. #1 & SUBMITTED TO CITY

Issued For	Date	By
CONSTRUCTION DOCUMENTS FOR PRICING ONLY	11.22.19	SRB
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB	Draft: CDD	Date: AUG. 2019	
Checked: SRB	Scale: NTS	Job No.: 3257.04	
File Name: 3257-04-DET.dwg			

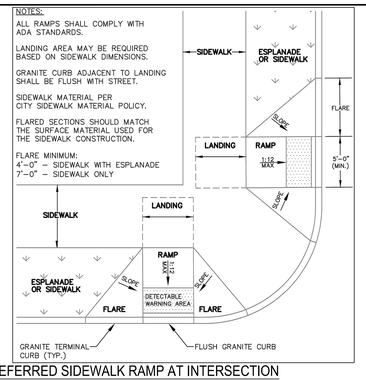
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Drawing Name: SITE DETAILS
Project: Fore River Campus Consolidation, Portland, Maine
Client: Northern Light Mercy Hospital, 144 State Street, Portland, Maine 04101

Drawing No. C-7.0

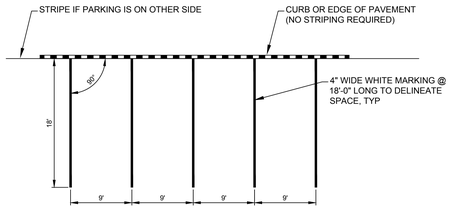
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A PREFERRED SIDEWALK RAMP AT INTERSECTION

N.T.S.

AS OBTAINED FROM THE CITY OF PORTLAND "TECHNICAL MANUAL"

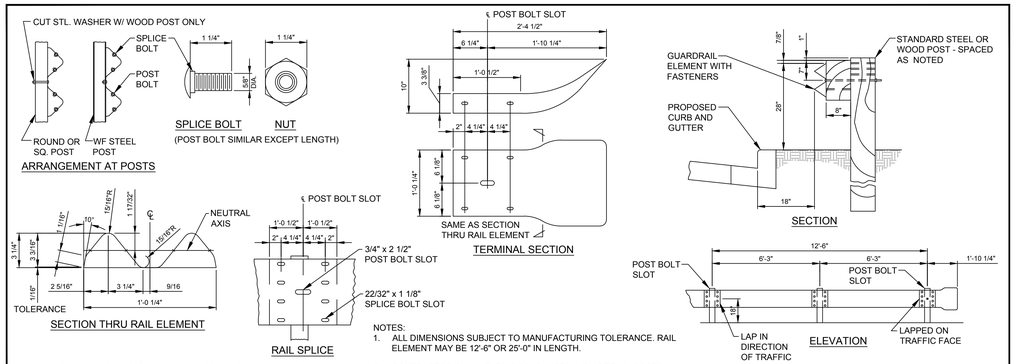


NOTE:

WHEN PARKING IS ON A CURVE, THE NARROWEST PORTION OF THE PARKING STALL SHALL MEET THE WIDTH SHOWN.

D STANDARD PARKING STALL STRIPING

N.T.S.



NOTES:

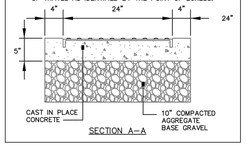
1. ALL DIMENSIONS SUBJECT TO MANUFACTURING TOLERANCE. RAIL ELEMENT MAY BE 12'-6" OR 25'-0" IN LENGTH.
2. CONTRACTOR SHALL FURNISH AND INSTALL GUIDERAIL, POSTS, FASTENERS, AND ALL NECESSARY PARTS REQUIRED TO COMPLETE THE INSTALLATION.

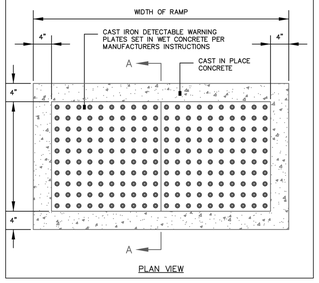
F STANDARD METAL GUIDERAIL DETAIL

N.T.S.

NOTES:

1. ALL DETECTABLE WARNING PLATES SHALL BE UNCOATED CAST IRON. FOLLOW MANUFACTURER'S INSTRUCTIONS FOR INSTALLATION.
2. CAST IN PLACE CONCRETE SHALL MEET SPECIFICATIONS FOR MDOT CLASS A STRUCTURAL CONCRETE, MINIMUM COMPRESSIVE STRENGTH 4,000 PSI. THE EXPOSED CONCRETE BORDER SHALL RECEIVE A UNIFORM BROOM FINISH PERPENDICULAR TO THE FLOW OF PEDESTRIAN TRAFFIC.
3. TRUNCATED DOMES SHALL BE ALIGNED IN ROWS, PARALLEL AND PERPENDICULAR TO THE PREDOMINANT DIRECTION OF TRAVEL. TRUNCATED DOME BRICKS AND GRANITE PAVERS ARE NOT ALLOWED.
4. SIZE: THE DETECTABLE WARNING PLATES SHALL EXTEND 24 INCHES MINIMUM IN THE DIRECTION OF TRAVEL AND THE FULL WIDTH OF THE CURB RAMP, LANDING, OR BLENDED TRANSITION TO THE STREET.
5. ORIENTATION: THE DETECTABLE WARNING PANEL SHALL BE LOCATED SO THAT THE EDGE NEAREST THE CURB LINE IS 6 INCHES MINIMUM AND 8 INCHES MAXIMUM FROM THE CURB LINE. THE PANEL SHALL BE ORIENTED TO THE DIRECTION OF TRAVEL AS IDENTIFIED BY THE POINT OF EGRESS.

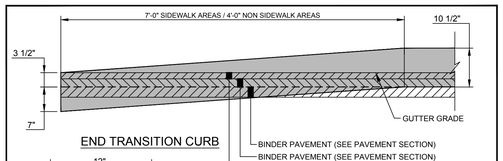




B SIDEWALK RAMP DETECTABLE WARNING PANEL

N.T.S.

AS OBTAINED FROM THE CITY OF PORTLAND "TECHNICAL MANUAL"

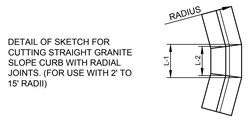


NOTES:

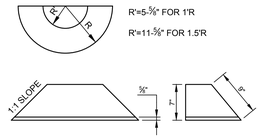
1. 4,000 PSI CONCRETE WITH FIBER REINFORCEMENT.
2. 4% TO 6% AIR ENTRAINMENT.
3. 1" TO 2" SLUMP.
4. APPLY EPOXY TO BINDER PAVEMENT PRIOR TO CURB PLACEMENT.
5. APPLY SALTGUARD™ OR EQUAL SALT INHIBITING TREATMENT.

C EXTRUDED SLIPFORM SLOPED CONCRETE CURB DETAIL

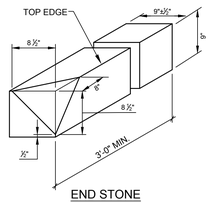
N.T.S.



DETAIL OF SKETCH FOR CUTTING STRAIGHT GRANITE SLOPE CURB WITH RADIAL JOINTS. (FOR USE WITH 2' TO 15' RADII)

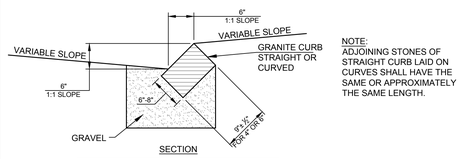


DETAIL FOR CUTTING CURVED CURB



END STONE

L-1	RADIUS L-2											
	2'	2.5'	3'	3.5'	4'	5'	6'	8'	10'	12'	14'	15'
0'-9"	0'-6-1/2"											
0'-0"	0'-9-3/16"	0'-9-1/8"										
1'-1"	0'-9-3/16"	0'-10-1/4"										
1'-2"	0'-10-1/4"	0'-11"	0'-11-1/2"									
1'-3"	0'-11"	0'-11-3/4"	1'-0-1/4"									
1'-4"	0'-11-3/4"	1'-0-1/2"	1'-1-1/4"									
1'-5"	1'-0-1/2"	1'-1-1/2"	1'-2"	1'-2-1/2"	1'-2-3/4"	1'-3-1/4"	1'-3-1/2"	1'-4"	1'-4"	1'-4-1/4"	1'-4-1/4"	1'-4-1/4"
1'-6"	1'-1-1/4"	1'-2-1/8"	1'-2-3/4"	1'-3-1/4"	1'-3-1/2"	1'-4"	1'-4-1/2"	1'-4-3/4"	1'-5"	1'-5-1/4"	1'-5-1/4"	1'-5-1/4"
1'-7"	1'-2"	1'-3"	1'-3-3/4"	1'-4-1/4"	1'-4-1/2"	1'-5"	1'-5-1/4"	1'-5-3/4"	1'-6"	1'-6-1/4"	1'-6-1/4"	1'-6-1/4"
1'-8"	1'-2-3/4"	1'-3-3/4"	1'-4-1/2"	1'-5"	1'-5-1/4"	1'-6"	1'-6-1/4"	1'-6-3/4"	1'-7"	1'-7-1/4"	1'-7-1/4"	1'-7-1/4"
1'-9"							1'-7-1/4"	1'-7-1/2"	1'-8"	1'-8-1/4"	1'-8-1/4"	1'-8-1/4"
1'-10"							1'-8"	1'-8-1/2"	1'-8-3/4"	1'-9"	1'-9-1/4"	1'-9-1/4"
1'-11"							1'-9"	1'-9-1/2"	1'-9-3/4"	1'-10"	1'-10-1/4"	1'-10-1/4"
2'-0"							1'-10"	1'-10-1/2"	1'-10-3/4"	1'-11"	1'-11"	1'-11"
2'-1"											2'-0"	2'-0"
2'-2"											2'-1"	2'-1"
2'-3"											2'-2"	2'-2"
2'-4"											2'-3"	2'-3"
2'-5"											2'-4"	2'-4"
2'-6"											2'-4-3/4"	2'-5"
2'-7"											2'-5-3/4"	2'-5-3/4"
2'-8"											2'-6-3/4"	2'-6-3/4"



RADIUS FOR STONES WITH SQUARE JOINTS	RADIUS FOR STONES WITH SQUARE JOINTS	MAXIMUM LENGTH
16'-28'	SEE DETAIL CHART	1'-6"
29'-41'		2'
42'-55'		3'
56'-68'		4'
69'-82'		5'
83'-96'		6'
97'-110'		7'
OVER 110'		8'

NOTE:
ADJOINING STONES OF STRAIGHT CURB LAID ON CURVES SHALL HAVE THE SAME OR APPROXIMATELY THE SAME LENGTH.

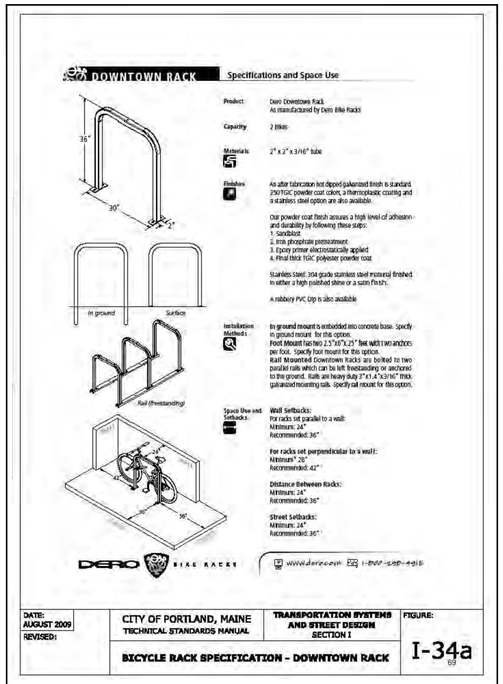
MINIMUM LENGTH OF STRAIGHT CURB STONES-18"

MAXIMUM LENGTH OF STRAIGHT CURB STONES-8'

MAXIMUM LENGTH OF STRAIGHT CURB STONES LAID ON CURVES-SEE CHART

E SLOPED GRANITE CURB DETAIL

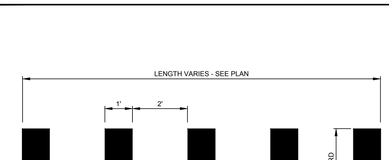
N.T.S.



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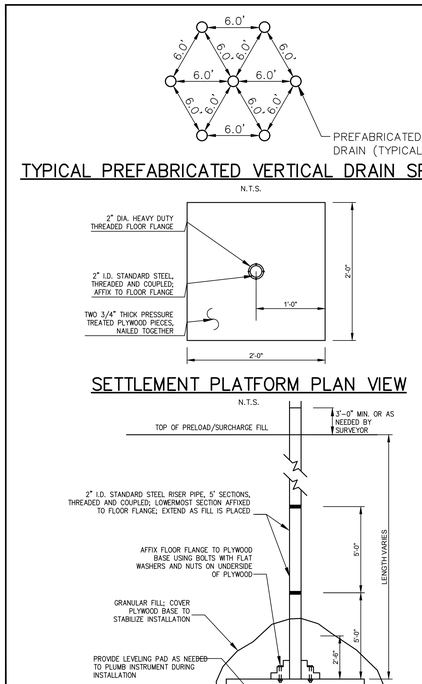
G BICYCLE RACK SPECIFICATION - DOWNTOWN RACK

N.T.S.



H CROSSWALK STRIPING DETAIL

N.T.S.



TYPICAL PREFABRICATED VERTICAL DRAIN SPACING

N.T.S.

SETTLEMENT PLATFORM PLAN VIEW

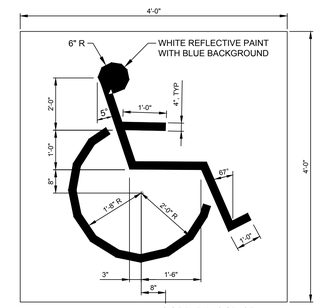
N.T.S.

SETTLEMENT PLATFORM SECTION VIEW

N.T.S.

I SETTLEMENT PLATFORM DETAILS

N.T.S.



J INTERNATIONAL BARRIER FREE SYMBOL

N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.30.20
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7423

Rev.	Date	Revision
3	01.30.20	REVISED / RESUBMITTED CONSTRUCTION DOCUMENTS
2	01.29.20	REVISED / RESUBMITTED TO DEP – L.O.R. #2
1	11.04.19	PREPARED FOR L.O.R. #1 & SUBMITTED TO CITY

Issued For	Date	By
CONSTRUCTION DOCUMENTS FOR PRICING ONLY	11.22.19	SRB
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB	Draft: CDD	Date: AUG. 2019
Checked: SRB	Scale: NTS	Job No.: 3257.04
File Name: 325704-DET.dwg		

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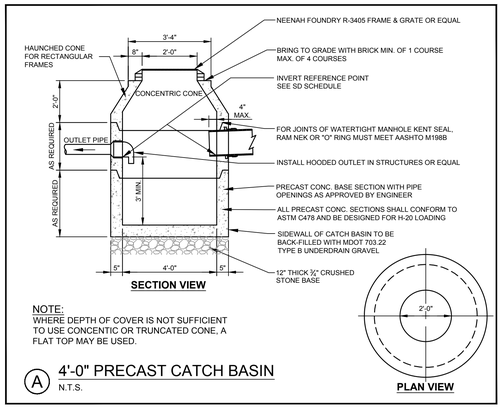
Drawing Name: SITE DETAILS

Project: Fore River Campus Consolidation, Portland, Maine

Client: Northern Light Mercy Hospital, 144 State Street, Portland, Maine 04101

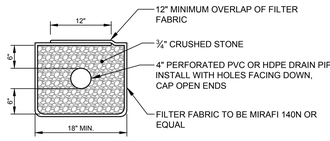
Drawing No. C–7.1

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NOTE:
WHERE DEPTH OF COVER IS NOT SUFFICIENT TO USE CONCENTIC OR TRUNCATED CONE, A FLAT TOP MAY BE USED.

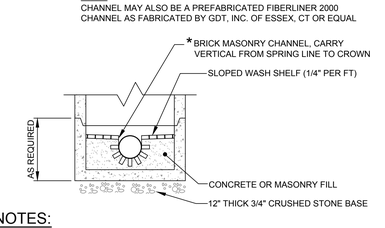
(A) 4'-0" PRECAST CATCH BASIN
N.T.S.



NOTE:
LOCATIONS AS NOTED ON PLANS - COORDINATE WITH ARCHITECTURAL AND / OR STRUCTURAL PLANS.

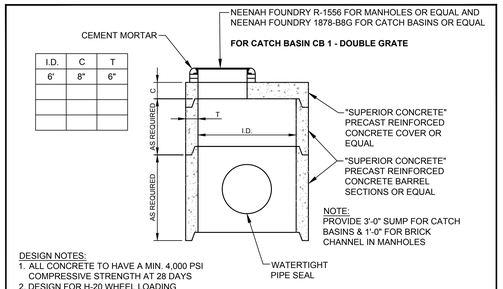
(D) TYPICAL FOUNDATION DRAIN DETAIL
N.T.S.

* NOTE:
CHANNEL MAY ALSO BE A PREFABRICATED FIBERLINER 2000 CHANNEL AS FABRICATED BY GDT, INC. OF ESSEX, CT OR EQUAL



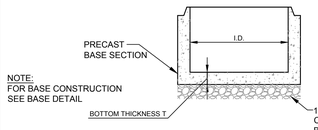
NOTES:
1. BRICK CHANNEL TO BE AASHTO M-91-42 GRADE SA SEWER BRICK. *
2. MANHOLE TEST TO BE ACCOMPLISHED AFTER CHANNEL INSTALLATION IS COMPLETE.
3. WHERE THE ALIGNMENT CHANGES OR SIDE FLOW ENTERS THE MANHOLE, CONSTRUCT CHANNEL WITH A SMOOTH RADIAL CHANNEL TO ACCOMPLISH ALL JUNCTIONAL CHANGE OF ALIGNMENT WITHIN MANHOLE.

(H) MANHOLE BRICK CHANNEL INSTALLATION DETAIL
N.T.S.



DESIGN NOTES:
1. ALL CONCRETE TO HAVE A MIN. 4,000 PSI COMPRESSIVE STRENGTH AT 28 DAYS
2. DESIGN FOR H-20 WHEEL LOADING
3. CATCH BASIN TO CONFORM TO ASTM-C478 SPECIFICATIONS
4. REINFORCE TO .12 IN. SQ./L.F.

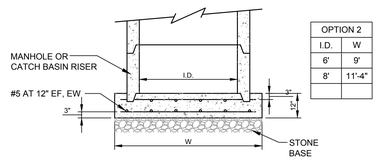
NOTE:
PROVIDE 3'-0" SUMP FOR CATCH BASINS & 1'-0" FOR BRICK CHANNEL IN MANHOLES



OPTION 1	
I.D.	T
6'	6"
8'	6"

NOTE:
FOR BASE CONSTRUCTION SEE BASE DETAIL

BASE DETAIL OPTION 1



OPTION 2	
I.D.	W
6'	9'
8'	11'-4"

BASE DETAIL OPTION 2

NOTE:
THE CONTRACTOR SHALL USE BASE OPTION 2 UNLESS ANTIFLOATATION COMPUTATIONS ARE PROVIDED BY THE CONTRACTOR DEMONSTRATING OPTION 1 CAN BE USED AT THIS SITE. APPROVAL IS SUBJECT TO REVIEW OF THE ENGINEER.

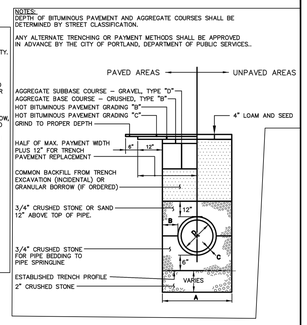
(B) LARGE DIAMETER STORM DRAIN MANHOLE AND CATCH BASIN WITH FLAT TOP
N.T.S.

NOTES:
1. ALTERNATIVE CONSTRUCTION METHODS OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY.
2. IN PAVED AREAS, DEPTHS OF GRAVEL AND HOT MIX ARE MINIMUMS. DEPTHS SHALL BE GREATER OF EXISTING CONDITIONS OR THE REQUIREMENTS FOR THE CORRESPONDING STREET CLASSIFICATION.
3. DIMENSION **B** SHALL BE SUFFICIENT TO ALLOW CRUSHED STONE BEDDING TO BE PLACED AND COMPACTED UNDER THE HAUNCHES OF THE PIPE, BUT IN ALL CASES DIMENSION **B** SHALL BE AT LEAST 9".
4. DIMENSION **A** IS THE MAXIMUM WIDTH ALLOWED FOR CALCULATING PAY QUANTITIES UNDER GRANULAR BORROW, CRUSHED STONE, STRUCTURAL EARTH EXCAVATION, AND STRUCTURAL ROCK EXCAVATION. DIMENSION **A** SHALL BE BASED ON PIPE DIAMETER **D**, AS SET FORTH IN THE FOLLOWING TABLE:

PIPE DIAMETER, D (INCHES)	MAX. TRENCH WIDTH, A (FEET)
4	4.0
6	4.0
8	4.0
10	4.0
12	5.0
15	5.0
18	5.0
21	5.0
24	6.0
27	6.0
30	6.0
36	6.0
42	7.0
48	7.0

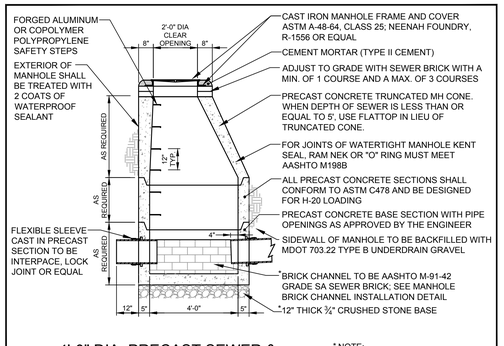
NOTE:
DEPTH OF BITUMINOUS PAVEMENT AND AGGREGATE COURSES SHALL BE DETERMINED BY STREET CLASSIFICATION.

ANY ALTERNATE TRENCHING OR PAYMENT METHODS SHALL BE APPROVED IN ADVANCE BY THE CITY OF PORTLAND, DEPARTMENT OF PUBLIC SERVICES..



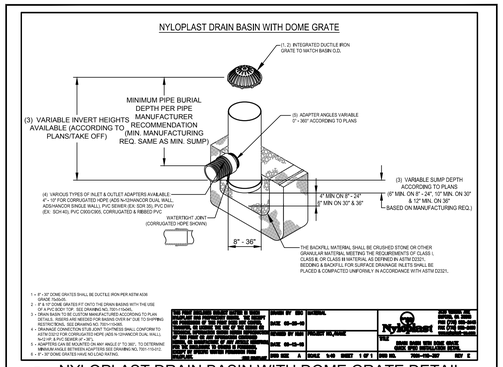
(E) TYPICAL PIPE TRENCH INSTALLATION AND NOTES
N.T.S.

AS OBTAINED FROM THE CITY OF PORTLAND "TECHNICAL MANUAL"

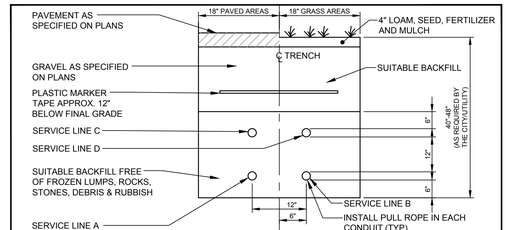


(I) 4'-0" DIA. PRECAST SEWER & STORM DRAIN MANHOLE DETAIL
N.T.S.

* NOTE:
CHANNEL MAY ALSO BE A PREFABRICATED FIBERLINER 2000 CHANNEL AS FABRICATED BY GDT, INC. OF ESSEX, CT OR EQUAL



(M) NYLOPLAST DRAIN BASIN WITH DOME GRATE DETAIL
N.T.S.



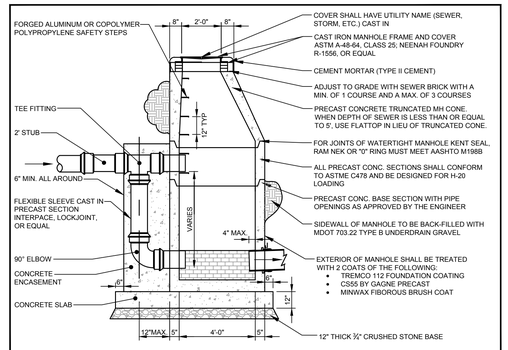
CONDUIT TYPE

SERVICE	CONDUIT SIZE	GRASS AREAS	PAVED AREAS	UTILITY	REMARKS
A	2-6"	SCHEDULE 40 PVC ELECTRICAL GRADE	RIGID GALVANIZED STEEL, ASTM A120*	POWER	SEE NOTE
B	2-4"	SCHEDULE 40 PVC	RIGID GALVANIZED STEEL, ASTM A120*	TELEPHONE	SEE NOTE
C	2-4"	SCHEDULE 40 PVC	RIGID GALVANIZED STEEL, ASTM A120*	COMMUNICATION	SEE NOTE
D	2-4"	SCHEDULE 40 PVC	RIGID GALVANIZED STEEL, ASTM A120*	SPARES	SEE NOTE

*AS REQUIRED BY CITY /UTILITY

NOTES:
1. ONE CONDUIT CAPPED FOR SPARE, PROVIDE GALVANIZED STEEL LONG SWEEP AT RISER POLE AND EXTEND GALVANIZED CONDUIT TO 10' ABOVE GRADE AT POLE WITH STAND-OFF BRACKETS. COORDINATE WITH ELECTRICAL PLANS.
2. IN CITY RIGHT OF WAY, CONDUITS TO HAVE 36" MIN. COVER AND SHALL BE ENCASED WITH MIN. 3" CONCRETE ON ALL SIDES.

(F) UTILITY TRENCH - PRIMARY ELEC., TEL. & COMM.
N.T.S.

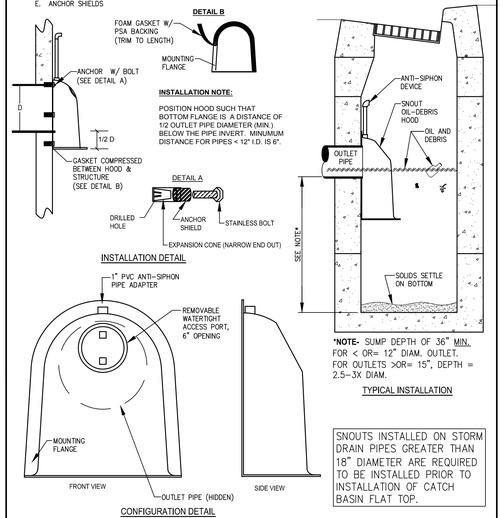


(J) 4'-0" DIA. DROP MANHOLE
N.T.S.

NOTES:
1. ALL HOODS AND TRAPS FOR CATCH BASINS AND WATER QUALITY STRUCTURES SHALL BE AS MANUFACTURED BY BEST MANAGEMENT PRODUCTS, INC. TOLL FREE: (800) 504- 8008 OR (888) 354- 7585 WEB SITE: www.bmpinc.com OR PRE-APPROVED EQUAL.
2. ALL HOODS SHALL BE CONSTRUCTED OF A GLASS REINFORCED RESIN COMPOSITE WITH ISO GEL COAT EXTERIOR FINISH WITH A MINIMUM 0.125" LAMINATE THICKNESS.
3. ALL HOODS SHALL BE EQUIPPED WITH A WATERTIGHT ACCESS PORT, A MOUNTING FLANGE, & AN ANTI-SIPHON VENT AS DRAWN. (SEE CONFIGURATION DETAIL)
4. THE SIZE AND POSITION OF THE HOOD SHALL BE DETERMINED BY OUTLET PIPE SIZE IN ACCORDANCE WITH THE FOLLOWING TABLE:

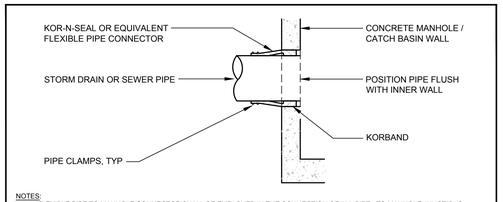
STRUCTURE OUTLET HOLE SIZE	SNOUT SIZE
11.9" O.D. OR LESS	12 F or R
12.0"–17.9" O.D.	18 F or R
18.0"–23.9" O.D.	24 F or R
24.0"–29.9" O.D.	30 F or R
30.0"–47.9" O.D.	48 F
48.0"–95.9" O.D.	96 F

5. THE BOTTOM OF THE HOOD SHALL EXTEND DOWNWARD A DISTANCE EQUAL TO 1/2 THE OUTLET PIPE DIAMETER WITH A MINIMUM DISTANCE OF 6" FOR PIPES <12" I.D.
6. THE ANTI-SIPHON VENT SHALL EXTEND ABOVE HOOD BY MINIMUM OF 3" AND A MAXIMUM OF 24" ACCORDING TO STRUCTURE CONFIGURATION.
7. THE SURFACE OF THE STRUCTURE WHERE THE HOOD IS MOUNTED SHALL BE FINISHED SMOOTH AND FREE OF LOOSE MATERIAL.
8. THE HOOD SHALL BE SECURELY ATTACHED TO STRUCTURE WALL WITH 3/8" STAINLESS STEEL BOLTS AND OIL-RESISTANT GASKET AS SUPPLIED BY MANUFACTURER. (SEE INSTALLATION DETAIL)
9. INSTALLATION INSTRUCTIONS SHALL BE FURNISHED WITH MANUFACTURER SUPPLIED INSTALLATION KIT, WHICH INCLUDES:
   A. INSTALLATION INSTRUCTIONS
   B. PVC ANTI-SIPHON VENT PIPE AND ADAPTER
   C. OIL-RESISTANT CRUSHED CELL FOAM GASKET WITH PSA BACKING
   D. 3/8" STAINLESS STEEL BOLTS
   E. ANCHOR SHIELDS



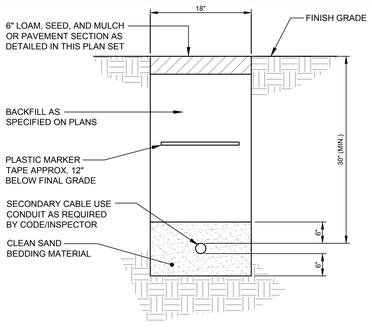
SNOUTS INSTALLED ON STORM DRAIN PIPES GREATER THAN 18" DIAMETER ARE REQUIRED TO BE INSTALLED PRIOR TO INSTALLATION OF CATCH BASIN FLAT TOP.

(N) SNOUT OIL-WATER-DEBRIS SEPARATOR DETAIL
N.T.S.

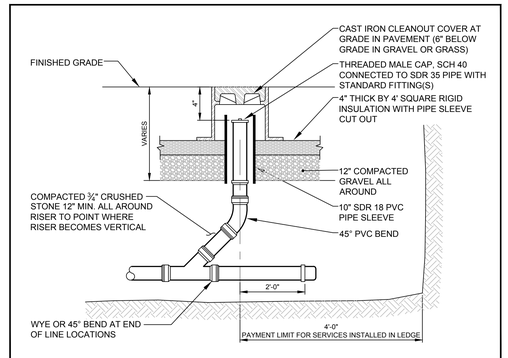


NOTES:
1. A FLEXIBLE PIPE TO MANHOLE CONNECTOR SHALL BE EMPLOYED IN THE CONNECTION OF ALL PIPE TO MANHOLE JUNCTIONS.
2. THE CONNECTOR SHALL BE KOR-N-SEAL AS MANUFACTURED BY NPC SYSTEMS, INC., OF MILFORD, NH OR EQUAL.
3. THE CONNECTOR SHALL BE THE SOLE ELEMENT RELIED ON TO ASSURE A FLEXIBLE WATERTIGHT SEAL OF THE PIPE TO MANHOLE NO ADHESIVES OR LUBRICANTS SHALL BE EMPLOYED IN THE INSTALLATION OF THE CONNECTOR TO THE MANHOLE. THE RUBBER FOR THE CONNECTOR SHALL COMPLY TO ASTM C443 AND ASTM C923 AND CONSIST OF EPDM AND ELASTOMERS KNOWN TO BE RESISTANT TO OZONE, WEATHER ELEMENTS, CHEMICALS, INCLUDING ACIDS, ALKALIS, ANIMAL AND VEGETABLE FATS, OILS AND PETROLEUM PRODUCTS FROM SPILLS.
4. ALL STAINLESS STEEL ELEMENTS OF THE CONNECTOR SHALL BE TOTALLY NON-MAGNETIC SERIES 304 STAINLESS, EXCLUDING THE WORM SCREW USED FOR TIGHTENING THE STEEL BAND AROUND THE PIPE WHICH SHALL BE SERIES 305 STAINLESS. THE WORM SCREW USED FOR TIGHTENING THE STEEL BAND SHALL BE TORQUED BY A BREAK-AWAY TORQUE WRENCH AVAILABLE FROM THE PRECAST MANHOLE SUPPLIER, AND SET AT 60/70 in/lbs.
5. THE CONNECTOR SHALL BE INSTALLED IN THE MANHOLE WALL BY ACTIVATING THE EXPANDING MECHANISM IN STRICT ACCORDANCE WITH THE RECOMMENDATION OF THE CONNECTOR MANUFACTURER.
6. THE CONNECTOR SHALL BE OF A SIZE SPECIFICALLY DESIGNED FOR THE PIPE MATERIAL AND SIZE BEING UTILIZED ON THE PROJECT.
7. ALL CONNECTORS WHICH ARE CAPPED AWAITING PIPE INSTALLATION AT A LATER DATE MUST BE RESTRAINED.

PIPE CONNECTION TO PRECAST CONCRETE SANITARY SEWER AND STORM DRAINAGE STRUCTURE (C)
N.T.S.



(G) SECONDARY ELECTRICAL TRENCH DETAIL
N.T.S.



(K) CLEANOUT DETAIL
N.T.S.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.30.20
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
3	01.30.20	REVISED / RESUBMITTED CONSTRUCTION DOCUMENTS
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Design: SRB	Draft: CDD	Date: AUG. 2019	
Checked: SRB	Scale: NTS	Job No.: 3257.04	
File Name: 3257O4–DET.dwg			

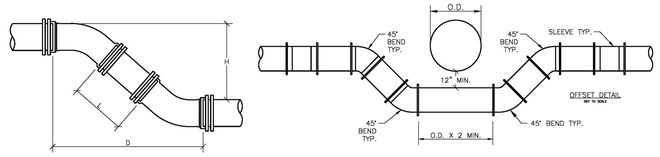
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Drawing Name: STORM DRAIN & UTILITY DETAILS
Project: Fore River Campus Consolidation
Portland, Maine
Client: Northern Light Mercy Hospital
144 State Street, Portland, Maine 04101

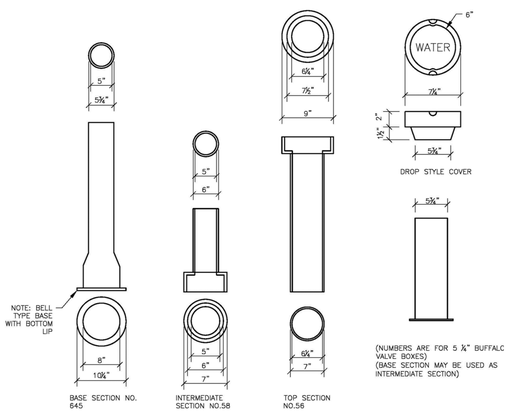
Drawing No. C–7.2

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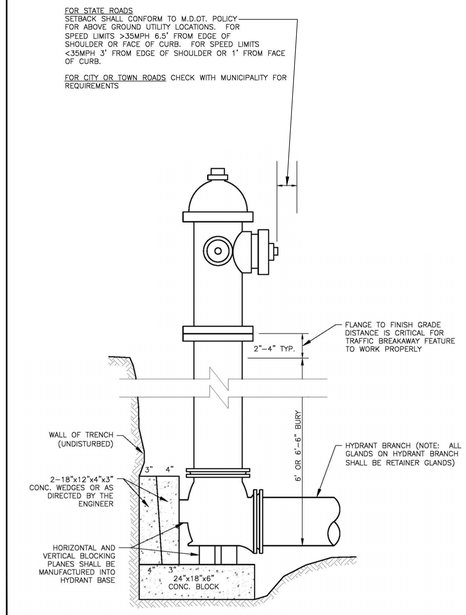
TYPICAL MAIN OFFSET

	6" PIPE		8" PIPE		12" PIPE	
H	D	L	D	L	D	L
12"	1' 6-1/2"	0' 10-1/2"	1' 7-1/2"	0' 8-1/2"	1' 11-1/2"	0' 5-1/2"
13"	1' 7-1/2"	0' 11-7/8"	1' 8-1/2"	0' 10-7/8"	2' 0-1/2"	0' 8-7/8"
14"	1' 8-1/2"	1' 1-5/16"	1' 9-1/2"	1' 0-5/16"	2' 1-1/2"	0' 8-5/16"
15"	1' 9-1/2"	1' 2-11/16"	1' 10-1/2"	1' 1-11/16"	2' 2-1/2"	0' 9-11/16"
16"	1' 10-1/2"	1' 4-1/8"	1' 11-1/2"	1' 3-1/8"	2' 3-1/2"	0' 11-1/8"
17"	1' 11-1/2"	1' 5-9/16"	2' 0-1/2"	1' 4-9/16"	2' 4-1/2"	1' 0-9/16"
18"	2' 0-1/2"	1' 6-15/16"	2' 1-1/2"	1' 5-15/16"	2' 5-1/2"	1' 1-15/16"
19"	2' 1-1/2"	1' 8-3/8"	2' 2-1/2"	1' 7-3/8"	2' 6-1/2"	1' 3-3/8"
20"	2' 2-1/2"	1' 9-13/16"	2' 3-1/2"	1' 8-13/16"	2' 7-1/2"	1' 4-13/16"
21"	2' 3-1/2"	1' 11-3/16"	2' 4-1/2"	1' 10-3/16"	2' 8-1/2"	1' 6-3/16"
22"	2' 4-1/2"	2' 0-5/8"	2' 5-1/2"	1' 11-5/8"	2' 9-1/2"	1' 7-5/8"
23"	2' 5-1/2"	2' 2"	2' 6-1/2"	2' 1"	2' 10-1/2"	1' 9"
24"	2' 6-1/2"	2' 3-7/16"	2' 7-1/2"	2' 2-7/16"	2' 11-1/2"	1' 10-7/16"
25"	2' 7-1/2"	2' 4-7/8"	2' 8-1/2"	2' 3-7/8"	3' 0-1/2"	1' 11-7/8"
26"	2' 8-1/2"	2' 6-1/4"	2' 9-1/2"	2' 5-1/4"	3' 1-1/2"	2' 1-1/4"
27"	2' 9-1/2"	2' 7-11/16"	2' 10-1/2"	2' 6-11/16"	3' 2-1/2"	2' 2-11/16"
28"	2' 10-1/2"	2' 9-1/8"	2' 11-1/2"	2' 8-1/8"	3' 3-1/2"	2' 4-1/8"
29"	2' 11-1/2"	2' 10-1/2"	3' 0-1/2"	2' 9-1/2"	3' 4-1/2"	2' 5-1/2"
30"	3' 0-1/2"	2' 11-15/16"	3' 1-1/2"	2' 10-15/16"	3' 5-1/2"	2' 6-15/16"
31"	3' 1-1/2"	3' 1-5/16"	3' 2-1/2"	3' 0-5/16"	3' 6-1/2"	2' 8-5/16"
32"	3' 2-1/2"	3' 2-3/4"	3' 3-1/2"	3' 1-3/4"	3' 7-1/2"	2' 9-3/4"
33"	3' 3-1/2"	3' 4-3/16"	3' 4-1/2"	3' 3-3/16"	3' 8-1/2"	2' 11-3/16"
34"	3' 4-1/2"	3' 5-9/16"	3' 5-1/2"	3' 4-9/16"	3' 9-1/2"	3' 0-9/16"
35"	3' 5-1/2"	3' 7"	3' 6-1/2"	3' 6"	3' 10-1/2"	3' 2"
36"	3' 6-1/2"	3' 8-7/16"	3' 7-1/2"	3' 7-7/16"	3' 11-1/2"	3' 3-7/16"
37"	3' 7-1/2"	3' 9-13/16"	3' 8-1/2"	3' 8-13/16"	4' 0-1/2"	3' 4-13/16"
38"	3' 8-1/2"	3' 11-1/4"	3' 9-1/2"	3' 10-1/4"	4' 1-1/2"	3' 6-1/4"
39"	3' 9-1/2"	4' 0-11/16"	3' 10-1/2"	3' 11-11/16"	4' 2-1/2"	3' 7-11/16"
40"	3' 10-1/2"	4' 2-1/8"	3' 11-1/2"	4' 1-1/16"	4' 3-1/2"	3' 9-1/16"
41"	3' 11-1/2"	4' 3-1/2"	4' 0-1/2"	4' 2-1/2"	4' 4-1/2"	3' 10-1/2"
42"	4' 0-1/2"	4' 4-7/8"	4' 1-1/2"	4' 3-7/8"	4' 5-1/2"	3' 11-7/8"
43"	4' 1-1/2"	4' 6-5/16"	4' 2-1/2"	4' 5-5/16"	4' 6-1/2"	4' 1-5/16"
44"	4' 2-1/2"	4' 7-3/4"	4' 3-1/2"	4' 6-3/4"	4' 7-1/2"	4' 2-3/4"
45"	4' 3-1/2"	4' 9-1/8"	4' 4-1/2"	4' 8-1/8"	4' 8-1/2"	4' 4-1/8"
46"	4' 4-1/2"	4' 10-9/16"	4' 5-1/2"	4' 9-9/16"	4' 9-1/2"	4' 5-9/16"
47"	4' 5-1/2"	4' 11-15/16"	4' 6-1/2"	4' 10-15/16"	4' 10-1/2"	4' 6-15/16"
48"	4' 6-1/2"	5' 1-3/8"	4' 7-1/2"	5' 0-3/8"	4' 11-1/2"	4' 8-3/8"
49"	4' 7-1/2"	5' 2-13/16"	4' 8-1/2"	5' 1-13/16"	5' 0-1/2"	4' 9-13/16"
50"	4' 8-1/2"	5' 4-3/16"	4' 9-1/2"	5' 3-3/16"	5' 1-1/2"	4' 11-3/16"
51"	4' 9-1/2"	5' 5-9/16"	4' 10-1/2"	5' 4-9/16"	5' 2-1/2"	5' 0-9/16"
52"	4' 10-1/2"	5' 7-1/16"	4' 11-1/2"	5' 6-1/16"	5' 3-1/2"	5' 2-1/16"
53"	4' 11-1/2"	5' 8-7/16"	5' 0-1/2"	5' 7-7/16"	5' 4-1/2"	5' 3-7/16"
54"	5' 0-1/2"	5' 9-7/8"	5' 1-1/2"	5' 8-7/8"	5' 5-1/2"	5' 4-7/8"
55"	5' 1-1/2"	5' 11-5/16"	5' 2-1/2"	5' 10-5/16"	5' 6-1/2"	5' 6-5/16"



VALVE BOX & COVER

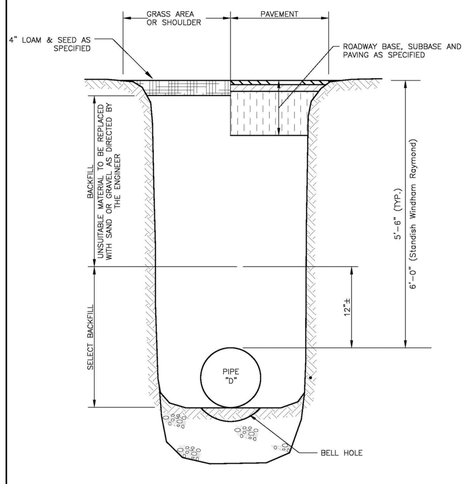
Ⓐ STANDARD WATER DETAILS
N.T.S.



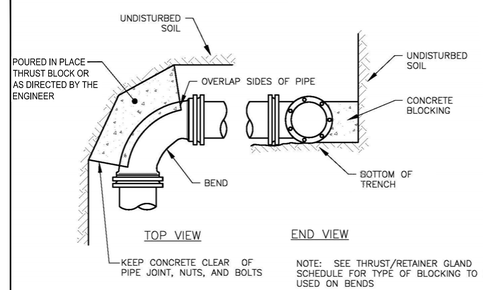
Ⓔ HYDRANT INSTALLATION DETAIL
N.T.S.

TRENCH NOTES

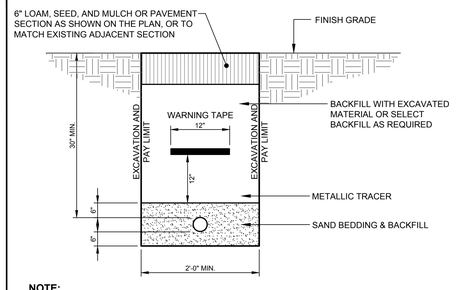
1. MAX PAY LIMITS SHALL BE 1.5 TIMES THE PIPE DIAMETER ON EACH SIDE OF PIPE
2. CLAY DAMS WILL BE INSTALLED IN LEDGE TRENCHES EVERY 100'± IN AREAS OF MORE THAN 3% SLOPE.



Ⓑ TYPICAL WATER TRENCH DETAIL
N.T.S.

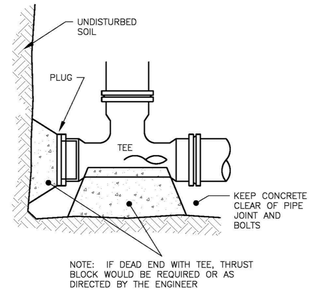


Ⓒ STANDARD BEND BLOCKING
N.T.S.



NOTE:
GAS LINE TO BE INSTALLED BY OTHERS. GAS LINE INSTALLATION TO BE COORDINATED WITH THE LOCAL GAS UTILITY COMPANY, AND SHALL COMPLY WITH ITS STANDARDS. SITE CONTRACTOR IS RESPONSIBLE FOR EXCAVATION AND BACKFILL OF THE GAS LINE AND PLACEMENT OF THE WARNING TAPES AND TRACER.

Ⓕ GAS SERVICE TRENCH SECTION
N.T.S.



Ⓓ STANDARD TEE THRUST BLOCK DETAIL
N.T.S.

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01.30.20
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

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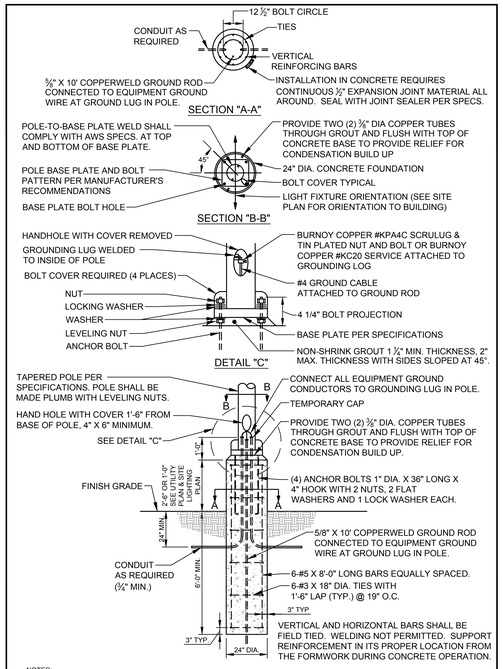
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Drawing Name: STORM DRAIN & UTILITY DETAILS
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Client: Northern Light Mercy Hospital, 144 State Street, Portland, Maine 04101

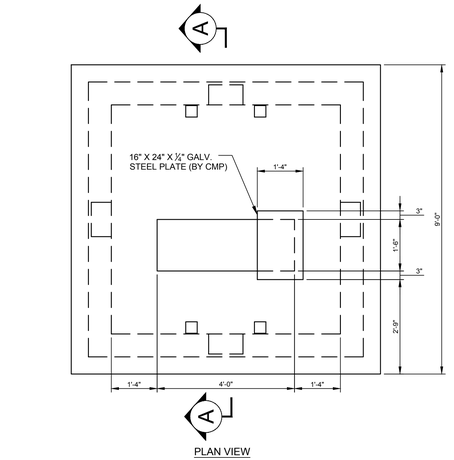
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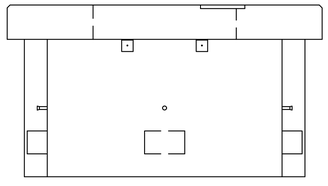
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NOTES:
1. 3500 P.S.I. MIN. 28 DAY COMPRESSIVE STRENGTH CONC. WITH GRADE 60 REINF. STEEL.
2. IF WATER IS PRESENT IN HOLE, REMOVE BEFORE POURING CONCRETE.
3. FOUNDATION EXCAVATION SHALL BE BY 24" AUGER IN UNDISTURBED OR PROPERLY COMPACTED FILL PER SPECIFICATIONS.
4. FOUNDATION SHALL HAVE A MINIMUM ALLOWABLE END BEARING OF 2000 PSF.
5. FOUNDATION HAS BEEN DESIGNED FOR A COHESIVE SOIL BASED ON A MINIMUM COHESIVE VALUE OF 1000 PSF.
6. FOUNDATION HAS BEEN DESIGNED FOR A GRANULAR SOIL BASED ON A MINIMUM LATERAL SOIL PRESSURE OF 1000 PSF,
7. UTILIZING AASHTO FIGURE 1.8.2C(4) OF "EMBEDMENT OF POSTS WITH OVERTURNING LOADS".
8. DETAIL FOR MAX. 39' POLE WITH MAX. FIXTURE EPA 4.6 S.F.
9. CONFIRM ANCHOR BOLT PLACEMENT AND PATTERN WITH LIGHT POLE MANUFACTURER BEFORE PREPARING FOUNDATION.
10. EXCAVATION WILL LIKELY BE BELOW WATER TABLE - DO NOT LEAVE EXCAVATION OPEN FOR EXTENDED PERIODS.

(A) TYPICAL PARKING LOT LIGHTING POLE FOUNDATION
N.T.S.

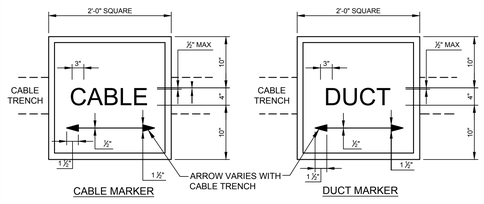




END VIEW

NOTES:
1. CONCRETE MINIMUM COMPRESSIVE STRENGTH 4,000 PSI @ 28 DAYS WITH STEEL REINFORCEMENT.
2. AS PER CENTRAL MAINE POWER COMPANY SPECIFICATIONS, AS MANUFACTURED BY SUPERIOR CONCRETE OR EQUAL.
3. FINAL SIZING TO BE BY ELECTRICAL DESIGNER.
4. ONE 8" x 24" KNOCKOUT PROVIDED EACH WALL.
5. FOR 750 - 5000 KVA THREE PHASE TRANSFORMER.
6. FINISH GRADE SHALL BE GRADED TO ALLOW SURFACE WATER TO FLOW AWAY FROM THE PAD.

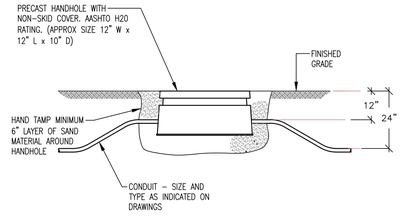
(D) 9'-0" TRANSFORMER PAD
N.T.S.



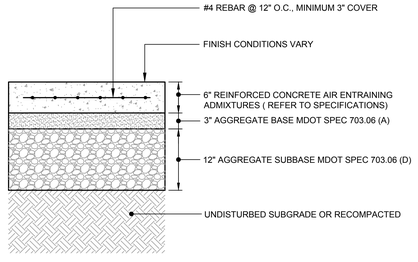
CABLE MARKER DUCT MARKER

MARKER NOTES:
1. HAND LETTERING NOT ALLOWED ON MARKERS. LETTERING IS TO BE IMPRESSED.
2. ARROW ON CABLE MARKER INDICATE DIRECTION OF CABLES.
3. NO SEPARATE PAYMENT WILL BE MADE FOR CABLE OR SPLICE MARKERS.
4. ALL CONCRETE MARKERS ARE TO BE AT LEAST 4" IN THICKNESS.

(B) ELECTRICAL MARKERS
N.T.S.



(C) 12" x 12" ELECTRICAL PULL BOX DETAIL
N.T.S.



(E) REINFORCED CONCRETE SECTION FOR GENERATOR PAD
N.T.S.

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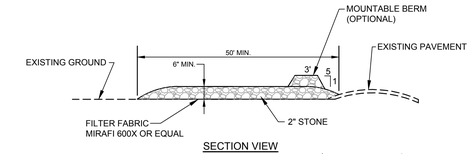
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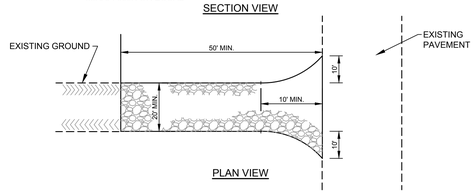
Drawing No. C-7.4

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NOTE:
CONTRACTOR SHALL ADD STONE TO OR REMOVE AND RECONSTRUCT THE STABILIZED CONSTRUCTION ENTRANCE AS MUD/SILT MATERIAL ACCUMULATES

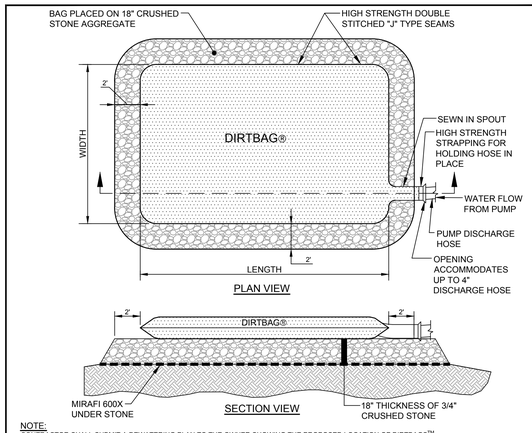


SECTION VIEW



PLAN VIEW

A STABILIZED CONSTRUCTION ENTRANCE DETAIL
N.T.S.



PLAN VIEW

SECTION VIEW

NOTE:
CONTRACTOR SHALL SUBMIT A DEWATERING PLAN TO THE OWNER SHOWING THE PROPOSED LOCATION OF DIRTBAGS™.

SPECIFICATIONS AND REQUIREMENTS FOR DEWATERING

THIS PROJECT WILL REQUIRE THE DISCHARGE OF CONSTRUCTION DEWATERING AND TURBID LADEN RUNOFF FROM THE SITE TO BE DIRECTED AND DISCHARGED THROUGH A DIRTBAG™. THIS DESCRIPTION ALSO CONTAINS APPENDED MATERIALS DESCRIBING THE **DIRTBAGS** REFERRED TO IN THIS NARRATIVE.

OVERVIEW:

DISCHARGE OF SEDIMENT-LADEN WATER FROM THE CONSTRUCTION SITE SHALL NOT BE ACCEPTABLE. TRADITIONALLY, MEDEP PERMITS HAVE HAD A STANDARD CONDITION WHICH STATES:

"THE APPLICANT SHALL TAKE ALL NECESSARY ACTIONS TO ENSURE THAT ITS ACTIVITIES OR THOSE OF ITS AGENTS DO NOT RESULT IN NOTICEABLE EROSION OF SOILS OR FUGITIVE DUST EMISSIONS ON THE SITE DURING THE CONSTRUCTION AND OPERATION OF THE PROJECT COVERED BY THIS APPROVAL."

SUITABLE METHODS OF FILTERING WATER FROM DEWATERING OPERATIONS, OR CONSTRUCTION SITE RUNOFF, SHALL BE EMPLOYED PRIOR TO DISCHARGE TO THE STORM DRAIN SYSTEM. ACCEPTABLE METHODS OF FILTERING INCLUDE DIRTBAGS™, SAND BERM FILTERS, SEDIMENTATION PONDS OR OTHER APPROVED METHODS AS DETAILED IN THE CURRENT EDITION OF THE MDEP "MAINE EROSION AND SEDIMENT CONTROL PRACTICES FIELD GUIDE FOR CONTRACTORS".

REQUIREMENTS FOR DIRTBAGS:

THE SITE CONTRACTOR SHALL INCLUDE THE PRICE OF DEWATERING AND FILTERING OF THE CONSTRUCTION DEWATERING PRIOR TO DISCHARGE. REMOVAL OF **DIRTBAGS™** AND DISPOSAL OF SEDIMENT SHALL BE INCLUDED IN THE PRICE.

AT ALL TIMES THERE MUST BE AN UNUSED DIRTBAG AVAILABLE FOR EMERGENCY USE.

AT ALL TIMES (AFTER INITIAL SITE PREPARATION), THE CONTRACTOR SHALL HAVE ONE **DIRTBAG** ACTIVE OR READY FOR USE. THE **DIRTBAG** SHALL BE INSTALLED ON A PREPARED SUBGRADE. THIS SUBGRADE SHALL CONSIST OF THE INSTALLATION OF A LAYER OF MIRAFI 600X, AND 18 INCHES OF ¾ INCH CRUSHED STONE. THE PLAN DIMENSION OF THE CRUSHED STONE PAD SHALL EXCEED THE PLAN AREA OF THE **DIRTBAG** BY AT LEAST TWO FEET IN ALL DIRECTIONS. THE **DIRTBAG** SHALL NOT BE INSTALLED ON AN UNDERLYING SLOPE OF GREATER THAN 15 PERCENT.

CONSTRUCTION DEWATERING OPERATIONS:

ALL CONSTRUCTION-DEWATERING OPERATIONS ARE THE RESPONSIBILITY OF THE SITE CONTRACTOR. IT SHALL BE THE SITE CONTRACTOR WHO IS RESPONSIBLE FOR SELECTING THE SITE FOR THE **DIRTBAG.**

WINTER OPERATIONS:

IN THE EVENT THAT WINTER OPERATIONS ARE REQUIRED, THE CONTRACTOR SHALL "POLY", ENCLOSE, AND PROVIDE TEMPORARY HEAT TO PREVENT THE **DIRTBAG** FROM SUBSTANTIAL FREEZING.

RECORD KEEPING

THE WEEKLY EROSION-SEDIMENT CONTROL REPORTS PREPARED IN ACCORDANCE WITH THE NPDES PERMIT SHALL MAINTAIN A LOG OF THE LOCATION, USE, AND REMOVAL OF **DIRTBAGS.** IN THE EVENT THAT THE STONE UNDER THE **DIRTBAG** BECOMES HIGHLY CONTAMINATED WITH FINES, THE NEXT **DIRTBAG** SHALL BE INSTALLED IN A DIFFERENT LOCATION.

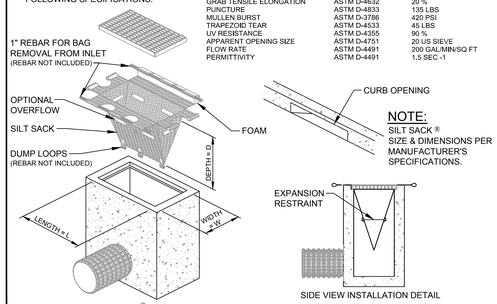
D DIRTBAG® DETAIL AND SPECIFICATIONS
N.T.S.

NOTE: THE SILT SACK ® WILL BE MANUFACTURED FROM A WOVEN POLYPROPYLENE FABRIC THAT MEETS OR EXCEEDS THE FOLLOWING SPECIFICATIONS:

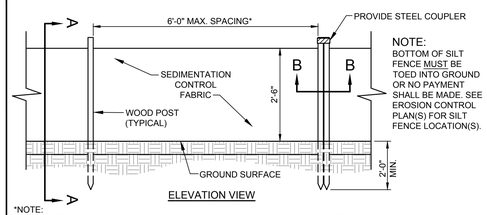
HIGH-FLOW SILT SACK ® (FOR USE IN LOW POINTS/SAGS)

(FOR AREAS OF MODERATE TO HEAVY PRECIPITATION AND RUN-OFF)

PROPERTIES	TEST METHOD	UNITS
GRAB TENSILE STRENGTH	ASTM D-4632	265 LBS
GRAB TENSILE ELONGATION	ASTM D-4632	20 %
PUNCTURE	ASTM D-4833	135 LBS
MULLEN BURST	ASTM D-3786	420 PSI
TRAPEZOID TEAR	ASTM D-4533	45 LBS
UV RESISTANCE	ASTM D-4355	90 %
APPARENT OPENING SIZE	ASTM D-4751	20 US SIEVE
FLOW RATE	ASTM D-4491	200 GAL/MIN/SQ FT
PERMITTIVITY	ASTM D-4491	1.5 SEC -1

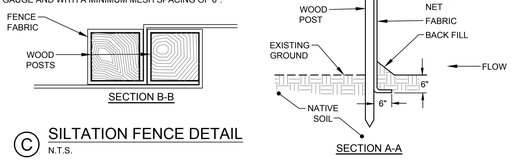


B SILT SACK® DETAIL & SPECIFICATIONS
N.T.S.



ELEVATION VIEW

*NOTE:
THE SILT FENCE SHOULD HAVE A MAXIMUM STAKING DISTANCE OF 6', UNLESS THE FENCE IS SUPPORTED BY WIRE FENCE REINFORCEMENT, A MAXIMUM 14 GAUGE AND WITH A MINIMUM MESH SPACING OF 6".

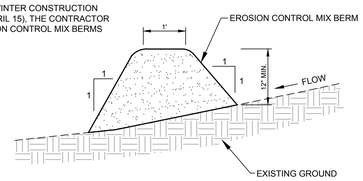


SECTION B-B

SECTION A-A

C SILTATION FENCE DETAIL
N.T.S.

NOTE:
DURING PERIODS OF WINTER CONSTRUCTION (NOV. 15 THROUGH APRIL 15), THE CONTRACTOR SHALL INSTALL EROSION CONTROL MIX BERMS IN LIEU OF SILT FENCE.



EROSION CONTROL MIX:

EROSION CONTROL MIX SHALL CONTAIN A WELL-GRADED MIXTURE OF PARTICLE SIZES & MAY CONTAIN ROCKS LESS THAN 4" IN DIAMETER. EROSION CONTROL MIX MUST BE FREE OF REFUSE, PHYSICAL CONTAMINANTS, AND MATERIAL TOXIC TO PLANT GROWTH. THE MIX COMPOSITION SHALL MEET THE FOLLOWING STANDARDS:

- THE ORGANIC MATTER CONTENT SHALL BE BETWEEN 80 AND 100%, DRY WEIGHT BASIS.
- PARTICLE SIZE BY WEIGHT SHALL BE 100% PASSING A 6" SCREEN AND A MINIMUM OF 70%, MAXIMUM OF 85%, PASSING A 0.75" SCREEN.
- THE ORGANIC PORTION NEEDS TO BE FIBROUS AND ELONGATED.
- LARGE PORTIONS OF SILTS, CLAYS OR FINE SANDS ARE NOT ACCEPTABLE IN THE MIX.
- SOLUBLE SALTS CONTENT SHALL BE < 4.0 mmhos/cm.
- PH SHALL FALL BETWEEN 5.0 AND 8.0.

E EROSION CONTROL MIX BERM DETAIL
N.T.S.

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Project: Fore River Campus Consolidation, Portland, Maine
Client: Northern Light Mercy Hospital, 144 State Street, Portland, Maine 04101

Drawing No. C–7.5

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1.3.5 Erosion Control Measures and Site Stabilization

The primary emphasis of the erosion/sedimentation control plan, which will be implemented for this project, is as follows:

- Development of a careful construction sequence.
- Rapid revegetation of denuded areas to minimize the period of soil exposure.
- Rapid stabilization of drainage paths to avoid rill and gully erosion.
- The use of on-site measures to capture sediment (hay bales/ stone check dams/silt fence, etc.)

The following temporary and permanent erosion and sediment control devices will be implemented as part of the site development. These devices shall be installed as indicated on the plans or as described within this report. For further reference, see the latest edition of the Maine Erosion and Sediment Control Practices Field Guide for Contractors.

A. Dewatering

Water from construction trench dewatering shall pass first through a filter bag or secondary containment structure (e.g. hay bale lined pool) prior to discharge. The discharge site shall be selected to avoid flooding, icing, and sediment discharges to a protected resource. In no case shall the filter bag or containment structure be located within 50 feet of a protected natural resource. Dewatering discharge shall not be directed across adjacent properties in a concentrated manner.
The Contractor shall submit to the project engineer, a dewatering plan for the pond dewatering that designates the dewatering process, a stable outlet location, and includes measures to prevent sediment discharges to the outlet location.

B. Inspection and Monitoring

Maintenance measures shall be applied as needed during the entire construction season. After each rainfall, snow storm or period of thawing and runoff, the site contractor shall perform a visual inspection of all installed erosion control measures and perform repairs as needed to insure their continuous function. Following the temporary and/or final seeding and mulching, the contractor shall in the spring inspect and repair any damages and/or unestablished spots. Established vegetative cover means a minimum of 90% of areas vegetated with vigorous growth.

The following standards must be met during construction.

(a) **Inspection and corrective action**. Inspect disturbed and impervious areas, erosion control measures, materials storage areas that are exposed to precipitation, and locations where vehicles enter or exit the site. Inspect these areas at least once a week as well as before and within 24 hours after a storm event (rainfall), and prior to completing permanent stabilization measures. A person with knowledge of erosion and stormwater control, including the standards and conditions in the permit, shall conduct the inspections.

(b) **Maintenance**. If best management practices (BMPs) need to be repaired, the repair work should be initiated upon discovery of the problem but no later than the end of the next workday. If additional BMPs or significant repair of BMPs are necessary, implementation must be completed within 7 calendar days and prior to any storm event (rainfall). All measures must be maintained in effective operating condition until areas are permanently stabilized.

(c) **Documentation**. Keep a log (report) summarizing the inspections and any corrective action taken. The log must include the name(s) and qualifications of the person making the inspections, the date(s) of the inspections, and major observations about the operation and maintenance of erosion and sedimentation controls, materials storage areas, and vehicles access points to the parcel. Major observations must include BMPs that need maintenance, BMPs that failed to operate as designed or proved inadequate for a particular location, and location(s) where additional BMPs are needed. For each BMP requiring maintenance, BMP needing replacement, and location needing additional BMPs, note in the log the corrective action taken and when it was taken.

The log must be made accessible to Department staff and a copy must be provided upon request. The permittee shall retain a copy of the log for a period of at least three years from the completion of permanent stabilization.

C. Temporary Erosion Control Measures

Temporary erosion control measures shall be installed by the Contractor as required by this report and as shown on the plan set for the project. Additional erosion control measures shall be installed if deemed necessary by on-site inspections of the Owner, the City of Portland, MDEP, or their representatives at no additional cost to the Owner.

The following measures are planned as temporary erosion/sedimentation control measures during construction:

1. Crushed stone-stabilized construction entrance shall be placed at any truck entrance to the project site from the existing paved access drives.

2. Siltation fence or wood waste compost berms shall be installed downstream of any disturbed areas to trap runoff- borne sediments until grass areas are revegetated. The silt fence and/or wood waste compost berms shall be installed per the details provided in this package and inspected at least once a week and before and immediately after a storm event of 0.5 inches or greater, and at least daily during prolonged rainfall. Repairs shall be made if there are any signs of erosion or sedimentation below the fence or berm line. If there are signs of undercutting at the center or the edges, or impounding of large volumes of water behind the fence or berm, the barrier shall be replaced with a stone check dam. Wood waste compost berms are not to be used adjacent to wetland areas that are not to be disturbed.

3. Straw or hay mulch including hydroseeding is intended to provide cover for denuded or seeded areas until revegetation is established. Mulch placed between April 15th and October 15th on slopes of less then 15 percent shall be anchored by applying water; mulch placed on slopes of equal to or steeper than 15 percent shall be covered by a fabric netting and anchored with staples in accordance with manufacturer's recommendation. Fabric netting and staples shall be used on disturbed areas within 50' of lakes, streams, and wetlands regardless of the upstream slope. Mulch placed between October 15th and April 15th on slopes equal to or steeper than 8 percent shall be covered with a fabric netting and anchored with staples in accordance with the manufacturer's recommendations. Slopes steeper than 3:1 and equal to or flatter than 2:1, which are to be revegetated, shall receive curlex blankets by American Excelsior or equal. Slopes steeper than 2:1 shall receive riprap as noted on the plans. The mulch application rate for both temporary and permanent seeding is 75 lbs per 1000 sf as identified in the seeding plan. Mulch shall not be placed over snow.

4. Temporary stockpiles of stumps, grubbings, or common excavation will be protected as follows:

a) Temporary stockpiles shall not be located within 100 feet of any wetlands which will not be disturbed and shall be located away from drainage swales.

b) Stockpiles shall be stabilized within 7 days by either temporarily seeding the stockpile by a hydroseed method containing an emulsified mulch tackifier or by covering the stockpile with mulch, such as hay, straw, or erosion control mix.

c) Stockpiles shall be surrounded by sedimentation barrier at the time of formation.

5. All denuded areas that are within 100 feet of an undisturbed wetland, which have been rough graded and are not located within a building pad, parking area, or access drive subbase area, shall receive mulch or erosion control mesh fabric within 48 hours of initial disturbance of soil. All areas within 100 feet of an undisturbed wetland shall be mulched prior to any predicted rain event regardless of the 48 hour window. In other areas, the time period may be extended to 7 days.

6. For work, which is conducted between October 15th and April 15th of any calendar year, all denuded areas, shall be covered with hay mulch or erosion control mix, applied at twice the normal application rate and anchored with a fabric netting. The time period for applying mulch shall be limited to 2 days for all areas.

7. The paved access drives shall be swept to control mud and dust as necessary. Additional stone shall be added to the stabilized construction entrance to minimize the tracking of material off the site and onto the surrounding roadways.

8. During grubbing operations stone check dams shall be installed at any evident concentrated flow discharge points and as directed on the Erosion Control Plans.

9. Silt fencing with a minimum stake spacing of 6 feet shall be used, unless the fence is supported by wire fence reinforcement of minimum 14 gauge and with a maximum mesh spacing of 6 inches, in which case stakes may be spaced a maximum of 10 feet apart. The bottom of the fence shall be anchored. A double row of silt fence shall be used adjacent to wetlands.

10. Wood waste compost/bark berms may be used in lieu of siltation fencing. Berms shall be removed and spread in a layer not to exceed 3" thick once upstream areas are completed and a 90% catch of vegetation is attained.

11. Storm drain catch basin inlet protection shall be provided through the use of stone sediment barriers or approved sediment bags (such as Silt Sack). Installation details are provided in the plan set. The barriers shall be inspected after each rainfall and repairs made as necessary. Sediment shall be removed and the barrier restored to its original dimensions when the sediment has accumulated to ½ the design depth of the barrier. The barrier shall be removed when the tributary drainage area has been stabilized.

12. Water and/or calcium chloride shall be furnished and applied in accordance with MDOT specifications - Section 637 - Dust Control.

13. Loam and seed is intended to serve, as the primary permanent revegetative measure for all denuded areas not provided with other erosion control measures, such as riprap. Application rates are provided in the seeding plan. Seeding shall not occur over snow.

D. Permanent Erosion Control Measures

The following permanent erosion control measures have been designed as part of the Erosion/Sedimentation Control Plan:

1. All areas disturbed during construction, but not subject to other restoration (paving, riprap, etc.) will be loamed, limed, fertilized, mulched, and seeded. Fabric netting, anchored with staples, shall be placed over the mulch in areas as noted in Temporary Erosion Control Measures paragraph 3 of this report. All areas within 100 feet of an undisturbed wetland shall be mulched prior to any predicted rain event regardless of the 48 hour window. Native topsoil shall be stockpiled and reused for final restoration when it is of sufficient quality.

2. All storm drain pipe outlets shall have riprap aprons at their outlet to protect the outlet and receiving channel from scour and deterioration. Installation details are provided in the plan set. The aprons shall be installed and stabilized to the extent practicable prior to directing runoff to the tributary pipe or culvert.

3. Catch basins shall be provided with sediment sumps and inlet hoods (the Snout) for all outlet pipes that are 18" in diameter or less.

1.4 Implementation Schedule

The following construction sequence shall be required to ensure the effectiveness of the erosion and sedimentation control measures are optimized:

It is anticipated that construction of the Hospital Expansion and related infrastructure will commence in Spring of 2020 and be completed by Winter of 2021.

Note: For all grading activities, the contractor shall exercise extreme caution not to overexpose the site, this shall be accomplished by limiting the disturbed area.

1. Install stabilized construction entrance at any truck entrance to the project site from a paved access drive.
2. Install perimeter silt fence and/or wood waste berms prior to grubbing respective areas.
3. Commence dewatering of the pond.
4. Excavate for wet pond permanent pool.
5. Clear and grub site. Install stone check dams at any evident concentrated flow discharge points.
6. Foundation area shall be excavated for installation of the building footings. Building work will be on going through the remainder of the project.
7. Commence installation of drainage appurtenances.
8. Commence earthwork and grading to subgrade.
9. Commence installation of water and sewer lines.
10. Continue earthwork and grading to subgrade as necessary for construction.
11. Complete installation of underground utilities to within 5' of the buildings.
12. Install light pole foundations and light poles.
13. Complete remaining earthwork operations.
14. Complete installation of catch basins and appurtenances.
15. Complete construction of wet pond.
16. Install sub-base and base gravel within parking fields, walkways, and all driveways.
17. Install curbing in parking fields, driveways, and along the streets as needed.
18. Install base course paving for access drive and parking area as well as concrete surfaces.
19. Loam, lime, fertilize, seed and mulch disturbed areas and complete all landscaping.
20. Install surface course paving for access drive and parking areas. Stripe per plan.
21. Once the site is stabilized and a 90% catch of vegetation has been obtained, remove all temporary erosion control measures.
22. Touch up loam and seed.

Note: All denuded areas not subject to final paving, riprap, or gravel shall be revegetated.

Prior to construction of the project, the contractor shall submit to the owner a schedule for the completion of the work, which will satisfy the following criteria:

1. The above construction sequence should generally be completed in the specified order; however, several separate items may be constructed simultaneously. Work must also be scheduled or phased to reduce the extent of the exposed areas as specified below. The intent of this sequence is to provide for erosion control and to have structural measures such as silt fence and construction entrances in place before large areas of land are denuded.

2. The work shall be conducted in sections which shall:

a) Limit the amount of exposed area to those areas in which work is expected to be undertaken during the proceeding 30 days.

b) Revegetate disturbed areas as rapidly as possible. All areas shall be permanently stabilized within 7 days of final grading or before a storm event; or temporarily stabilized within 48 hours of initial disturbance of soil for areas within 100 feet of an undisturbed wetland and 7 days for all other areas. Areas within 100 feet of an undisturbed wetland shall be mulched prior to any predicted rain event regardless of the 48 hour window.

c) Incorporate planned inlets and drainage system as early as possible into the construction phase. The ditches shall be immediately lined or revegetated as soon as their installation is complete.

1.5 Erosion, Sedimentation and Stabilization Control Plan

The Erosion Control Plan is included in the plan set.

1.6 Details and Specifications

The Erosion Control details and specifications are included in the plan set.

1.7 Winter Stabilization Plan

The winter construction period is from November 1 through April 15. If the construction site is not stabilized with pavement, a road gravel base, 75% mature vegetation cover or riprap by November 15 then the site needs to be protected with over-winter stabilization. An area considered open is any area not stabilized with pavement; vegetation, mulching, erosion control mats, riprap or gravel base on a road.

Winter excavation and earthwork shall be completed such that any area left exposed can be controlled by the contractor. Limit the exposed area to those areas in which work is expected to be under taken during the proceeding 15 days and that can be mulched in one day prior to any snow event.

All areas shall be considered to be denuded until the subbase gravel is installed in roadway/parking areas or the areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch rate shall be a minimum of 150 lbs/1,000 s.f. (3 tons/acre) and shall be properly anchored.

The contractor shall install any added measures which may be necessary to control erosion/sedimentation from the site dependent upon the actual site and weather conditions. Continuation of earthwork operations on additional areas shall not begin until the exposed soil surface on the area being worked has been stabilized, in order to minimize areas without erosion control protection.

1. Soil Stockpiles

Stockpiles of soil or subsoil shall be mulched for over winter protection with hay or straw at twice the normal rate or at 150 lbs/1,000 s.f. (3 tons per acre) or with a four-inch layer of woodwaste erosion control mix. This shall be done within 24 hours of stocking and re-established prior to any rainfall or snowfall. Any soil stockpile shall not be placed (even covered with hay or straw) within 100 feet from any natural resources.

2. Natural Resource Protection

Any areas within 100 feet from any natural resources, if not stabilized with a minimum of 75% mature vegetation catch, shall be mulched by December 1 and anchored with plastic netting or protected with erosion control mats. During winter construction, a double line of sediment barriers (i.e. silt fence backed with hay bales or erosion control mix) shall be placed between any natural resource and the disturbed area. Projects crossing the natural resource shall be protected a minimum distance of 100 feet on either side from the resource. Existing projects not stabilized by December 1 shall be protected with the second line of sediment barrier to ensure functionality during the spring thaw and rains.

3. Sediment Barriers

During frozen conditions, sediment barriers shall consist of woodwaste filter berms as frozen soil prevents the proper installation of hay bales and sediment silt fences.

4. Mulching

An area shall be considered denuded until areas of future loam and seed have been loamed, seeded and mulched. Hay and straw mulch shall be applied at a rate of 150 lb. per 1,000 square feet or 3 tons/acre (twice the normal accepted rate of 75-lbs./1,000 s.f. or 1.5 tons/acre) and shall be properly anchored. Mulch shall not be spread on top of snow. The snow shall be removed down to a one-inch depth or less prior to application. After each day of final grading, the area shall be properly stabilized with anchored hay or straw or erosion control matting. An area shall be considered to have been stabilized when exposed surfaces have been either mulched with straw or hay at a rate of 150 lb. per 1,000 square feet (3 tons/acre) and adequately anchored that ground surface is not visible though the mulch.

Between the dates of November 1 and April 15, all mulch shall be anchored by peg line, mulch netting, asphalt emulsion chemical, or wood cellulose fiber. When ground surface is not visible through the mulch then cover is sufficient. After November 1st, mulch and anchoring of all bare soil shall occur at the end of each final grading workday.

5. Mulching on Slopes and Ditches

Slopes shall not be left exposed for any extended time of work suspension unless fully mulched and anchored with peg and netting or with erosion control blankets. Mulching shall be applied at a rate of 230 lbs/1,000 s.f. on all slopes greater than 8%.

Mulch netting shall be used to anchor mulch in all drainage ways with a slope greater than 3% for slopes exposed to direct winds and for all other slopes greater that 8%. Erosion control blankets shall be used in lieu of mulch in all drainage ways with slopes greater than 8%. Erosion control mix can be used to substitute erosion control blankets on all slopes except ditches.

6. Seeding

Between the dates of October 15 and April 1st, loam or seed will not be required. During periods of above freezing temperatures finished areas shall be fine graded and either protected with mulch or temporarily seeded and mulched until such time as the final treatment can be applied. If the date is after November 1st and if the exposed area has been loamed, fine graded with a uniform surface, then the area may be dormant seeded at a rate of 3 times higher than specified for permanent seed and then mulched. Dormant seeding may be selected to be placed prior to the placement of mulch and fabric netting anchored with staples. If dormant seeding is used for the site, all disturbed areas shall receive 4" of loam and seed at an application rate of 5 lbs/1,000 s.f. All areas seeded during the winter shall be inspected in the spring for adequate catch. All areas insufficiently vegetated (less than 75% catch) shall be revegetated by replacing loam, seed and mulch. If dormant seeding is not used for the site, all disturbed areas shall be revegetated in the spring.

Standards for Timely Stabilization of Construction Sites During Winter

1. Standard for the timely stabilization of ditches and channels -- The applicant shall construct and stabilize all stone-lined ditches and channels on the site by November 15. The applicant shall construct and stabilize all grass-lined ditches and channels on the site by September 1. If the applicant fails to stabilize a ditch or channel to be grass-lined by September 1, then the applicant will take one of the following actions to stabilize the ditch for late fall and winter.

Install a sod lining in the ditch -- The applicant shall line the ditch with properly installed sod by October 1. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, watering the sod to promote root growth into the disturbed soil, and anchoring the sod with jute or plastic mesh to prevent the sod strips from sloughing during flow conditions.

Install a stone lining in the ditch --The applicant shall line the ditch with stone riprap by November 15. The applicant shall hire a registered professional engineer to determine the stone size and lining thickness needed to withstand the anticipated flow velocities and flow depths within the ditch. If necessary, the applicant shall regrade the ditch prior to placing the stone lining so to prevent the stone lining from reducing the ditch's cross-sectional area.

2. Standard for the timely stabilization of disturbed slopes -- The applicant shall construct and stabilize stone-covered slopes by November 15. The applicant shall seed and mulch all slopes to be vegetated by September 1. The departments shall consider any area having a grade greater than 15% to be a slope. If the applicant fails to stabilize any slope to be vegetated by September 1, then the applicant shall take one of the following actions to stabilize the slope for late fall and winter.

Stabilize the soil with temporary vegetation and erosion control mats -- By September 1 the applicant shall seed the disturbed slope with winter rye at a seeding rate of 3 pounds per 1,000 square feet and apply erosion control mats over the mulched slope. The applicant shall monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 75% of the disturbed slope by November 1, then the applicant shall cover the slope with a layer of woodwaste compost as described in item iii of this standard or with stone riprap as described in item iv of this standard.

Stabilize the slope with sod -- The applicant shall stabilize the disturbed slope with properly installed sod by September 1. Proper installation includes the applicant pinning the sod onto the slope with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil. The applicant shall not use late-season sod installation to stabilize slopes having a grade greater than 33% (3H:1V).

Stabilize the slope with woodwaste compost -- The applicant shall place a six-inch layer of woodwaste compost on the slope by November 15. Prior to placing the woodwaste compost, the applicant shall remove any snow accumulation on the disturbed slope. The applicant shall not use woodwaste compost to stabilize slopes having grades greater than 50% (2H:1V) or having groundwater seeps on the slope face.

Stabilize the slope with stone riprap -- The applicant shall place a layer of stone riprap on the slope by November 15. The applicant shall hire a registered professional engineer to determine the stone size needed for stability and to design a filter layer for underneath the riprap.

3. Standard for the timely stabilization of disturbed soils -- By September 15 the applicant shall seed and mulch all disturbed soils on areas having a slope less than 15%. If the applicant fails to stabilize these soils by this date, then the applicant shall take one of the following actions to stabilize the soil for late fall and winter.

Stabilize the soil with temporary vegetation -- By September 1 the applicant shall seed the disturbed soil with winter rye at a seeding rate of 3 pounds per 1000 square feet, lightly mulch the seeded soil with hay or straw at 75 pounds per 1000 square feet, and anchor the mulch with plastic netting. The applicant shall monitor growth of the rye over the next 30 days. If the rye fails to grow at least three inches or cover at least 75% of the disturbed soil before November 1, then the applicant shall mulch the area for over-winter protection as described below.

Stabilize the soil with sod -- The applicant shall stabilize the disturbed soil with properly installed sod by September 15. Proper installation includes the applicant pinning the sod onto the soil with wire pins, rolling the sod to guarantee contact between the sod and underlying soil, and watering the sod to promote root growth into the disturbed soil.

Stabilize the soil with mulch -- By November 15 the applicant shall mulch the disturbed soil by spreading hay or straw at a rate of at least 150 pounds per 1000 square feet on the area so that no soil is visible through the mulch. Prior to applying the mulch, the applicant shall remove any snow accumulation on the disturbed area. Immediately after applying the mulch, the applicant will anchor the mulch with plastic netting to prevent wind from moving the mulch off the disturbed soil.

1.8 Maintenance of facilities

The stormwater facilities will be maintained by the Applicant, Mercy Hospital or their assigned heirs. The contract documents will require the contractor to designate a person responsible for maintenance of the sedimentation control features during construction as required by the Erosion Control Report. Long-term operation/maintenance recommended for the stormwater facilities is presented below.

The responsible party may contract with such professionals, as may be necessary in order to comply with this provision and may rely on the advice of such professionals in carrying out its duty hereunder, provided, that the following operation and maintenance procedures are hereby established as a minimum for compliance with this section. A maintenance log of the inspections shall be kept by the responsible party.

Inspection and Maintenance Frequency and Corrrective Measures:
The following areas, facilities, and measures will be inspected and the identified deficiencies will be corrected. Clean-out must include the removal and legal disposal of any accumulated sediments and debris.

Catch Basins:
Inspect catch basins 2 times per year (preferably in Spring and Fall) to ensure that the catch basins are working in their intended fashion and that they are free of debris. Clean structures when sediment depths reach 12" from invert of outlet. If the basin outlet is designed with a hood to trap floatable materials (i.e. Snout), check to ensure watertight seal is working. At a minimum, remove floating debris and hydrocarbons at the time of the inspection.

Culverts:
Inspect culverts 2 times per year (preferably in Spring and Fall) to ensure that the culverts are working in their intended fashion and that they are free of debris. Remove any obstructions to flow; remove accumulated sediments and debris at the inlet, at the outlet, and within the conduit and repair any erosion damage at the culvert's inlet and outlet.

Inlet/Outlet Control Structures:
Inspect structures and piping 2 times per year (preferably in Spring and Fall) to ensure that the structures are working in their intended fashion and that they are free of debris. Remove any obstructions to flow; remove accumulated sediments and debris within the structure.

Stormdrain Outlets:
Inspect outlets 2 times per year (preferably in Spring and Fall) to ensure that the outlets are working in their intended fashion and that they are free of debris. Remove any obstructions to flow; remove accumulated sediments and debris at the outlet and within the conduit Repair any erosion damage at the stormdrain outlet.

Wet Pond:
Inspect pond 2 times per year (preferably in Spring and Fall) to ensure that it is working in its intended fashion and that it is free of trash and debris. Remove and properly dispose of any accumulated sediment or debris as needed. Inspect the embankments and spillways for settlement, slope erosion, and downstream swamping. Mow the embankment and/or vegetated spillway as needed to control woody vegetation. The facilities shall be inspected after major storms and any identified deficiencies shall be corrected.

Stone Bermed Level Lip Spreaders:
Inspect 2 times per year (preferably in Spring and Fall) to ensure that they are free of debris and no undesirable growth is impeding water flow through the berm. In addition, the stone bermed level lip spreaders shall be inspected to ensure that runoff is not bypassing the bermed spreader.

Vegetated Areas:
Inspect slopes and embankments early in the growing season to identify active or potential erosion problems. Replant bare areas or areas with sparse growth. Where rill erosion is evident, armor the area with an appropriate lining or divert the erosive flows to on-site areas able to withstand the concentrated flows. The facilities will be inspected after major storms and any identified deficiencies will be corrected.

Ditches, Swales and other Open Stormwater Channels:
Inspect 2 times per year (preferably in Spring and Fall) to ensure they are working in their intended fashion and that they are free of sediment and debris. Remove any obstructions to flow, including accumulated sediments and debris and vegetated growth. Repair any erosion of the ditch lining. Vegetated ditches will be mowed at least annually or otherwise maintained to control the growth of woody vegetation and maintain flow capacity. Any woody vegetation growing through riprap linings must also be removed. Repair any slumping side slopes as soon as practicable. If the ditch has a riprap lining, replace riprap on areas where any underlying filter fabric or underdrain gravel is showing through the stone or where stones have dislodged. Correct any erosion of the channel's bottom or sideslopes. The facilities shall be inspected after major storms and any identified deficiencies shall be corrected.

Roadways and Parking Surfaces: Clear accumulations of winter sand in parking lots and along roadways at least once a year, preferably in the spring. Accumulations on pavement may be removed by pavement sweeping. Accumulations of sand along road shoulders may be removed by grading excess sand to the pavement edge and removing it manually or by a front-end loader. Repair potholes and other roadway obstructions and hazards. Plowing and sanding of paved areas shall be performed as necessary to maintain vehicular traffic safety.

Recertification

As part of the Stormwater Permit, the applicant is required to meet the standards in Appendix B of the Chapter 500 Rules. Appendix B states that a project must submit a certification of the following to the department within three months of the expiration of each five-year interval from the date of issuance of the permit.
(a)Identification and repair of erosion problems. All areas of the project site have been inspected for areas of erosion, and appropriate steps have been taken to permanently stabilize these areas.
(b)Inspection and repair of stormwater control system. All aspects of the stormwater control system have been inspected for damage, wear, and malfunction, and appropriate steps have been taken to repair or replace the system, or portions of the system.
(c)Maintenance. The erosion and stormwater maintenance plan for the site is being implemented as written, or modifications to the plan have been submitted to and approved by the department, and the maintenance log is being maintained.
(d)Proprietary Systems. All proprietary systems have been maintained according to the manufacturer's recommendations. Where required by the Department, the permittee shall execute a 5-year maintenance contract with a qualified professional for the coming 5-year interval. The maintenance contract must include provisions for routine inspections, cleaning, and general maintenance.

Housekeeping

As part of the Stormwater Permit, the applicant is required to meet the standards in Appendix C of the Chapter 500 Rules. The following procedures are hereby established as a minimum for compliance with this section. For further information on the procedures listed below, refer to Chapter 500 rules - Appendix C.

Spill Prevention:
Appropriate spill prevention, containment, and response planning/implementation shall be used to prevent pollutants from being discharged from materials on site.

Groundwater Protection:
During construction, hazardous materials with the potential to contaminate groundwater shall not be stored or handled in areas of the site which drain to an infiltration area.

Fugitive Sediment and Dust:
Appropriate measures shall be taken to ensure that activities do not result in noticeable erosion of the soils and water and/or calcium chloride shall be used to ensure that activities do not result in fugitive dust emissions during or after construction.

Debris and Other Materials:
Litter, construction debris, and chemicals exposed to stormwater must be prevented from becoming a pollutant source.

Trench or Foundation De-watering:
Water collected through the process of trenching and/or de-watering must be removed from the ponded area, and must be spread through natural wooded buffers or other areas that are specifically designed to collect the maximum amount of sediment possible.

Non-stormwater Discharges:
Identify and prevent contamination by non-stormwater discharges.

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SEEDING PLAN

Project: Mercy Hospital Expansion

Site Location: Portland, ME

☐ Permanent Seeding ☒ Temporary Seeding

1. Instruction on preparation of soil: Prepare a good seed bed for planting method used.
2. Apply lime as follows: _____# / acres, OR 138 # /M Sq. Ft.
3. Fertilize with _____ pounds of _____ N-P-K/ac. OR 13.8 pounds of 10-10-10 N-P-K/M Sq. Ft.
4. Method of applying lime and fertilizer: Spread and work into the soil before seeding.
5. Seed with the following mixture:
   50% Winter Rye
   50% Annual Rye
6. Mulching instructions: Apply at the rate of _____per acre, OR 75 pounds per M. Sq. Ft.

	Amount	Unit # Tons, Etc.
7. TOTAL LIME	138	#/1000 sq. ft.
8. TOTAL FERTILIZER	13.8	#/1000 sq. ft.
9. TOTAL SEED	1.03	#/1000 sq. ft.
10. TOTAL MULCH	75	#/1000 sq. ft.
11. TOTAL other materials, seeds, etc.		
12. REMARKS		

Spring seeding is recommended; however, late summer (prior to September 1) seeding can be made. Permanent seeding should be made prior to August 5 or as a dormant seeding after the first killing frost and before the first snowfall. If seeding cannot be done within these seeding dates, temporary seeding and mulching shall be used to protect the site. Permanent seeding shall be delayed until the next recommended seeding period.

Project: Mercy Hospital Expansion

Site Location: Portland, ME

☒ Permanent Seeding ☐ Temporary Seeding

1. Instruction on preparation of soil: Prepare a good seed bed for planting method used.
2. Apply lime as follows: _____# / acres, OR 138 # /M Sq. Ft.
3. Fertilize with _____ pounds of _____ N-P-K/ac. OR 18.4 pounds of 10-20-20 N-P-K/M Sq. Ft.
4. Method of applying lime and fertilizer: Spread and work into the soil before seeding.
5. Seed with the following mixture:
   40% Creeping Red Fescue
   30% Charger II Perennial Ryegrass
   20% KenBlue Kentucky Bluegrass
   10% Tiffany Chewings Fescue
6. Mulching instructions: Apply at the rate of _____per acre, OR 75 pounds per M. Sq. Ft.

	Amount	Unit # Tons, Etc.
7. TOTAL LIME	138	#/1000 sq. ft.
8. TOTAL FERTILIZER	18.4	#/1000 sq. ft.
9. TOTAL SEED	1.03	#/1000 sq. ft.
10. TOTAL MULCH	75	#/1000 sq. ft.
11. TOTAL other materials, seeds, etc.		
12. REMARKS		

Spring seeding is recommended, however, late summer (prior to September 1) seeding can be made. Permanent seeding should be made prior to August 5 or as a dormant seeding after the first killing frost and before the first snowfall. If seeding cannot be done within these seeding dates, temporary seeding and mulching shall be used to protect the site. Permanent seeding shall be delayed until the next recommended seeding period.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE
STEPHEN R. BUSHEY
01.30.20
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
3	01.30.20	REVISED / RESUBMITTED CONSTRUCTION DOCUMENTS
2	01.29.20	REVISED / RESUBMITTED TO DEP – L.O.R. #2
1	11.04.19	PREPARED FOR L.O.R. #1 & SUBMITTED TO CITY

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CONSTRUCTION DOCUMENTS FOR PRICING ONLY	11.22.19	SRB
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB	Draft: CDD	Date: AUG. 2019	
Checked: SRB	Scale: NTS	Job No.: 3257.04	
File Name: 325704–DET.dwg			

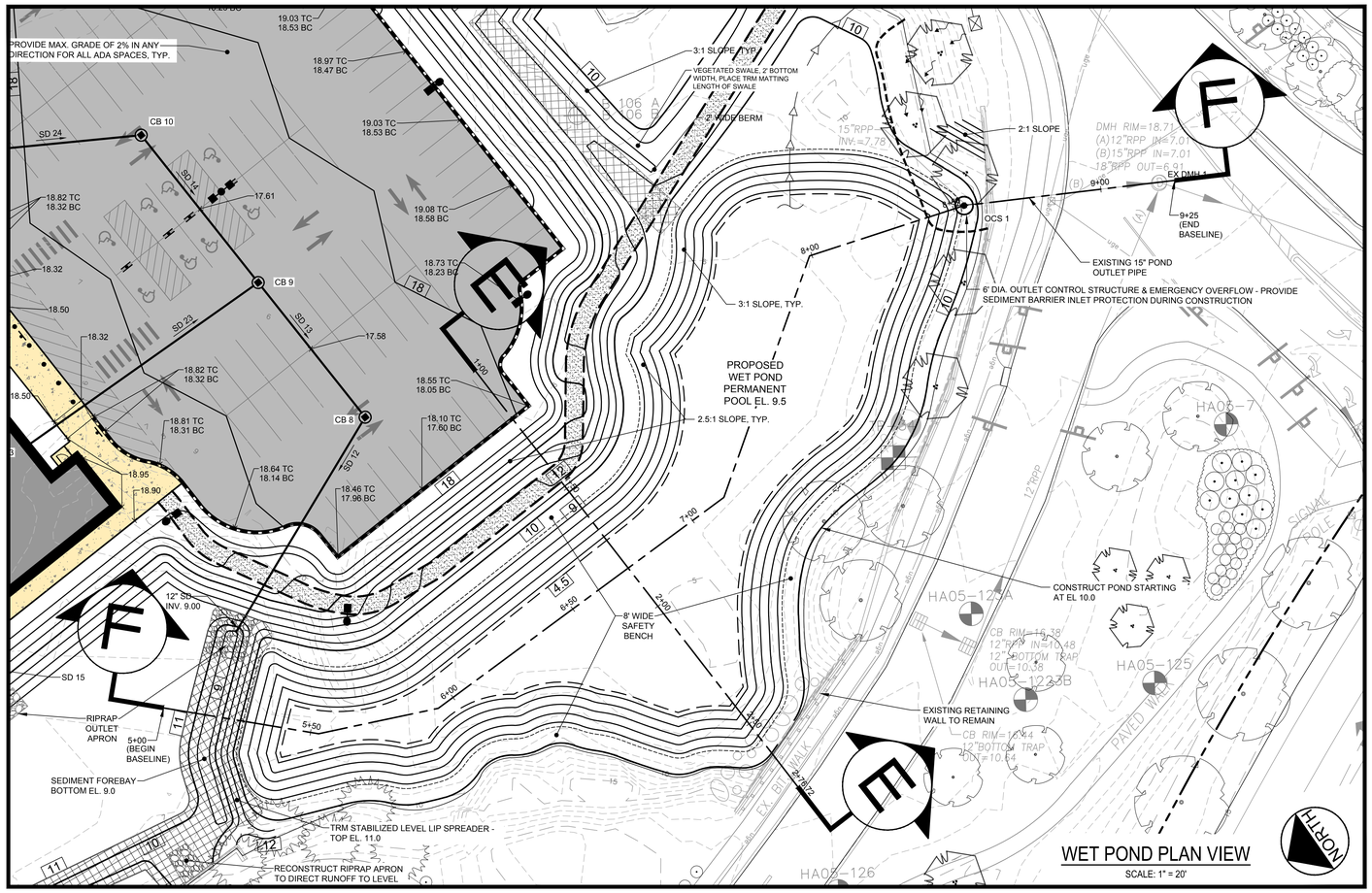
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207.772.2515

Drawing Name: EROSION CONTROL NOTES & SEEDING PLAN
Project: Fore River Campus Consolidation
Portland, Maine
Client: Northern Light Mercy Hospital
144 State Street, Portland, Maine 04101

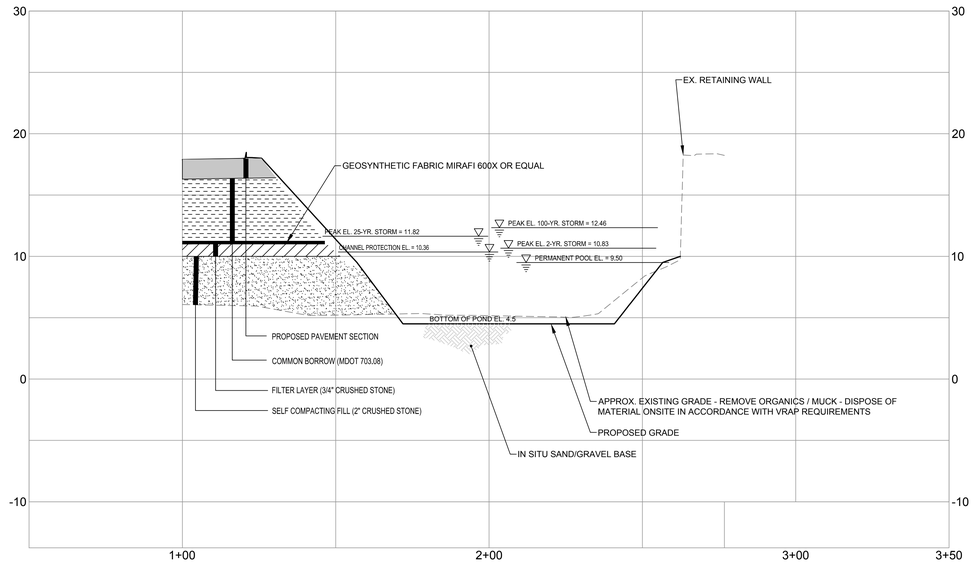
Drawing No. C–7.6

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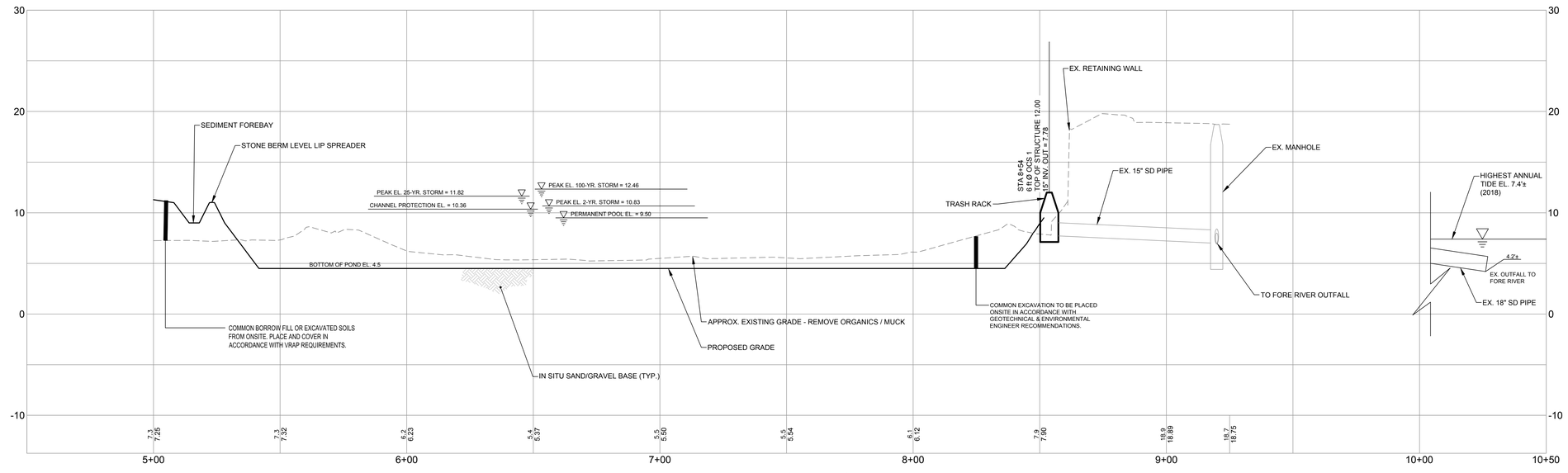
WET POND PLAN VIEW

SCALE: 1" = 20'



WET POND CROSS SECTION E-E

SCALE: 1" = 20' HORZ.
1" = 5' VERT.



WET POND CROSS SECTION F-F

SCALE: 1" = 20' HORZ.
1" = 5' VERT.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING AND SHALL NOT BE USED FOR CONSTRUCTION.

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01.30.20
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

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Design: SRB	Draft: CDD	Date: AUG. 2019	
Checked: SRB	Scale: NTS	Job No.: 3257.04	
File Name: 325704-DET-POND.dwg			

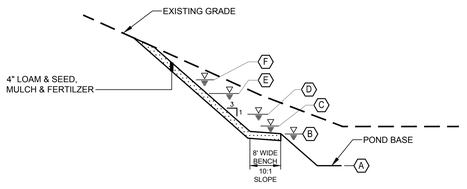
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207.772.2515

Drawing Name: Wet Pond Plan & Cross Sections
Project: Fore River Campus Consolidation, Portland, Maine
Client: Northern Light Mercy Hospital, 144 State Street, Portland, Maine 04101

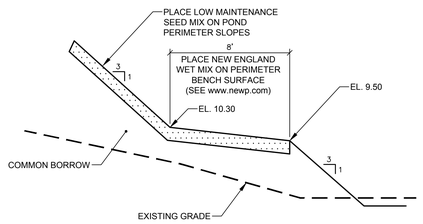
Drawing No. C–8.0

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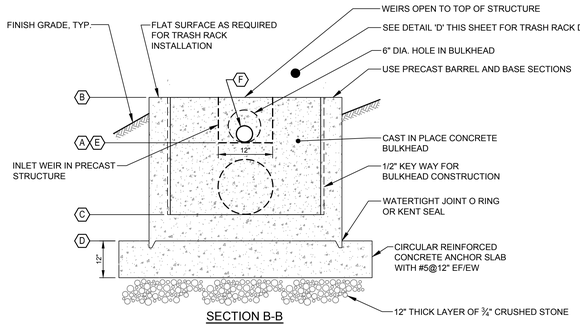


SCHEDULE A EMBANKMENT SCHEDULE	
ITEM DESCRIPTION	DIMENSION/ELEVATION
(A) POND BASE ELEVATION	4.5
(B) PERMANENT POOL ELEVATION	9.5
(C) PEAK ELEVATION – CHANNEL PROTECTION VOLUME	10.36
(D) PEAK ELEVATION – 2 YEAR STORM	10.83
(E) PEAK ELEVATION – 25 YEAR STORM	11.82
(F) PEAK ELEVATION – 100 YEAR STORM	12.46

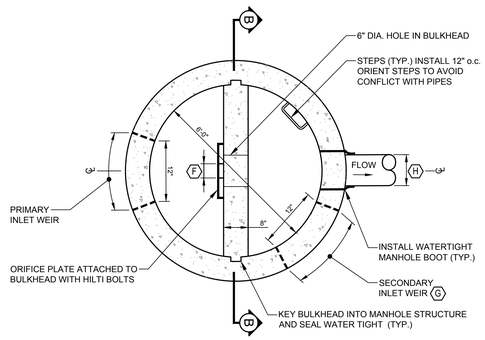
(A) TYPICAL WET POND CROSS SECTION
N.T.S.



(B) 8' WIDE BENCH DETAIL
N.T.S.



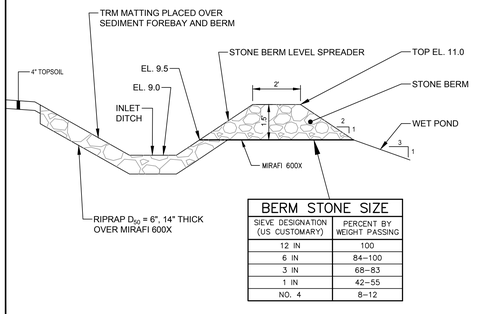
SECTION B-B
SEE SCHEDULE 'B'



PLAN VIEW
SEE SCHEDULE 'B'

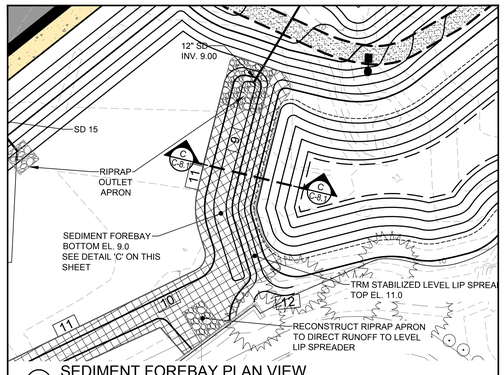
(E) 6' DIA. OUTLET CONTROL STRUCTURE (OCS 1) DETAILS
N.T.S.

SCHEDULE 'B' OUTLET CONTROL STRUCTURE		
	DESCRIPTION	DIM./ELEV.
A	PRIMARY WEIR INVERT	9.50
B	TOP OF STRUCTURE / TOP OF BULKHEAD	12.00
C	MANHOLE INVERT	7.78
D	BOTTOM OF STRUCTURE	6.78
E	ORIFICE INVERT	9.50
F	ORIFICE DIAMETER	3.25"
G	SECONDARY WEIR INVERT	10.36
H	PIPE DIAMETER	15" - EXIST. PIPE
	INVERT OUT	7.78 - EXIST. INVERT

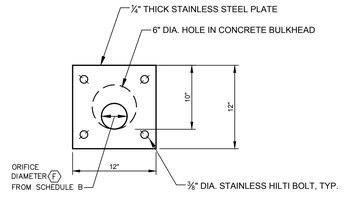


BERM STONE SIZE	
SIEVE DESIGNATION (US CUSTOMARY)	PERCENT BY WEIGHT PASSING
12 IN	100
6 IN	84–100
3 IN	68–83
1 IN	42–55
NO. 4	8–12

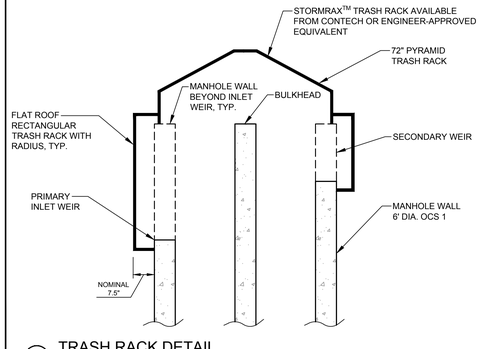
(C) SEDIMENT FOREBAY - SECTION C-C (SEE DETAIL F FOR PLAN)
N.T.S.



(F) SEDIMENT FOREBAY PLAN VIEW
SCALE: 1" = 20'



(H) ORIFICE DETAIL
N.T.S.



(D) TRASH RACK DETAIL
N.T.S.

CONSTRUCTION OVERSIGHT:

1. THE APPLICANT WILL RETAIN THE SERVICES OF A PROFESSIONAL ENGINEER TO INSPECT THE CONSTRUCTION AND STABILIZATION OF ALL STORMWATER MANAGEMENT STRUCTURES. IF NECESSARY, THE INSPECTING ENGINEER WILL INTERPRET THE POND'S CONSTRUCTION PLAN FOR THE CONTRACTOR. ONCE ALL STORMWATER MANAGEMENT STRUCTURES ARE CONSTRUCTED AND STABILIZED, THE INSPECTING ENGINEER WILL NOTIFY THE MeDEP IN WRITING WITHIN 30 DAYS TO STATE THAT THE POND HAS BEEN COMPLETED. ACCOMPANYING THE ENGINEER'S NOTIFICATION MUST BE A LOG OF THE ENGINEER'S INSPECTIONS GIVING THE DATE OF EACH INSPECTION, THE TIME OF EACH INSPECTION, AND THE ITEMS INSPECTED ON EACH VISIT, AND INCLUDE ANY TESTING DATA OR SIEVE ANALYSIS DATA OF EVERY MINERAL SOIL AND SOIL MEDIA SPECIFIED IN THE PLANS AND USED ON SITE.
2. INSPECTION BY A PROFESSIONAL ENGINEER WILL CONSIST OF WEEKLY VISITS TO THE SITE TO INSPECT THE INSTALLATION OF EACH POND'S EMBANKMENT CONSTRUCTION, STORMWATER INLET AND OUTLET CONTROL STRUCTURE, FROM INITIAL GROUND DISTURBANCE TO FINAL STABILIZATION OF THE POND.
3. AN UNDERDRAINED GRAVEL TRENCH OUTLET IS NOT PROPOSED FOR THE OUTFLOW TRIBUTARY TO THE TIDAL FORE RIVER.

(G) CONSTRUCTION OVERSIGHT NOTE
N.T.S.

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STATE OF MAINE
STEPHEN R. BUSHEY
01.30.20
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

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Design: SRB	Drafft: CDD	Date: AUG. 2019
Checked: SRB	Scale: NTS	Job No.: 3257.04
File Name: 325704-DET-POND.dwg		

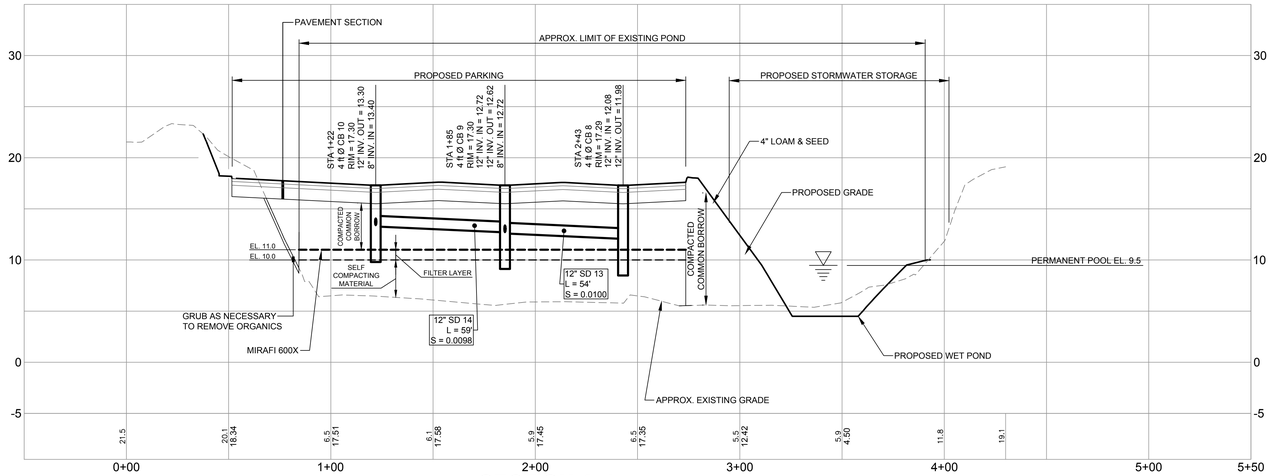
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207.772.2515

Drawing Name:	Wet Pond Details
Project:	Fore River Campus Consolidation Portland, Maine
Client:	Northern Light Mercy Hospital 144 State Street, Portland, Maine 04101

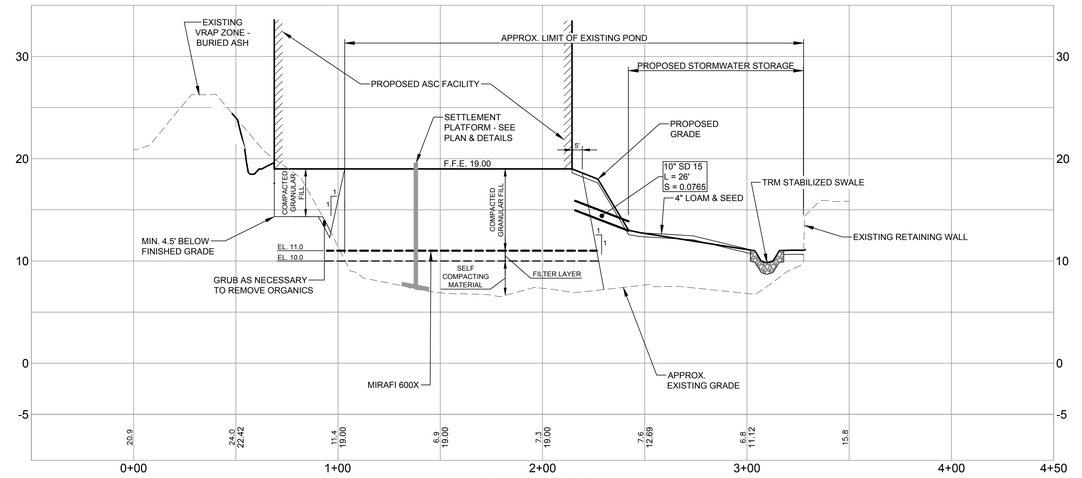
Drawing No.
C–8.1

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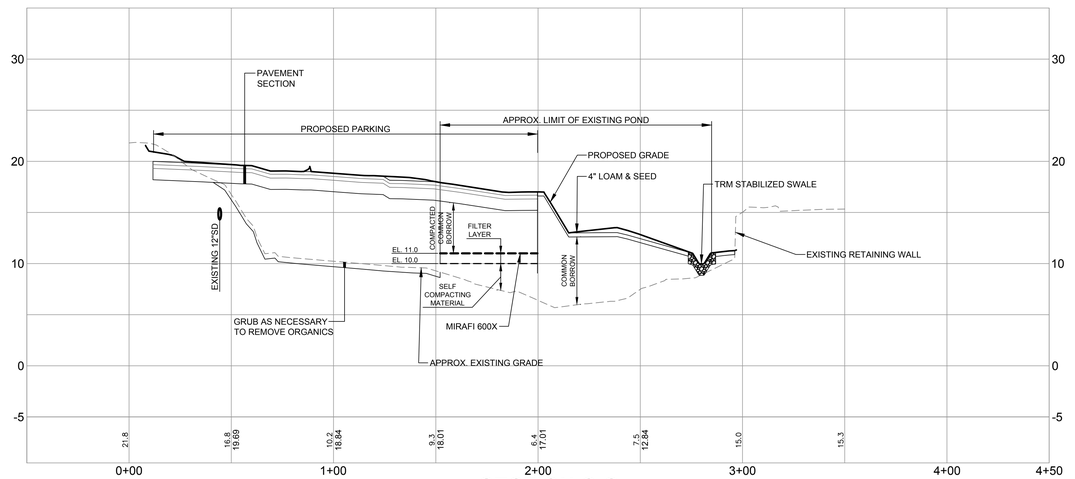
SECTION A-A

SCALE: 1" = 30' HORZ.
1" = 6' VERT.



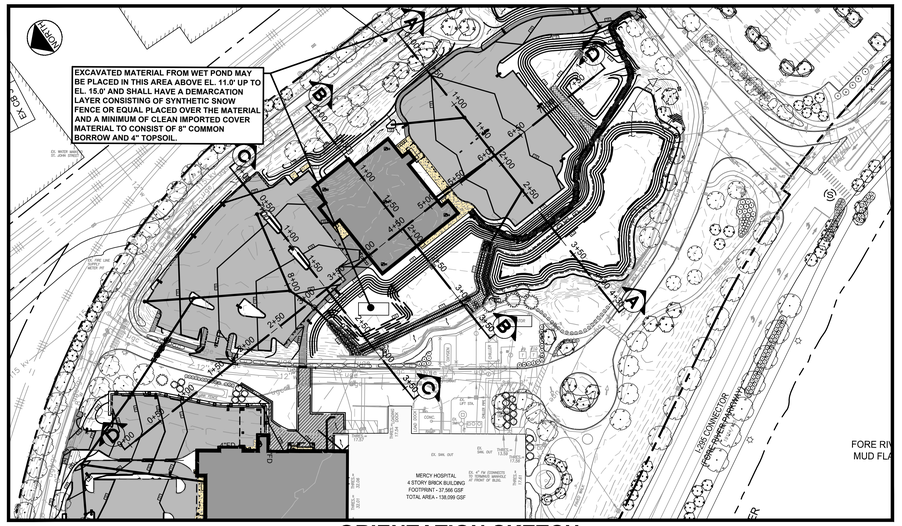
SECTION B-B

SCALE: 1" = 30' HORZ.
1" = 6' VERT.



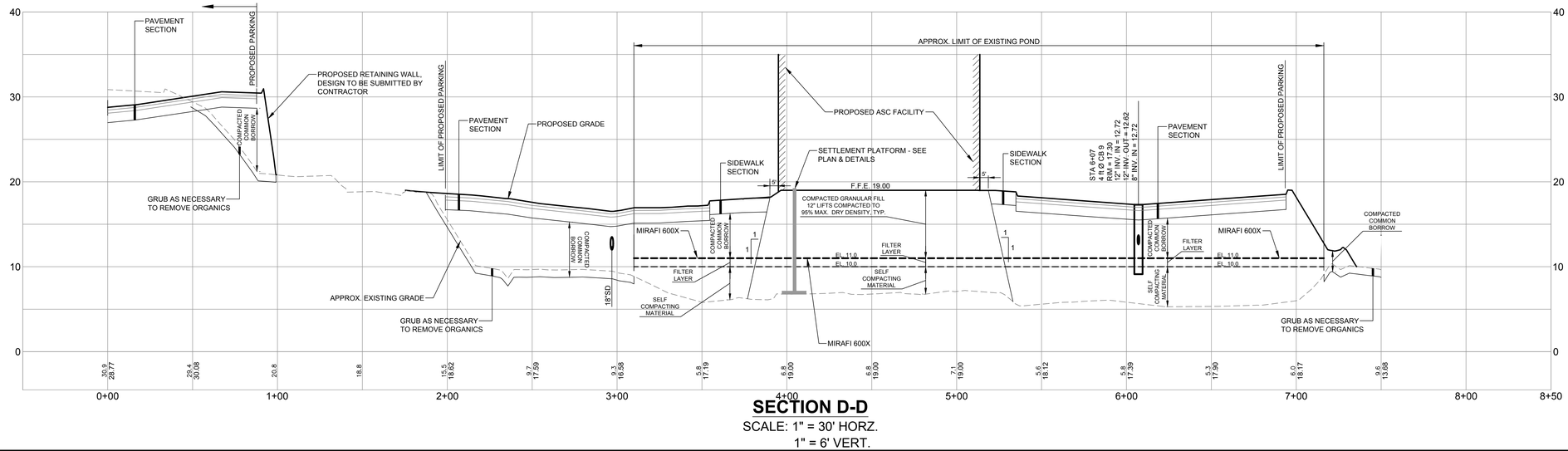
SECTION C-C

SCALE: 1" = 30' HORZ.
1" = 6' VERT.



ORIENTATION SKETCH

SCALE: 1" = 80'



SECTION D-D

SCALE: 1" = 30' HORZ.
1" = 6' VERT.

FILL MATERIAL

MATERIAL TYPE	DESCRIPTION
COMPACTED GRANULAR FILL	MDOT 703.06 TYPE D
FILTER LAYER (TWO OPTIONS)	2" CRUSHED STONE MDOT 703.31 IF PLAIN RIPRAP IS USED FOR SELF COMPACTING MATERIAL
	¾" CRUSHED STONE MDOT 703.13 IF 2" CRUSHED STONE IS USED FOR SELF COMPACTING MATERIAL
SELF COMPACTING MATERIAL (TWO OPTIONS)	PLAIN RIPRAP MDOT 703.26
	2" CRUSHED STONE MDOT 703.31

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STATE OF MAINE
STEPHEN R. BUSHEY
01.30.20
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

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File Name: 325704--GRADING WITH TRAIL.dwg		

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Drawing Name: Site Sections
Project: Fore River Campus Consolidation
Portland, Maine
Client: Northern Light Mercy Hospital
144 State Street, Portland, Maine 04101

Drawing No. C–9.0

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MMC ST. JOHN STREET PARKING GARAGE
TOP EL. 116.00

LEVEL 8
LEVEL 7
LEVEL 6
LEVEL 5
LEVEL 4
LEVEL 3
LEVEL 2
LEVEL 1

GROUND LEVEL F.F.E. 26.00

MERCY PROPERTY LINE

EXISTING PAN AM RAILWAY AREA

EXISTING ACCESS ROAD

PROPOSED STAFF PARKING AREA

ROOF (PARAPET) EL. 50.00

PROPOSED ASC FACILITY

LEVEL 2 F.F.E. 33.00

GROUND LEVEL F.F.E. 19.00 (LEVEL 1)

PROPOSED PATIENT / VISITOR PARKING AREA

PAVEMENT SECTION

PROPOSED WET POND (STORMWATER MANAGEMENT AREA)

EXISTING WALKWAY

EXISTING ACCESS ROAD

EXISTING LANDSCAPE / PATHWAY AREA

EXISTING ACCESS ROAD INTERSECTION

EXISTING FORE RIVER PARKWAY

EXISTING FORE RIVER TRAIL

EXISTING FORE RIVER MUD FLATS

PERMANENT POOL EL. 9.5'

APPROX. HIGH TIDE FORE RIVER

EL. 11.0

EL. 10.0

SELF-COMPACTING MATERIAL

FILLER LAYER

COMPACTED GRANULAR FILL

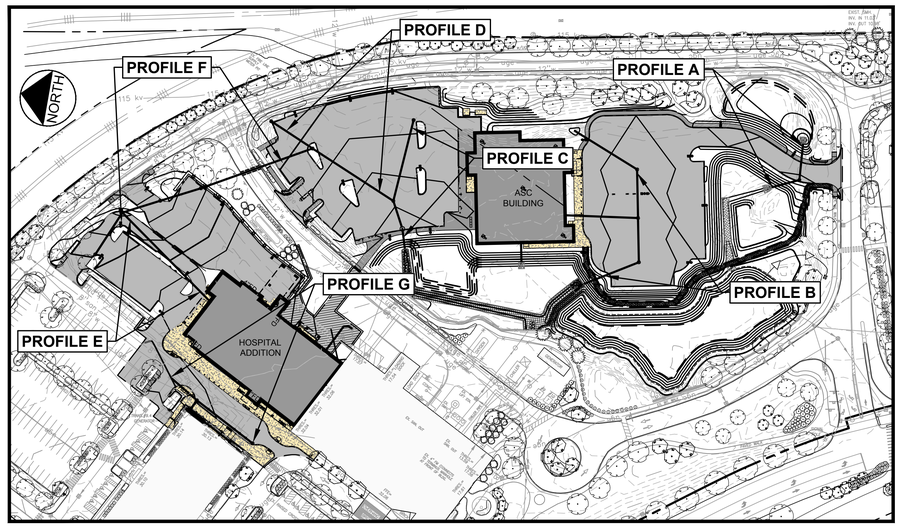
COMMON BORROW FILL

APPROX. EXISTING GRADE

PROPOSED GRADE

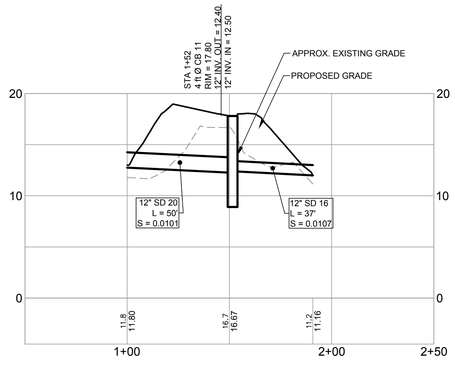
EXISTING RETAINING WALL

| | | |



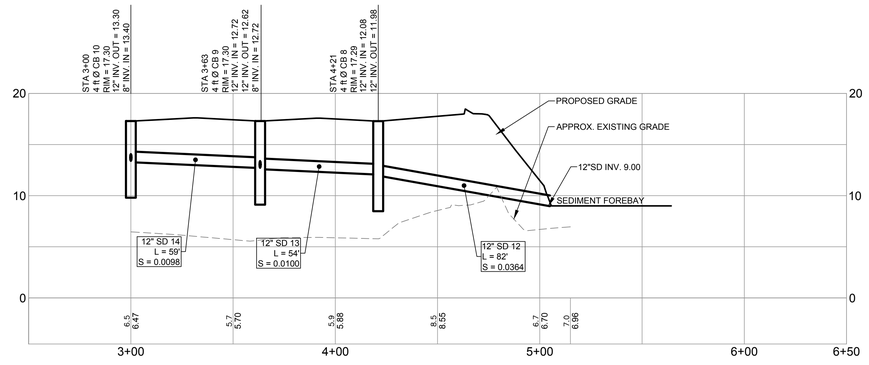
ORIENTATION SKETCH

SCALE: 1" = 80'



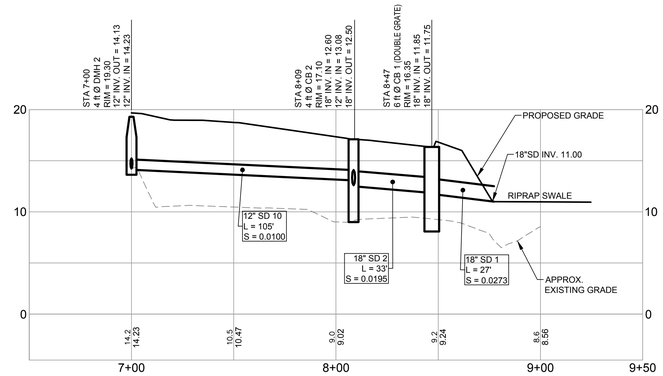
PROFILE A

SCALE: 1" = 30' HORZ.
1" = 6' VERT.



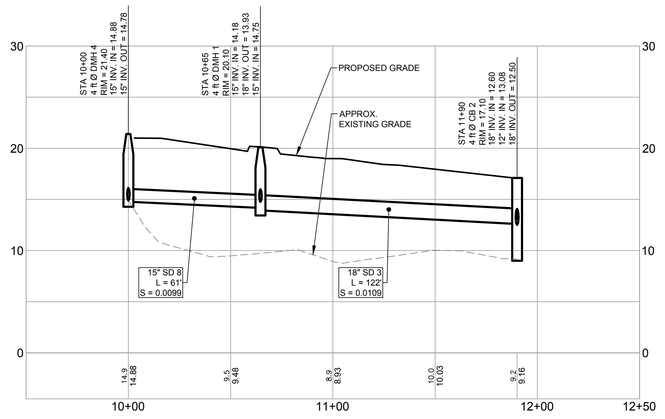
PROFILE B

SCALE: 1" = 30' HORZ.
1" = 6' VERT.



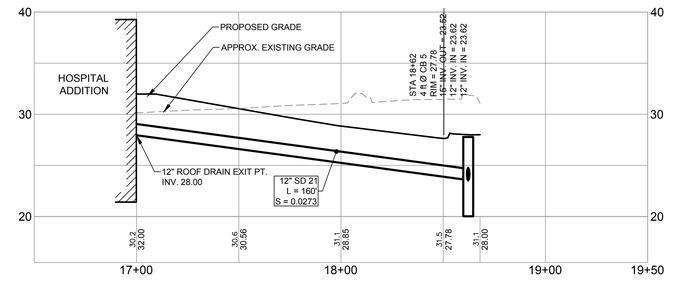
PROFILE C

SCALE: 1" = 30' HORZ.
1" = 6' VERT.



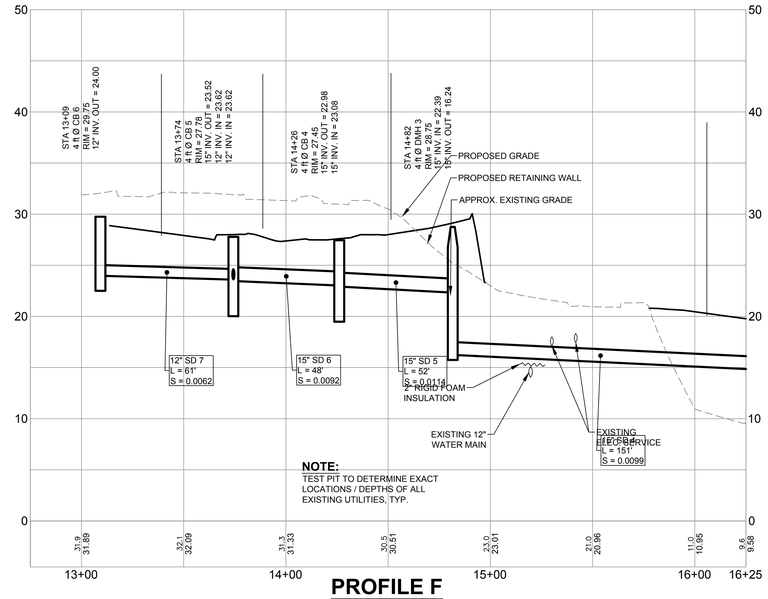
PROFILE D

SCALE: 1" = 30' HORZ.
1" = 6' VERT.



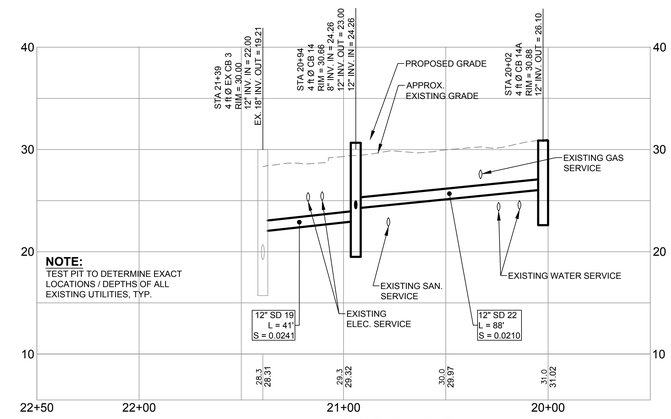
PROFILE E

SCALE: 1" = 30' HORZ.
1" = 6' VERT.



PROFILE F

SCALE: 1" = 30' HORZ.
1" = 6' VERT.



PROFILE G

SCALE: 1" = 30' HORZ.
1" = 6' VERT.

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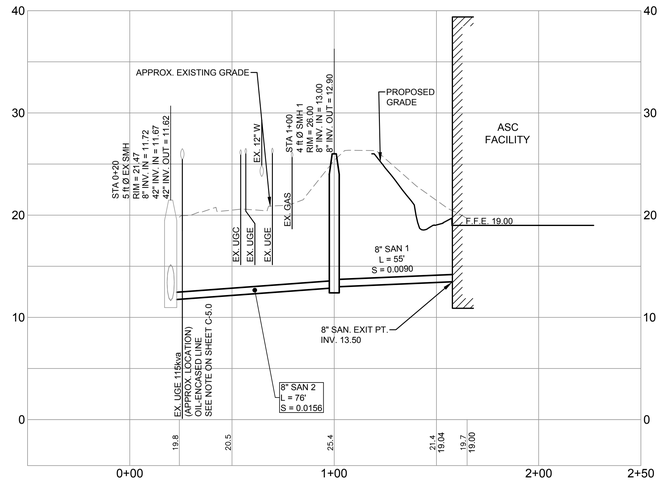
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Drawing Name:	Storm Drain Profiles
Project:	Fore River Campus Consolidation Portland, Maine
Client:	Northern Light Mercy Hospital 144 State Street, Portland, Maine 04101

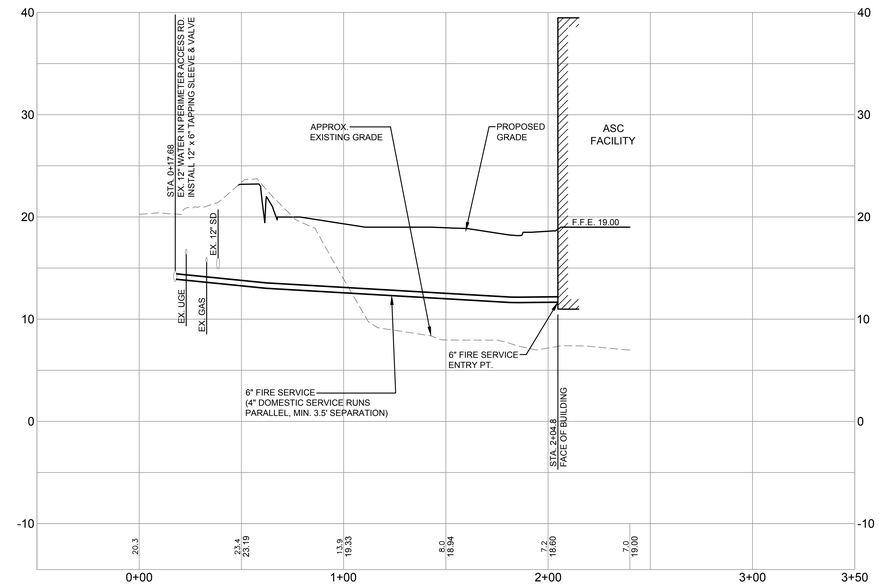
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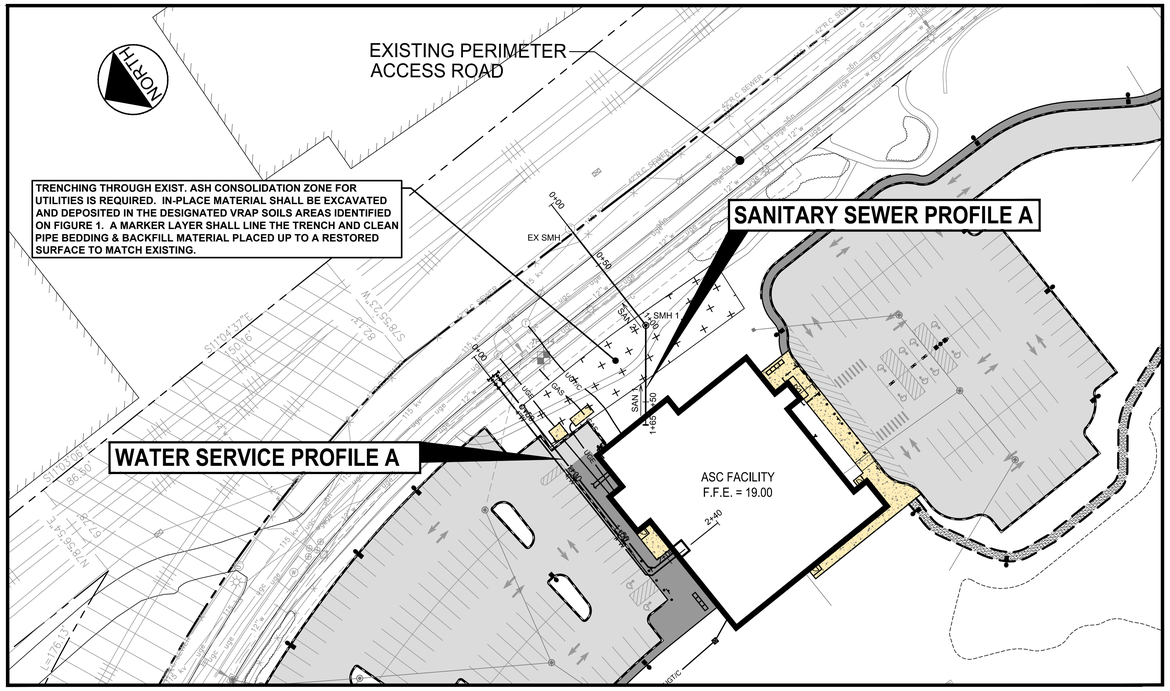
SANITARY SEWER PROFILE A

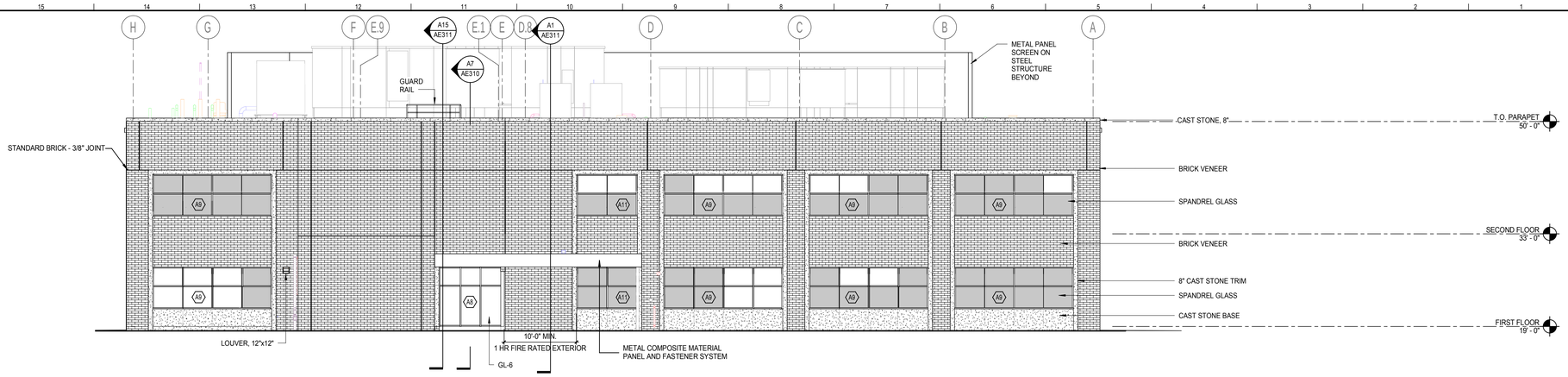
SCALE: 1" = 30' HORZ.
1" = 6' VERT.



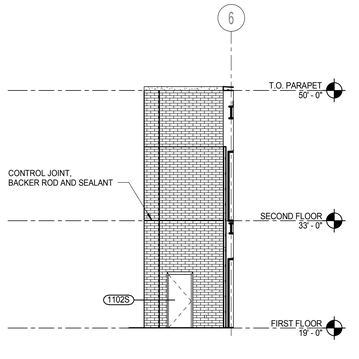
WATER SERVICE PROFILE A

SCALE: 1" = 30' HORZ.
1" = 6' VERT.

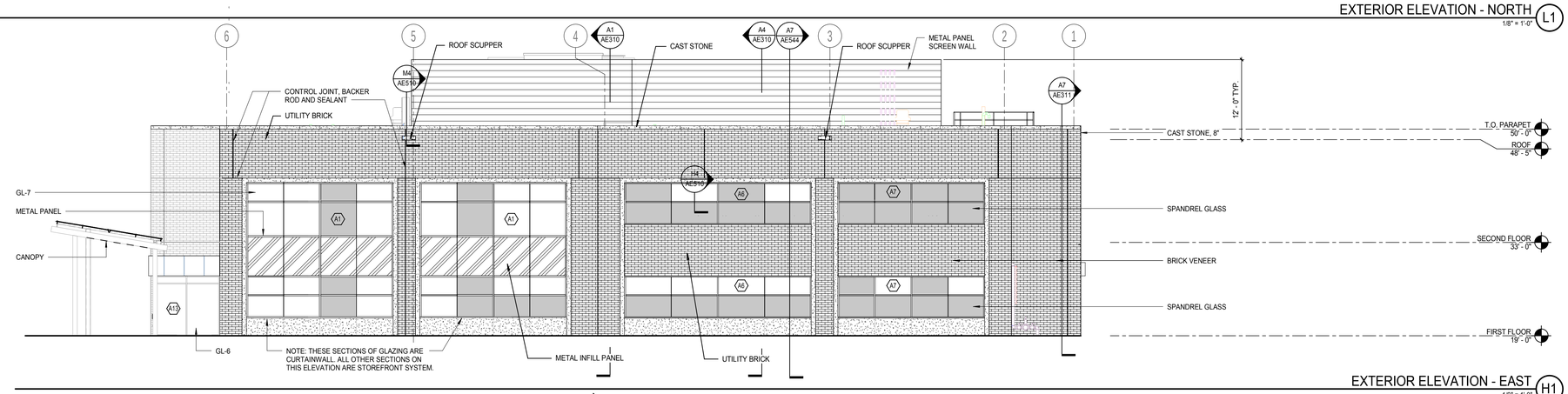

NORTH
EXISTING PERIMETER
ACCESS ROAD
TRENCHING THROUGH EXIST. ASH CONSOLIDATION ZONE FOR UTILITIES IS REQUIRED. IN-PLACE MATERIAL SHALL BE EXCAVATED AND DEPOSITED IN THE DESIGNATED VRAP SOILS AREAS IDENTIFIED ON FIGURE 1. A MARKER LAYER SHALL LINE THE TRENCH AND CLEAN PIPE BEDDING & BACKFILL MATERIAL PLACED UP TO A RESTORED SURFACE TO MATCH EXISTING.
SANITARY SEWER PROFILE A
WATER SERVICE PROFILE A
EX SMH
SMH 1
ASC FACILITY
F.F.E. = 19.00
ASC SEWER
ASC WATER
ASC GAS
ASC ELEC
ASC TELE
ASC STEAM
ASC CHW
ASC HW
ASC CW
ASC CONDENSATE
ASC STORM
ASC FIRE
ASC DOMESTIC
ASC GAS
ASC ELEC
ASC TELE
ASC STEAM
ASC CHW
ASC HW
ASC CW
ASC CONDENSATE
ASC STORM
ASC FIRE
ASC DOMESTIC
EX. UGE
EX. UGC
EX. GAS
EX. 12" W
EX. 12" SD
EX. 8" SAN
EX. 6" W
EX. 8" W
EX. 12" W
EX. 8" W
EX. 12" W
EX. 12" SD
EX. 8" SAN
EX. 6



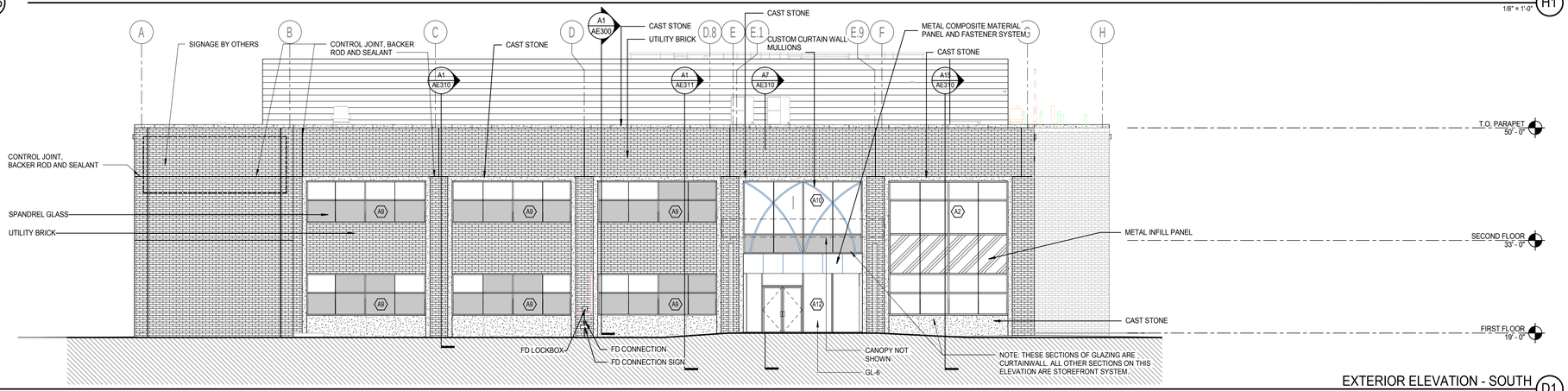
EXTERIOR ELEVATION - NORTH L1
1/8" = 1'-0"



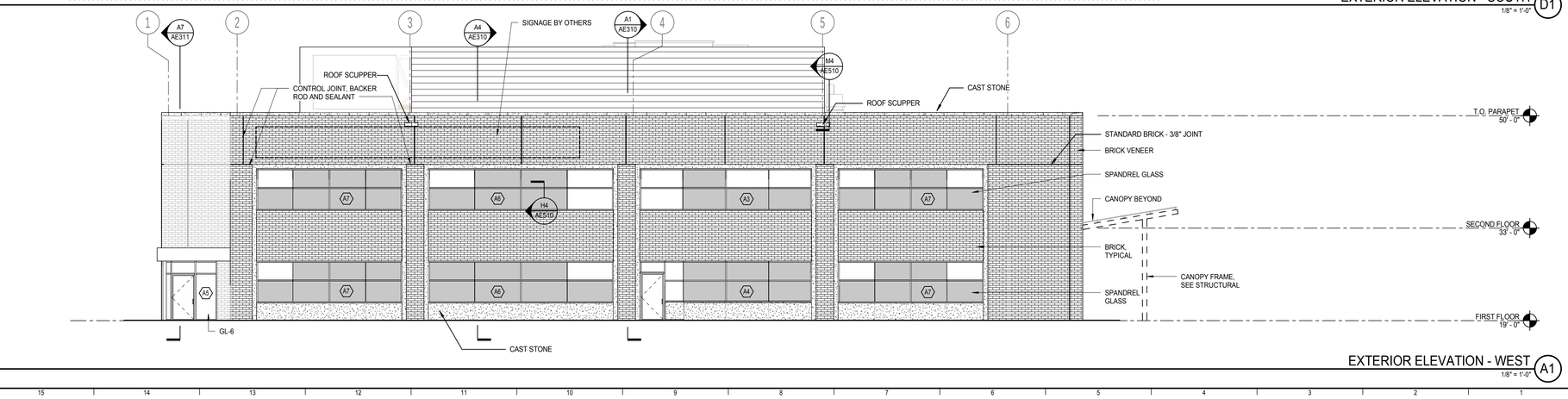
EXTERIOR ELEVATION - EAST H16
1/8" = 1'-0"



EXTERIOR ELEVATION - EAST H1
1/8" = 1'-0"



EXTERIOR ELEVATION - SOUTH D1
1/8" = 1'-0"



EXTERIOR ELEVATION - WEST A1
1/8" = 1'-0"

EXTERIOR GLAZING LEGEND:

- GL-7 — 1" TINTED INSULATED VISION GLASS U.N.O.
- GL-9 — 1" TINTED SPANDREL GLASS (TINTED TO MATCH GL-7
- METAL PANEL
- GLAZING TAG, SEE AE600 FOR DIMENSIONS

REV	DESCRIPTION	DATE
1	ISSUED FOR ADD-1	12-13-19
0	ISSUED FOR CONSTRUCTION	11-22-19

ISSUED FOR ADD-1
12-13-19
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SMRT

NORTHERN LIGHT MERCY HOSPITAL
AMBULATORY SURGERY CENTER
Portland, ME

EXTERIOR ELEVATIONS
SHEET TITLE:

SCALE: AS NOTED

PROJECT MANAGER:	KD	PROJECT NO:	19004
A/E OF RECORD:	KD		
JOB CAPTAIN:	CAH		
DRAWN BY:	CAH		
SMRT FILE:	AE200-19004	SHEET No.	AE200

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GROUND FLOOR - FACILITY PLAN (K1)
3/32" = 1'-0"



FIRST FLOOR - FLOOR PLAN AREA A (A1)
3/32" = 1'-0"

A B C D
GROUND FLOOR KEYPLAN 1" = 160'-0" (2)

A B C D
FIRST FLOOR KEYPLAN 1" = 160'-0" (1)

REV	DESCRIPTION	DATE

DESIGN DEVELOPMENT
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MERCY FORE RIVER CAMPUS CONSOLIDATION
MERCY HOSPITAL - PHASE 2
175 FORE RIVER PARKWAY

GROUND FLOOR AND FIRST FLOOR FACILITY PLANS

SHEET TITLE:

0" 1/4" 1/2" 1" 2" 3"
SCALE: AS NOTED

PROJECT MANAGER:	KD	PROJECT NO:	19002
A/E OF RECORD:	KD		
JOB CAPTAIN:	JCH		A-100
DRAWN BY:	JCH		
SMRT FILE:	A-100-19002	SHEET No.	

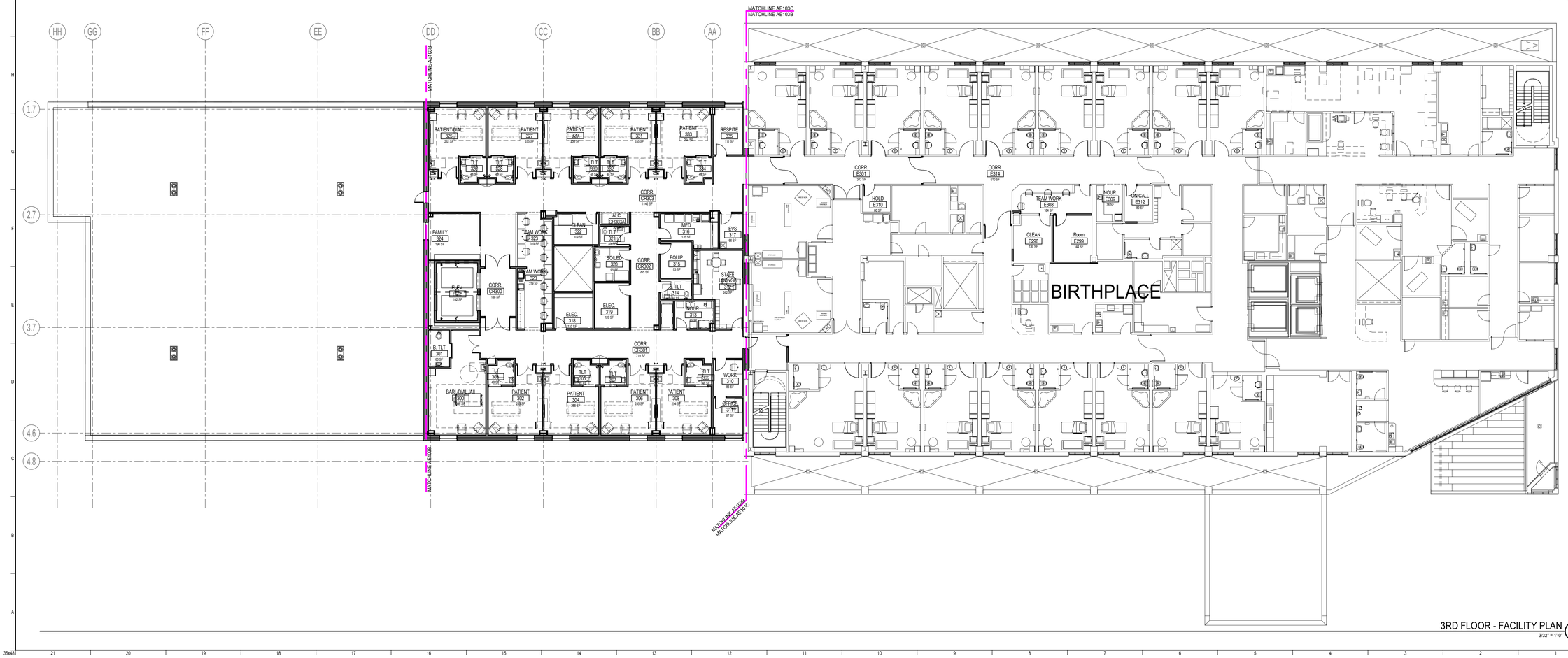
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2ND FLOOR - FACILITY PLAN J1
3/32" = 1'-0"



3RD FLOOR - FACILITY PLAN A1
3/32" = 1'-0"

A B C D

SECOND FLOOR KEYPLAN 2
1" = 160'-0"

B C D

THIRD FLOOR KEYPLAN 1
1" = 160'-0"

REV	DESCRIPTION	DATE

DESIGN DEVELOPMENT
7-31-2019
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MERCY HOSPITAL - PHASE 2
175 FORE RIVER PARKWAY

SECOND FLOOR AND THIRD FLOOR FACILITY PLANS

SHEET TITLE:

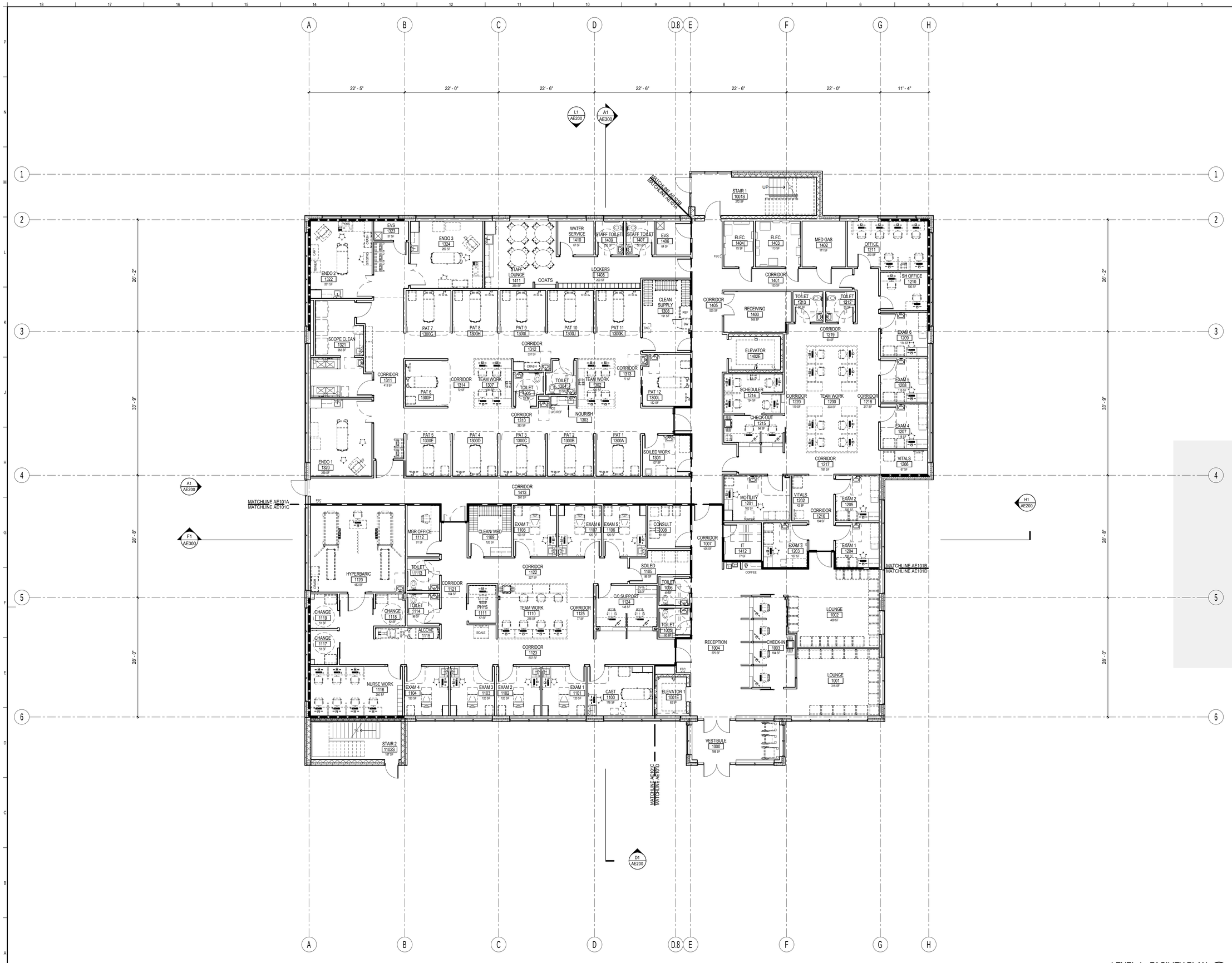
0" 1/4" 1/2" 1" 2" 3"
SCALE: AS NOTED

PROJECT MANAGER:	KD	PROJECT NO:	19002
A/E OF RECORD:	KD		
JOB CAPTAIN:	JCH		A-101
DRAWN BY:	JCH		
SMRT FILE:	A-101-19002	SHEET No.	

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LEVEL 1 - FACILITY PLAN A1
1/8" = 1'-0"

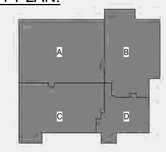
PLAN NOTES:

1. SEE G-001 FOR GENERAL PROJECT NOTES, LEGENDS AND ABBREVIATIONS.
2. SEE G-003 FOR GENERAL TOP OF WALL DETAILS AND PARTITION TYPES.
3. CONTRACTOR IS RESPONSIBLE FOR REVIEWING CODE COMPLIANCE PLANS AND NOTIFYING THE ARCHITECT OF CONFLICTS BETWEEN WHAT IS IN THE FIELD AND ON THE CODE DOCUMENTS.
4. DIMENSIONS ARE FACE OF CONCRETE, FACE OF MASONRY AND CENTERLINE OF STUD, UNLESS NOTED OTHERWISE.
5. DOOR JAMBS (HINGE SIDE) SHALL BE 6" FROM CORNER IN STUD PARTITIONS AND 0" FROM CORNER IN MASONRY PARTITIONS UNLESS NOTED OTHERWISE.
6. REFER TO DETAILS FOR ADDITIONAL DIMENSIONING INFORMATION.
7. REFER TO ENLARGED PLANS FOR PARTITION TYPES AND DIMENSIONS IN AREAS WHICH ARE DETAILED AT A LARGER SCALE.
8. FURNITURE AND OWNER PROVIDED EQUIPMENT ARE INDICATED BY DASHED LINE TYPE.
9. CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF OWNER PROVIDED EQUIPMENT INCLUDING BUT NOT LIMITED TO DIMENSIONAL INFORMATION, AND MECHANICAL, ELECTRICAL AND PLUMBING REQUIREMENTS.

LEGEND:

STRUCTURAL BRACING

KEY PLAN:



REV	DESCRIPTION	DATE

DESIGN DEVELOPMENT
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AMBULATORY SURGERY CENTER

Portland, ME

LEVEL 1 FACILITY PLAN

SHEET TITLE:

0" 1/4" 1/2" 1" 2" 3"

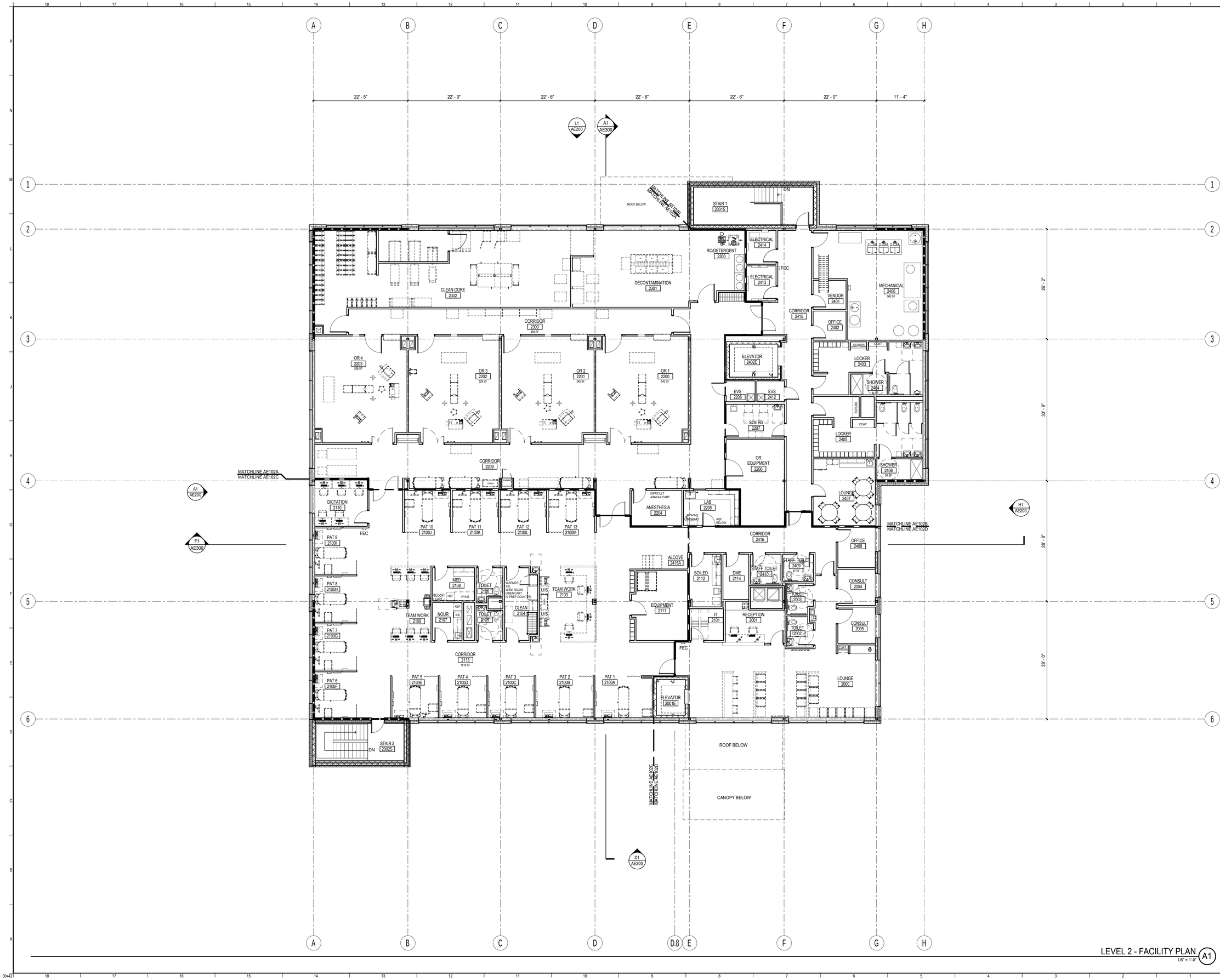
SCALE: AS NOTED

PROJECT MANAGER:	KD	PROJECT NO:	19004
A/E OF RECORD:	KD		
JOB CAPTAIN:	CAH		A-101
DRAWN BY:	CAH		
SMRT FILE:	A-101-19004	SHEET No.	

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LEVEL 2 - FACILITY PLAN A1
1/8" = 1'-0"

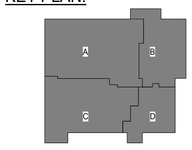
PLAN NOTES:

1. SEE G-001 FOR GENERAL PROJECT NOTES, LEGENDS AND ABBREVIATIONS.
2. SEE G-003 FOR GENERAL TOP OF WALL DETAILS AND PARTITION TYPES.
3. CONTRACTOR IS RESPONSIBLE FOR REVIEWING CODE COMPLIANCE PLANS AND NOTIFYING THE ARCHITECT OF CONFLICTS BETWEEN WHAT IS IN THE FIELD AND ON THE CODE DOCUMENTS.
4. DIMENSIONS ARE FACE OF CONCRETE, FACE OF MASONRY AND CENTERLINE OF STUD, UNLESS NOTED OTHERWISE.
5. DOOR JAMBS (HINGE SIDE) SHALL BE 6" FROM CORNER IN STUD PARTITIONS AND 0" FROM CORNER IN MASONRY PARTITIONS UNLESS NOTED OTHERWISE.
6. REFER TO DETAILS FOR ADDITIONAL DIMENSIONING INFORMATION.
7. REFER TO ENLARGED PLANS FOR PARTITION TYPES AND DIMENSIONS IN AREAS WHICH ARE DETAILED AT A LARGER SCALE.
8. FURNITURE AND OWNER PROVIDED EQUIPMENT ARE INDICATED BY DASHED LINE TYPE.
9. CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF OWNER PROVIDED EQUIPMENT INCLUDING BUT NOT LIMITED TO DIMENSIONAL INFORMATION, AND MECHANICAL, ELECTRICAL AND PLUMBING REQUIREMENTS.

LEGEND:

STRUCTURAL BRACING

KEY PLAN:



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DESIGN DEVELOPMENT
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AMBULATORY SURGERY CENTER

Portland, ME

LEVEL 2 FACILITY PLAN

SHEET TITLE:

0" 1/4" 1/2" 1" 2" 3"

SCALE: AS NOTED

PROJECT MANAGER:	KD	PROJECT NO:	19004
A/E OF RECORD:	KD		
JOB CAPTAIN:	CAH		A-102
DRAWN BY:	CAH		
SMRT FILE:	A-102-19004	SHEET No.	

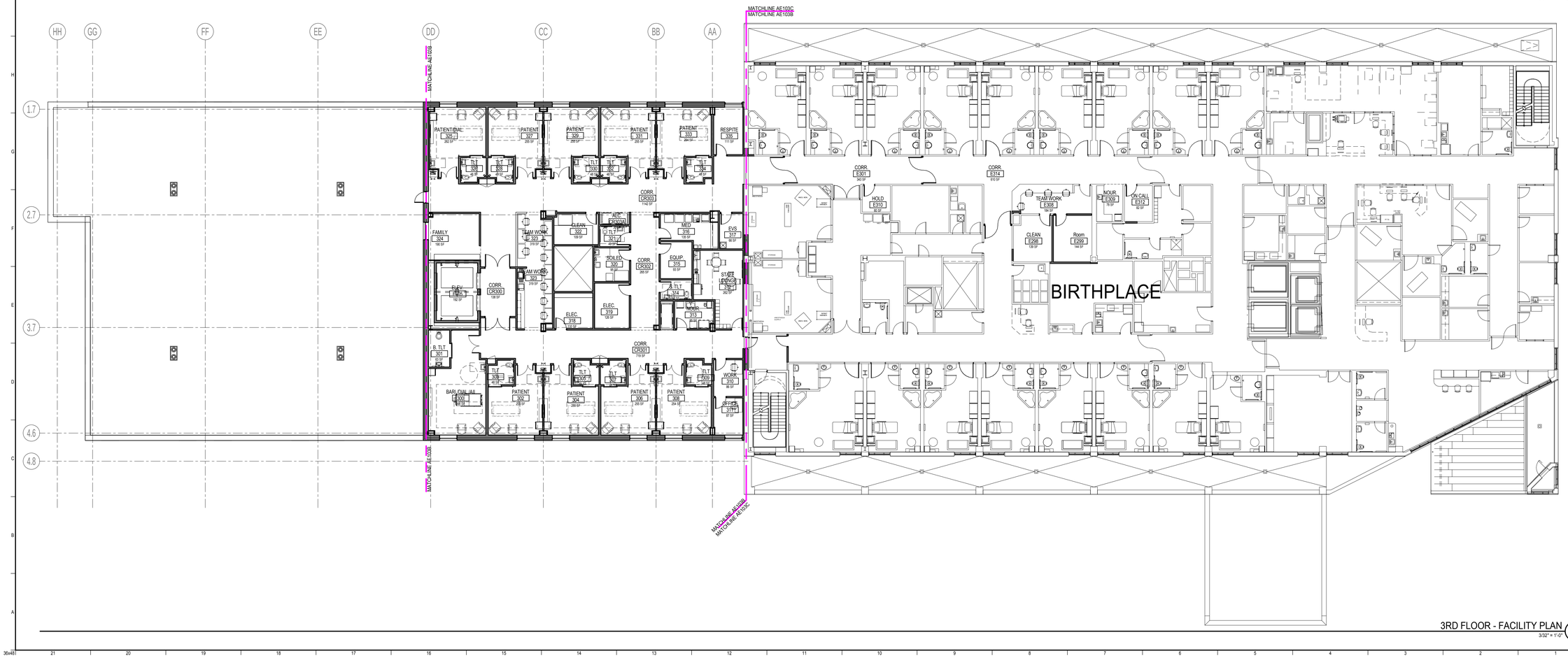
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2ND FLOOR - FACILITY PLAN J1
3/32" = 1'-0"



3RD FLOOR - FACILITY PLAN A1
3/32" = 1'-0"

A B C D

SECOND FLOOR KEYPLAN 2
1" = 160'-0"

B C D

THIRD FLOOR KEYPLAN 1
1" = 160'-0"

REV	DESCRIPTION	DATE

DESIGN DEVELOPMENT
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MERCY HOSPITAL - PHASE 2
175 FORE RIVER PARKWAY

SECOND FLOOR AND THIRD FLOOR FACILITY PLANS

SHEET TITLE:

0" 1/4" 1/2" 1" 2" 3"
SCALE: AS NOTED

PROJECT MANAGER:	KD	PROJECT NO:	19002
A/E OF RECORD:	KD		
JOB CAPTAIN:	JCH		A-101
DRAWN BY:	JCH		
SMRT FILE:	A-101-19002	SHEET No.	

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GROUND FLOOR - FACILITY PLAN (K1)
3/32" = 1'-0"



FIRST FLOOR - FLOOR PLAN AREA A (A1)
3/32" = 1'-0"

A B C D
GROUND FLOOR KEYPLAN 1" = 160'-0" (2)

A B C D
FIRST FLOOR KEYPLAN 1" = 160'-0" (1)

REV	DESCRIPTION	DATE

DESIGN DEVELOPMENT
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MERCY HOSPITAL - PHASE 2
175 FORE RIVER PARKWAY

GROUND FLOOR AND FIRST FLOOR FACILITY PLANS

SHEET TITLE:

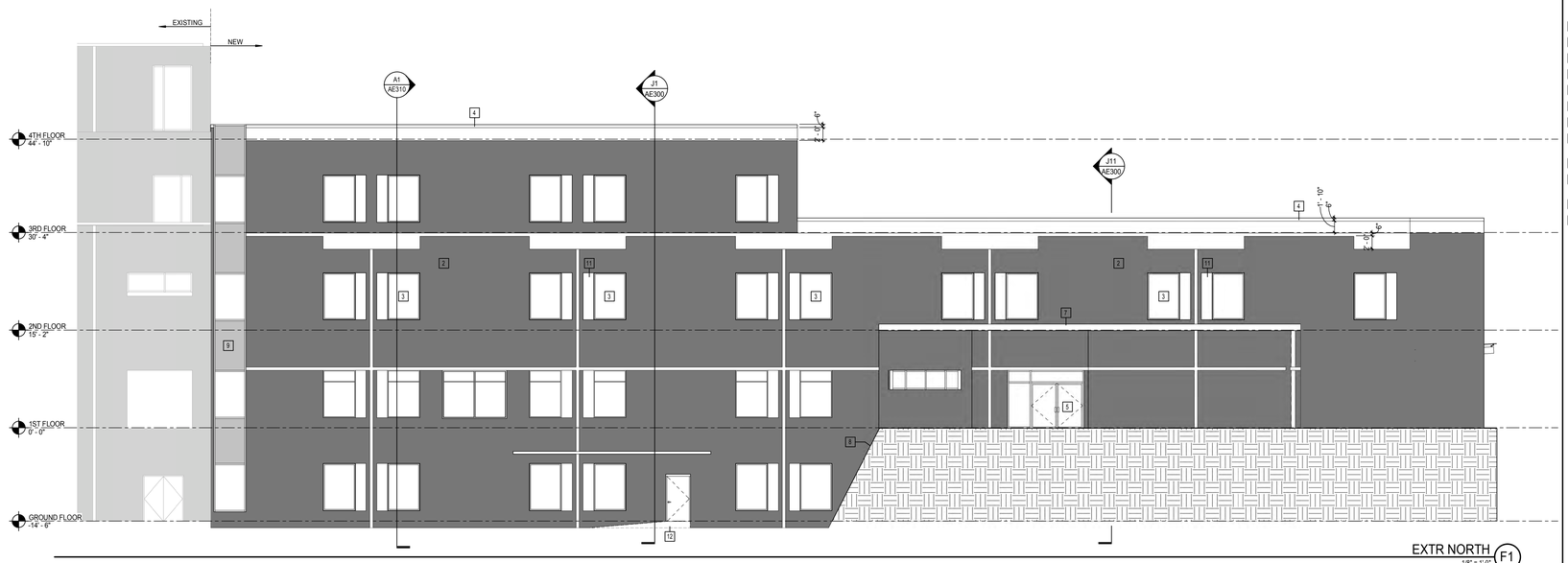
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A/E OF RECORD:	KD		
JOB CAPTAIN:	JCH		
DRAWN BY:	JCH		
SMRT FILE:	A-100-19002	SHEET No.	A-100

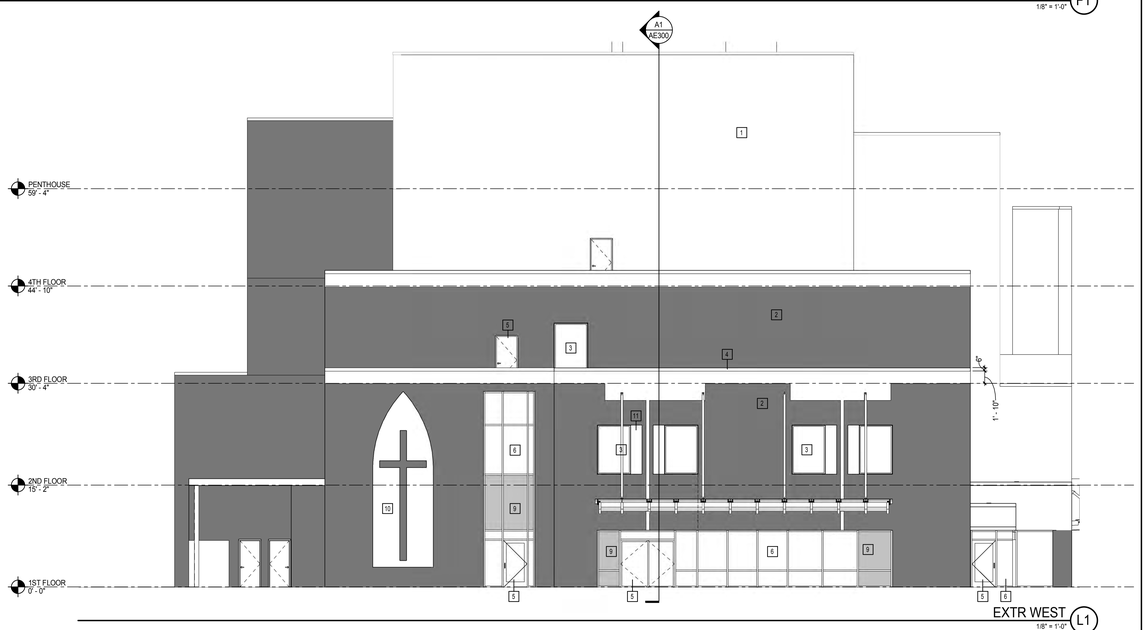
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EXTR NORTH
1/8" = 1'-0" F1



EXTR WEST
1/8" = 1'-0" L1



EXTR SOUTH
1/8" = 1'-0" A1

EXTERIOR KEYED NOTES:

1. METAL PANEL TO MATCH EXISTING PENTHOUSE
2. BRICK VENEER
3. ALUMINUM WINDOW
4. 6" CAST STONE TRIM BAND
5. ALUMINUM DOOR AND FRAME
6. ALUMINUM STOREFRONT
7. CANOPY, RE:AE501
8. NEW RETAINING WALL, COORDINATE W/ C/VIL DRAWINGS BY OTHERS
9. SPANDREL PANELS
10. RELIGIOUS ICONOGRAPHY/HOSPITAL BRANDING, DESIGN TBD
11. CAST STONE PANEL, RE XX/AEXXX
12. NEW RAMP AND STAIRS, TBD

REV	DESCRIPTION	DATE

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MERCY HOSPITAL - PHASE 2
175 FORE RIVER PARKWAY

EXTERIOR ELEVATIONS

SHEET TITLE:

0" 1/4" 1/2" 1" 2" 3"

SCALE: AS NOTED

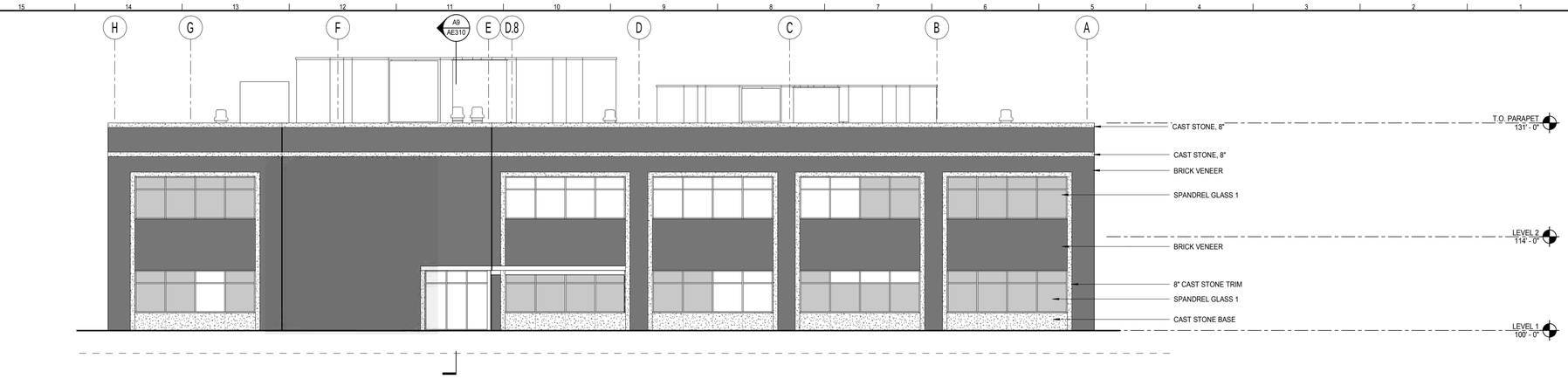
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JOB CAPTAIN:	JCH		
DRAWN BY:	JCH		
SMRT FILE:	AE200-19002	SHEET No.	

AE200

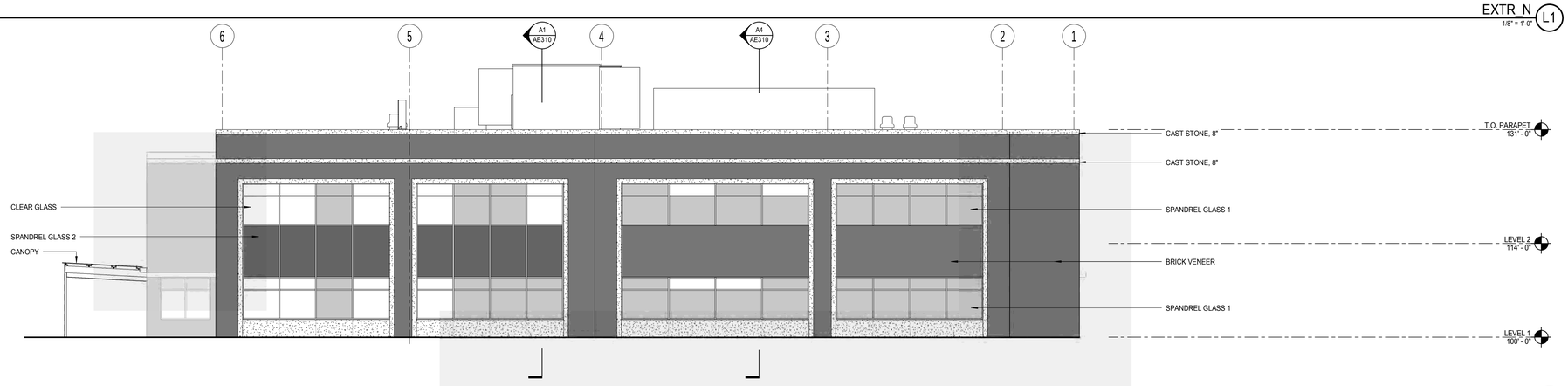
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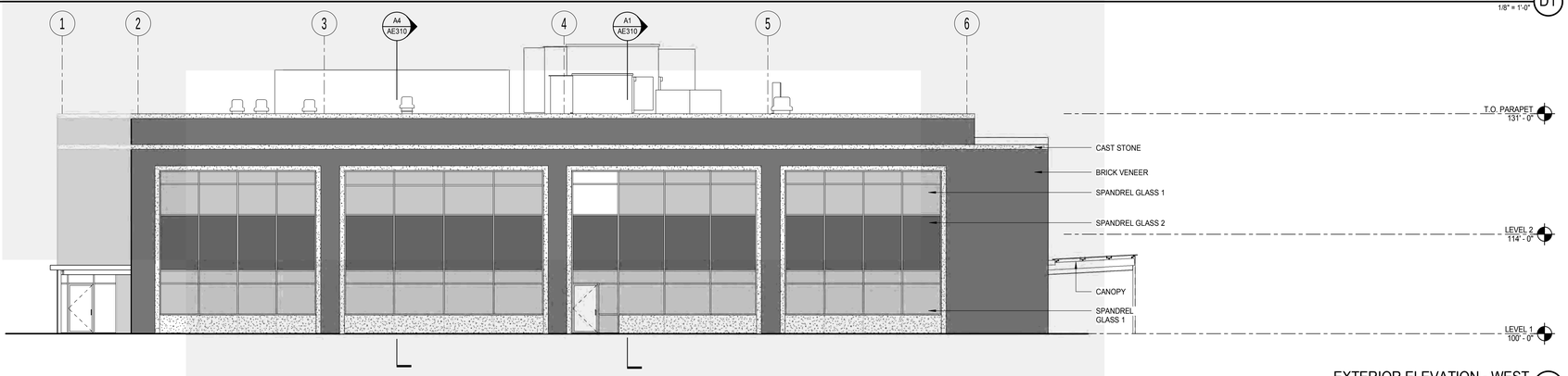
EXTR_N
1/8" = 1'-0" L1



EXTERIOR ELEVATION - EAST
1/8" = 1'-0" H1



EXTERIOR ELEVATION - SOUTH
1/8" = 1'-0" D1



EXTERIOR ELEVATION - WEST
1/8" = 1'-0" A1

REV	DESCRIPTION	DATE

DESIGN DEVELOPMENT
7-31-2019

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AMBULATORY SURGERY CENTER

Portland, ME

EXTERIOR ELEVATIONS

SHEET TITLE:

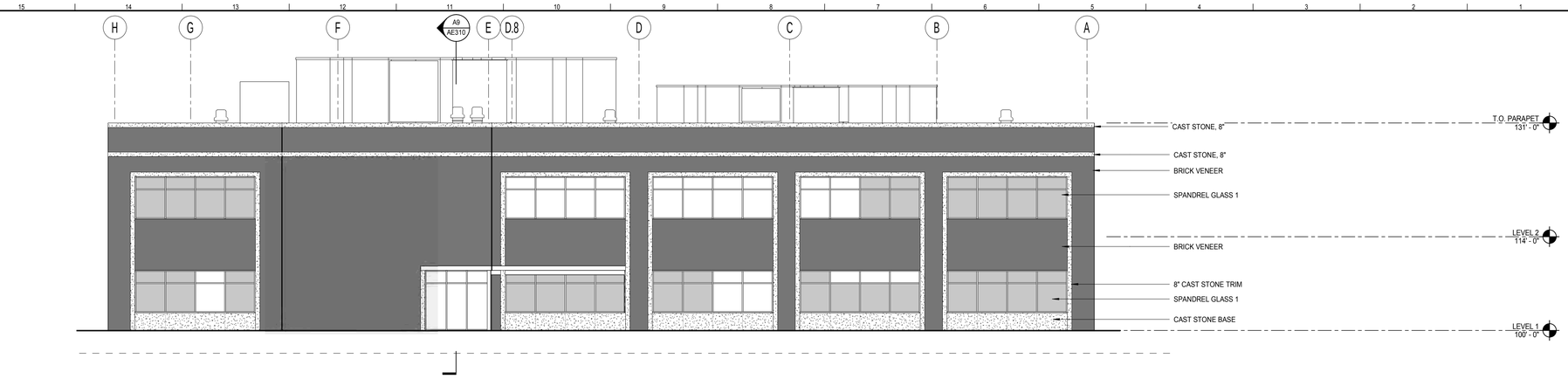
0" 1/4" 1/2" 1" 2" 3"

SCALE: AS NOTED

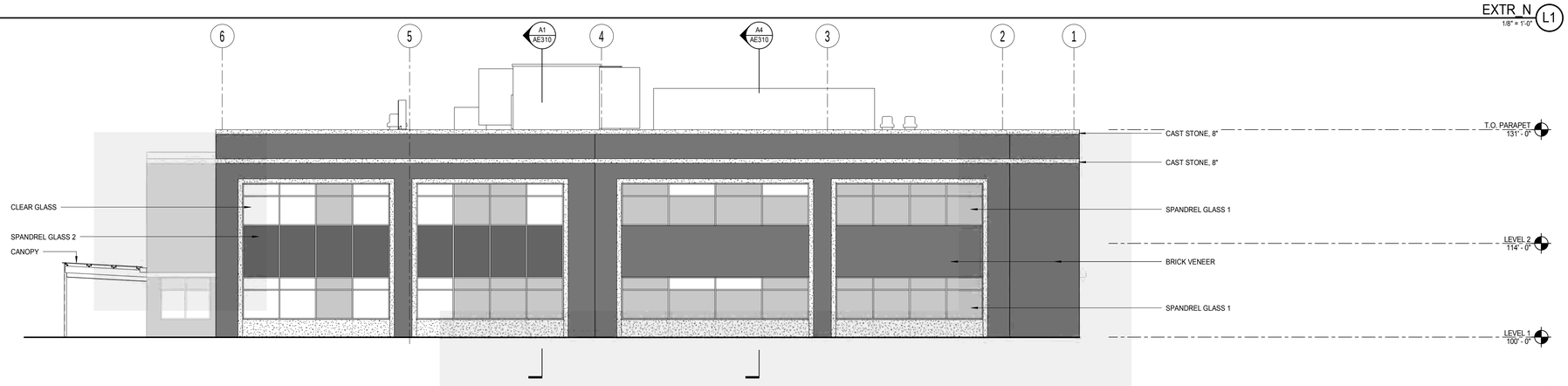
PROJECT MANAGER:	KD	PROJECT NO:	19004
A/E OF RECORD:	KD		
JOB CAPTAIN:	CAH	AE200	
DRAWN BY:	CAH		
SMRT FILE:	AE200-19004	SHEET No.	

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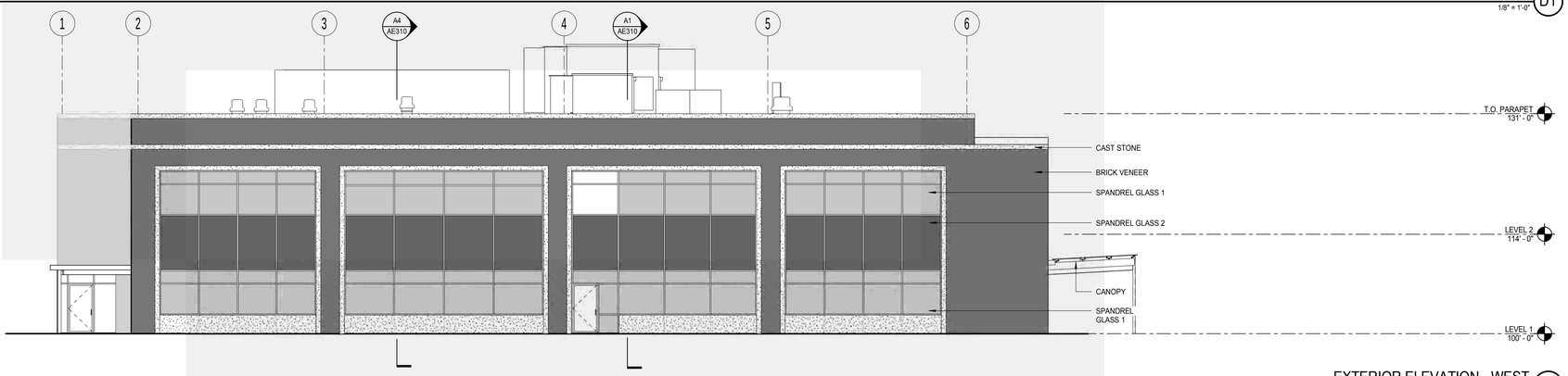
EXTR_N
1/8" = 1'-0" L1



EXTERIOR ELEVATION - EAST
1/8" = 1'-0" H1



EXTERIOR ELEVATION - SOUTH
1/8" = 1'-0" D1



EXTERIOR ELEVATION - WEST
1/8" = 1'-0" A1

REV	DESCRIPTION	DATE

DESIGN DEVELOPMENT
7-31-2019

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AMBULATORY SURGERY CENTER

Portland, ME

EXTERIOR ELEVATIONS

SHEET TITLE:

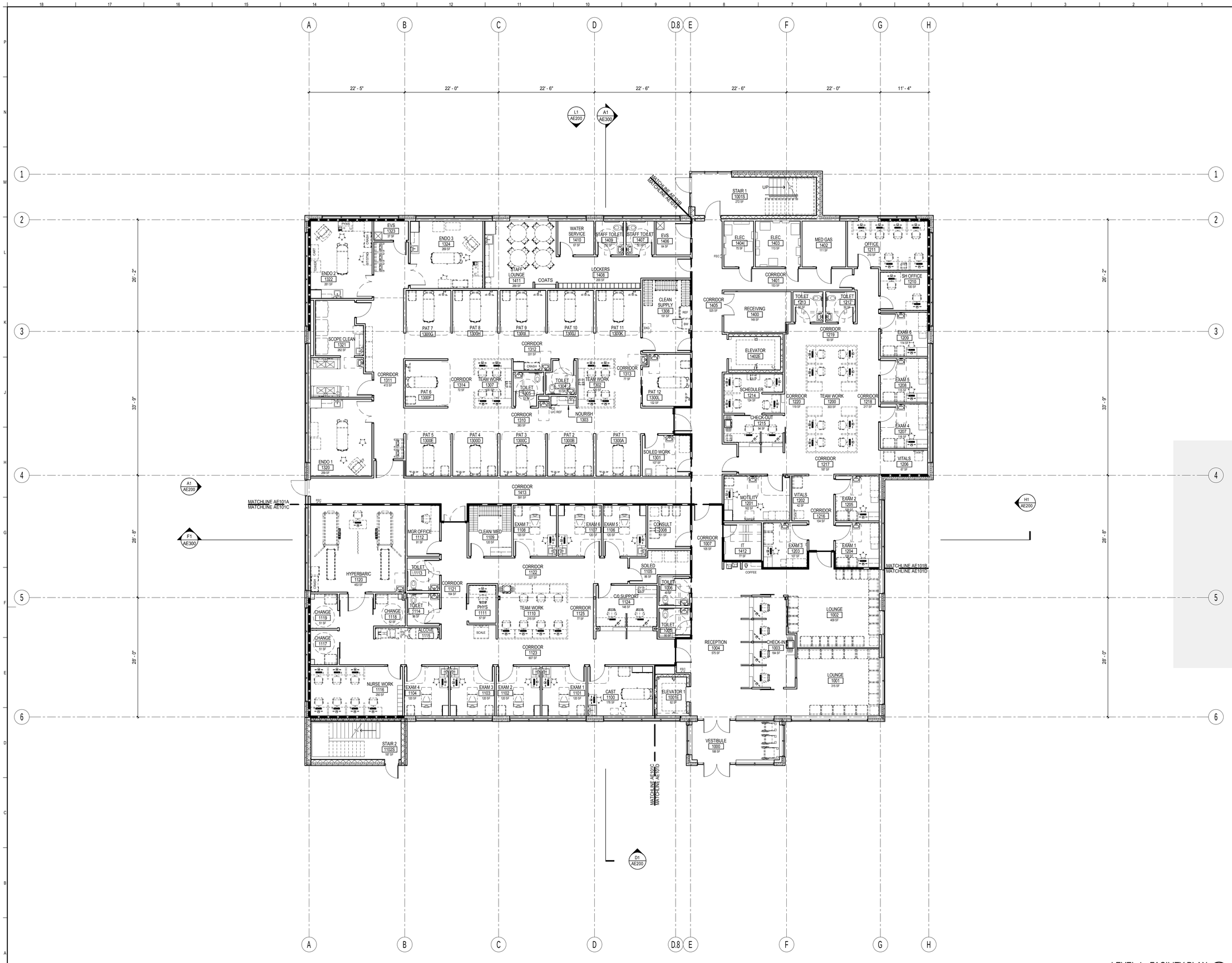
0" 1/4" 1/2" 1" 2" 3"

SCALE: AS NOTED

PROJECT MANAGER:	KD	PROJECT NO:	19004
A/E OF RECORD:	KD		
JOB CAPTAIN:	CAH	AE200	
DRAWN BY:	CAH		
SMRT FILE:	AE200-19004	SHEET No.	

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LEVEL 1 - FACILITY PLAN A1
1/8" = 1'-0"

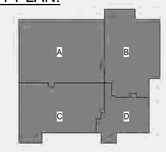
PLAN NOTES:

1. SEE G-001 FOR GENERAL PROJECT NOTES, LEGENDS AND ABBREVIATIONS.
2. SEE G-003 FOR GENERAL TOP OF WALL DETAILS AND PARTITION TYPES.
3. CONTRACTOR IS RESPONSIBLE FOR REVIEWING CODE COMPLIANCE PLANS AND NOTIFYING THE ARCHITECT OF CONFLICTS BETWEEN WHAT IS IN THE FIELD AND ON THE CODE DOCUMENTS.
4. DIMENSIONS ARE FACE OF CONCRETE, FACE OF MASONRY AND CENTERLINE OF STUD, UNLESS NOTED OTHERWISE.
5. DOOR JAMBS (HINGE SIDE) SHALL BE 6" FROM CORNER IN STUD PARTITIONS AND 0" FROM CORNER IN MASONRY PARTITIONS UNLESS NOTED OTHERWISE.
6. REFER TO DETAILS FOR ADDITIONAL DIMENSIONING INFORMATION.
7. REFER TO ENLARGED PLANS FOR PARTITION TYPES AND DIMENSIONS IN AREAS WHICH ARE DETAILED AT A LARGER SCALE.
8. FURNITURE AND OWNER PROVIDED EQUIPMENT ARE INDICATED BY DASHED LINE TYPE.
9. CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF OWNER PROVIDED EQUIPMENT INCLUDING BUT NOT LIMITED TO DIMENSIONAL INFORMATION, AND MECHANICAL, ELECTRICAL AND PLUMBING REQUIREMENTS.

LEGEND:

STRUCTURAL BRACING

KEY PLAN:



REV	DESCRIPTION	DATE

DESIGN DEVELOPMENT
7-31-2019

CURRENT ISSUE STATUS:

PROJECT NORTH:

SMRT Architects and Engineers
144 Fore Street/P.O. Box 618
Portland, Maine 04104
ARCHITECTURE | ENGINEERING | PLANNING | INTERIORS | ENERGY

MERCY HOSPITAL
AMBULATORY SURGERY CENTER

Portland, ME

LEVEL 1 FACILITY PLAN

SHEET TITLE:

0" 1/4" 1/2" 1" 2" 3"

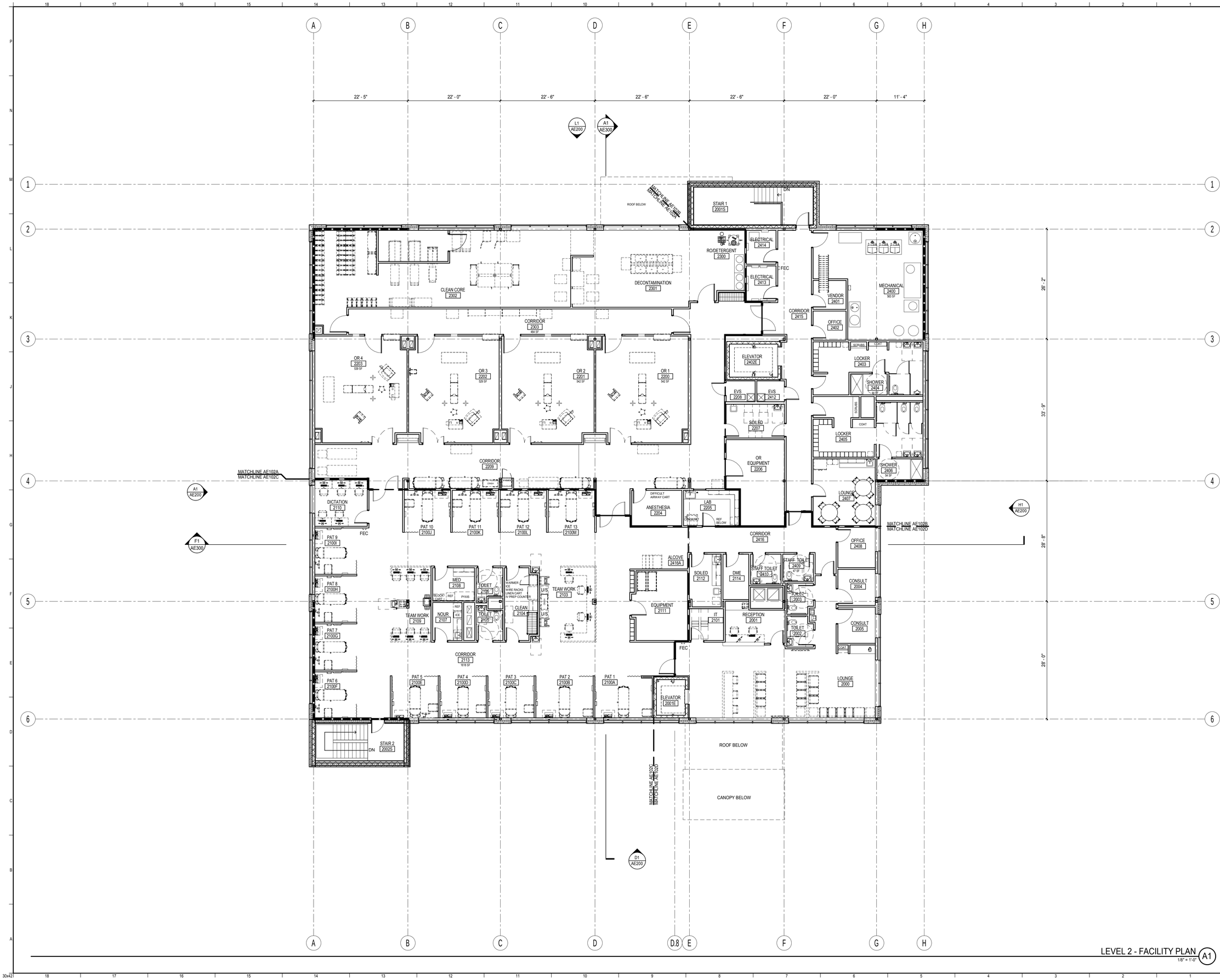
SCALE: AS NOTED

PROJECT MANAGER:	KD	PROJECT NO:	19004
A/E OF RECORD:	KD		
JOB CAPTAIN:	CAH		A-101
DRAWN BY:	CAH		
SMRT FILE:	A-101-19004	SHEET No.	

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30x42



LEVEL 2 - FACILITY PLAN A1
1/8" = 1'-0"

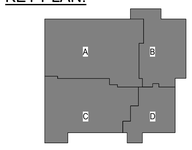
PLAN NOTES:

1. SEE G-001 FOR GENERAL PROJECT NOTES, LEGENDS AND ABBREVIATIONS.
2. SEE G-003 FOR GENERAL TOP OF WALL DETAILS AND PARTITION TYPES.
3. CONTRACTOR IS RESPONSIBLE FOR REVIEWING CODE COMPLIANCE PLANS AND NOTIFYING THE ARCHITECT OF CONFLICTS BETWEEN WHAT IS IN THE FIELD AND ON THE CODE DOCUMENTS.
4. DIMENSIONS ARE FACE OF CONCRETE, FACE OF MASONRY AND CENTERLINE OF STUD, UNLESS NOTED OTHERWISE.
5. DOOR JAMBS (HINGE SIDE) SHALL BE 6" FROM CORNER IN STUD PARTITIONS AND 0" FROM CORNER IN MASONRY PARTITIONS UNLESS NOTED OTHERWISE.
6. REFER TO DETAILS FOR ADDITIONAL DIMENSIONING INFORMATION.
7. REFER TO ENLARGED PLANS FOR PARTITION TYPES AND DIMENSIONS IN AREAS WHICH ARE DETAILED AT A LARGER SCALE.
8. FURNITURE AND OWNER PROVIDED EQUIPMENT ARE INDICATED BY DASHED LINE TYPE.
9. CONTRACTOR IS RESPONSIBLE FOR THE COORDINATION OF OWNER PROVIDED EQUIPMENT INCLUDING BUT NOT LIMITED TO DIMENSIONAL INFORMATION, AND MECHANICAL, ELECTRICAL AND PLUMBING REQUIREMENTS.

LEGEND:

STRUCTURAL BRACING

KEY PLAN:



REV	DESCRIPTION	DATE

DESIGN DEVELOPMENT
7-31-2019

CURRENT ISSUE STATUS:

PROJECT NORTH:

SMRT Architects and Engineers
144 Fore Street/P.O. Box 618
Portland, Maine 04104
ARCHITECTURE | ENGINEERING | PLANNING | INTERIORS | ENERGY

MERCY HOSPITAL
AMBULATORY SURGERY CENTER

Portland, ME

LEVEL 2 FACILITY PLAN

SHEET TITLE:

0" 1/4" 1/2" 1" 2" 3"

SCALE: AS NOTED

PROJECT MANAGER:	KD	PROJECT NO:	19004
A/E OF RECORD:	KD		
JOB CAPTAIN:	CAH		A-102
DRAWN BY:	CAH		
SMRT FILE:	A-102-19004	SHEET No.	

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EMERGENCY DEPARTEMENT
CAFETERIA
CHAPEL/PASTORAL CARE
IMAGING
OBSERVATION DEPARTMENT
SUPPORT
VERTICAL CIRCULATION
PUBLIC CIRCULATION



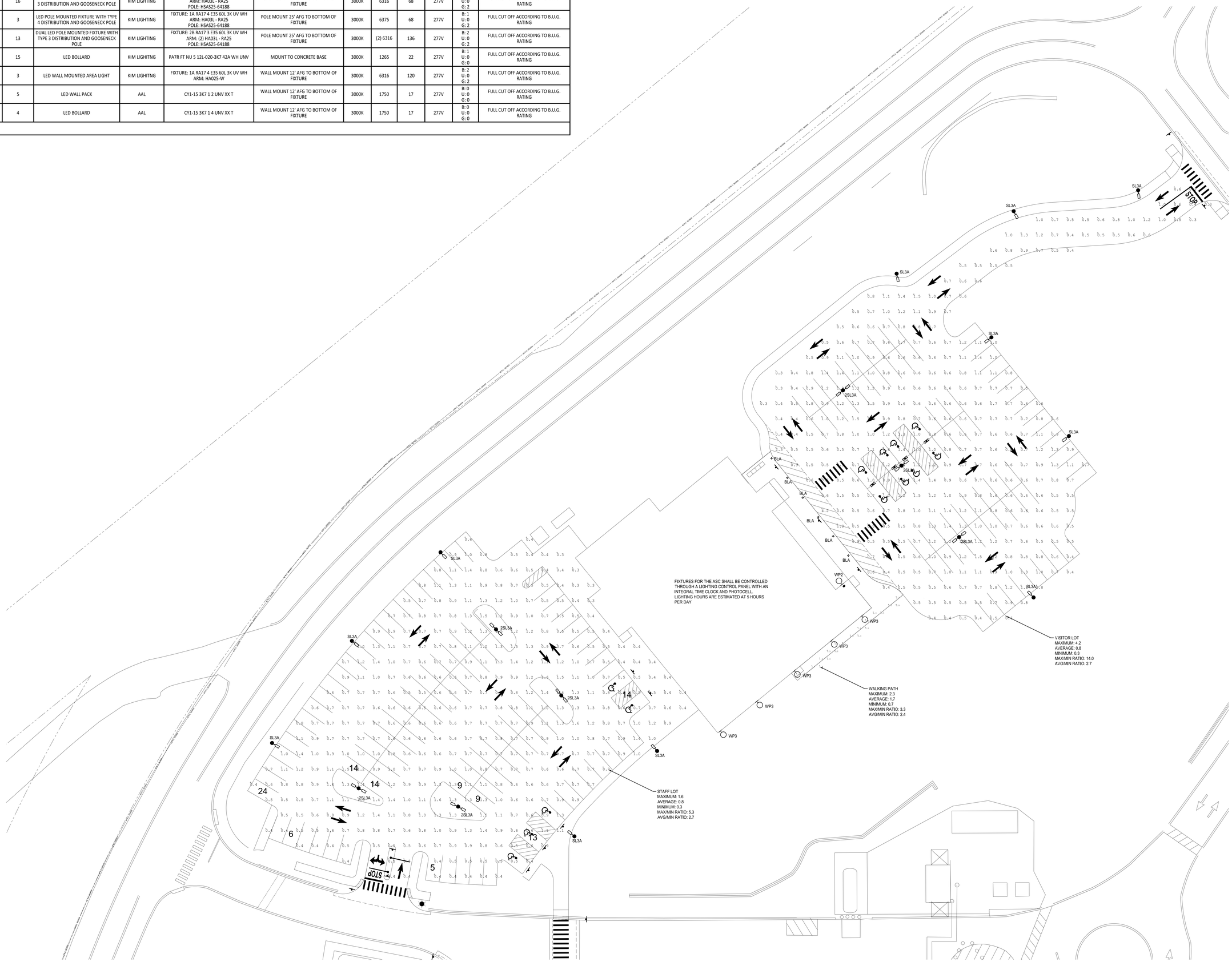
HOSPITAL ADDITION
NORTHERN LIGHT MERCY HOSPITAL

First Floor Plan

12/11/19
1/16" = 1'-0"

LIGHTING FIXTURE SCHEDULE											
TYPE	QTY	DESCRIPTION	MANUFACTURER	MODEL NUMBER	MOUNTING	LAMP	LUMEN	WATTAGE	VOLTAGE	B.U.G RATING	NOTES
SL3A	16	LED POLE MOUNTED FIXTURE WITH TYPE 3 DISTRIBUTION AND GOOSENECK POLE	KIM LIGHTING	FIXTURE: 1A RA17 3 E35 60L 3K UV WH ARM: HA03L - RA25 POLE: HSAS25-64188	POLE MOUNT 25' AFG TO BOTTOM OF FIXTURE	3000K	6316	68	277V	B: 2 U: 0 G: 2	FULL CUT OFF ACCORDING TO B.U.G. RATING
SL4A	3	LED POLE MOUNTED FIXTURE WITH TYPE 4 DISTRIBUTION AND GOOSENECK POLE	KIM LIGHTING	FIXTURE: 1A RA17 4 E35 60L 3K UV WH ARM: HA03L - RA25 POLE: HSAS25-64188	POLE MOUNT 25' AFG TO BOTTOM OF FIXTURE	3000K	6375	68	277V	B: 1 U: 0 G: 2	FULL CUT OFF ACCORDING TO B.U.G. RATING
2SL3A	13	DUAL LED POLE MOUNTED FIXTURE WITH TYPE 3 DISTRIBUTION AND GOOSENECK POLE	KIM LIGHTING	FIXTURE: 2B RA17 3 E35 60L 3K UV WH ARM: (2) HA03L - RA25 POLE: HSAS25-64188	POLE MOUNT 25' AFG TO BOTTOM OF FIXTURE	3000K	(2) 6316	136	277V	B: 2 U: 0 G: 2	FULL CUT OFF ACCORDING TO B.U.G. RATING
BLA	15	LED BOLLARD	KIM LIGHITNG	PA7R FT NU 5 12L-020-3K7 42A WH UNV	MOUNT TO CONCRETE BASE	3000K	1265	22	277V	B: 1 U: 0 G: 0	FULL CUT OFF ACCORDING TO B.U.G. RATING
WP1	3	LED WALL MOUNTED AREA LIGHT	KIM LIGHITNG	FIXTURE: 1A RA17 4 E35 60L 3K UV WH ARM: HA025-W	WALL MOUNT 12' AFG TO BOTTOM OF FIXTURE	3000K	6316	120	277V	B: 2 U: 0 G: 2	FULL CUT OFF ACCORDING TO B.U.G. RATING
WP2	5	LED WALL PACK	AAL	CY1-15 3K7 1 2 UNV XX T	WALL MOUNT 12' AFG TO BOTTOM OF FIXTURE	3000K	1750	17	277V	B: 0 U: 0 G: 0	FULL CUT OFF ACCORDING TO B.U.G. RATING
WP3	4	LED BOLLARD	AAL	CY1-15 3K7 1 4 UNV XX T	WALL MOUNT 12' AFG TO BOTTOM OF FIXTURE	3000K	1750	17	277V	B: 0 U: 0 G: 0	FULL CUT OFF ACCORDING TO B.U.G. RATING

NOTE:
1. NONE



ASC SITE PHOTOMETRIC PLAN (A1)
1" = 20'

NOTE:
1. SEE SHEET E-001 FOR LEGEND AND GENERAL NOTES.

REV.	DESCRIPTION	DATE
0	FINAL LEVEL III SITE PLAN SUBMISSION	2-12-20

FINAL LEVEL III SITE PLAN SUBMISSION
2-12-20
CURRENT ISSUE STATUS:

PROJECT NORTH:

STATE OF MAINE
ROBERT B. BRINK
14366
LICENSED
PROFESSIONAL ENGINEER

SMRT Architects and Engineers
144 Fore Street/P.O. Box 618
Portland, Maine 04104
ARCHITECTURE | ENGINEERING | PLANNING | INTERIORS | ENERGY

NORTHERN LIGHT MERCY HOSPITAL
HOSPITAL ADDITION

175 Fore River Parkway, Portland, ME

ASC PHOTOMETRIC PLAN

SHEET TITLE:

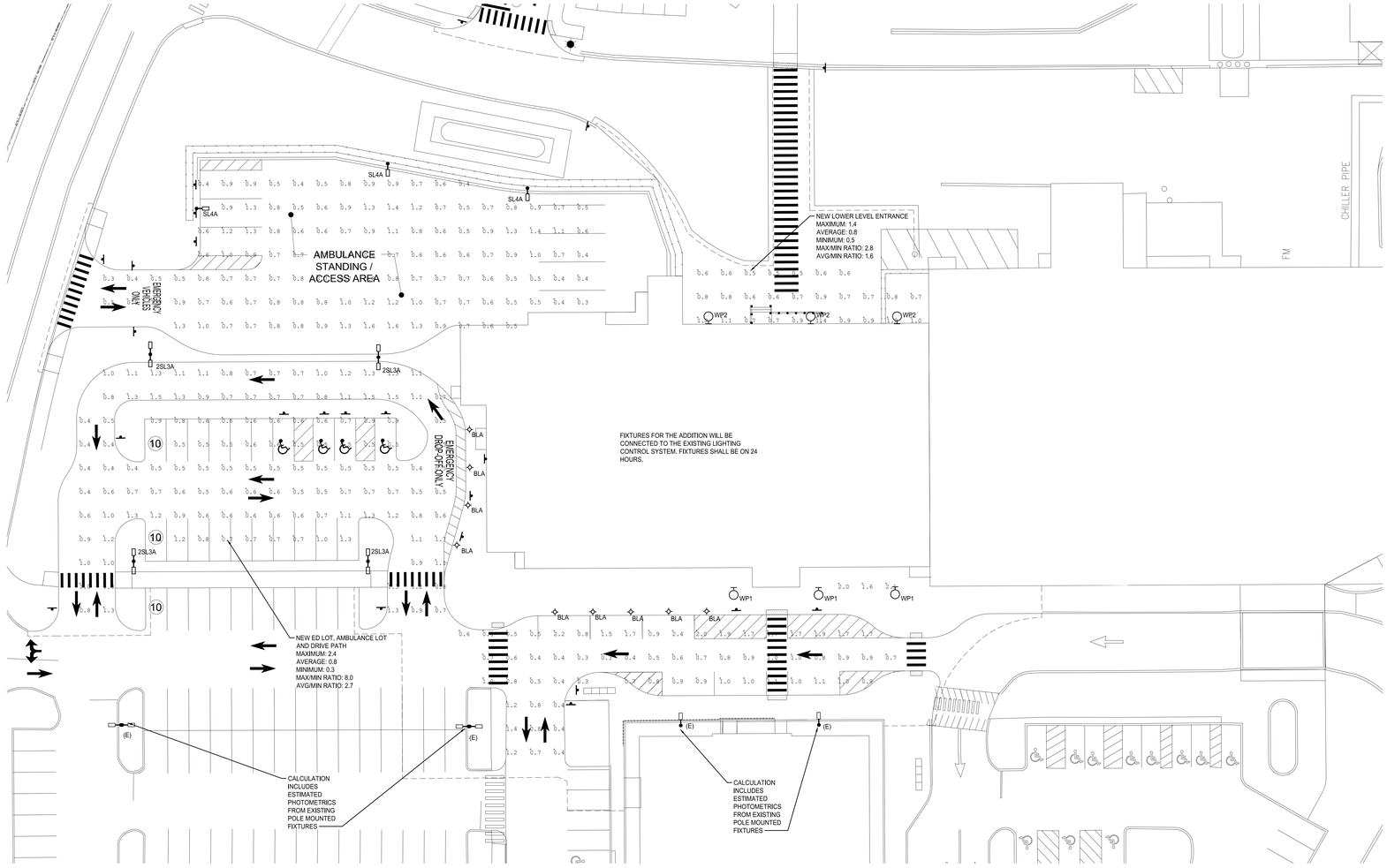
0 1/4" 1/2" 1" 2" 3"
SCALE: AS NOTED

PROJECT MANAGER:	KD	PROJECT NO:	19002
A/E OF RECORD:	RBB		
JOB CAPTAIN:	JCH		
DRAWN BY:	ACY		
SMRT FILE:	ES101-19002	SHEET No.	ES101

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NOTE:

1. SEE SHEET E-001 FOR LEGEND AND GENERAL NOTES.



ADDITION SITE PHOTOMETRIC PLAN A1
1" = 20'

REV	DESCRIPTION	DATE
0	FINAL LEVEL III SITE PLAN SUBMISSION	2-12-20

FINAL LEVEL III SITE PLAN SUBMISSION
2-12-20

CURRENT ISSUE STATUS:

PROJECT NORTH:

STATE OF MAINE ROBERT B. BRINK 14366 LICENSED PROFESSIONAL ENGINEER

SMRT Architects and Engineers
144 Fore Street/P.O. Box 618
Portland, Maine 04104

ARCHITECTURE | ENGINEERING | PLANNING | INTERIORS | ENERGY SMRT

NORTHERN LIGHT MERCY HOSPITAL
HOSPITAL ADDITION

175 Fore River Parkway, Portland, ME

ADDITION PHOTOMETRIC PLAN

SHEET TITLE:

0 1/4" 1/2" 1" 2" 3"

SCALE: AS NOTED

PROJECT MANAGER:	KD	PROJECT NO:	19002
A/E OF RECORD:	RBB		
JOB CAPTAIN:	JCH		
DRAWN BY:	ACY		
SMRT FILE:	ES102-19002	SHEET No.	ES102

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N/F
ST. JOHN STREET ASSOCIATES
LIMITED PARTNERSHIP
6864/210

PROPERTY LINE

HIP

STOP

SL3A
SL4A
2SL3A

WALKING PATH
MAXIMUM: 2.3
AVERAGE: 1.7
MINIMUM: 0.7
MAX/MIN RATIO: 2.3
AVG/MIN RATIO: 2.4

VISITOR LOT
MAXIMUM: 4.2
AVERAGE: 0.8
MINIMUM: 0.3
MAX/MIN RATIO: 14.0
AVG/MIN RATIO: 2.7

STAFF LOT
MAXIMUM: 1.6
AVERAGE: 0.8
MINIMUM: 0.3
MAX/MIN RATIO: 5.3
AVG/MIN RATIO: 2.7

AMBULANCE STANDING / ACCESS AREA

ENTRANCE ONLY

EXIT ONLY

CHILLER PAD

WP1
WP2
WP3

BLA

(E)

SITE OVERALL PHOTOMETRIC PLAN
1" = 30' A1

NOTE:

1. SEE SHEET E-001 FOR LEGEND AND GENERAL NOTES.

REV	DESCRIPTION	DATE
0	FINAL LEVEL III SITE PLAN SUBMISSION	2-12-20

FINAL LEVEL III SITE PLAN SUBMISSION
2-12-20
CURRENT ISSUE STATUS:

PROJECT NORTH:

STATE OF MAINE
ROBERT B. BRINK
14368
LICENSED
PROFESSIONAL ENGINEER

SMRT Architects and Engineers
144 Fore Street/P.O. Box 618
Portland, Maine 04104

ARCHITECTURE | ENGINEERING | PLANNING | INTERIORS | ENERGY

NORTHERN LIGHT MERCY HOSPITAL
HOSPITAL ADDITION

175 Fore River Parkway, Portland, ME

SITE OVERALL PHOTOMETRIC PLAN

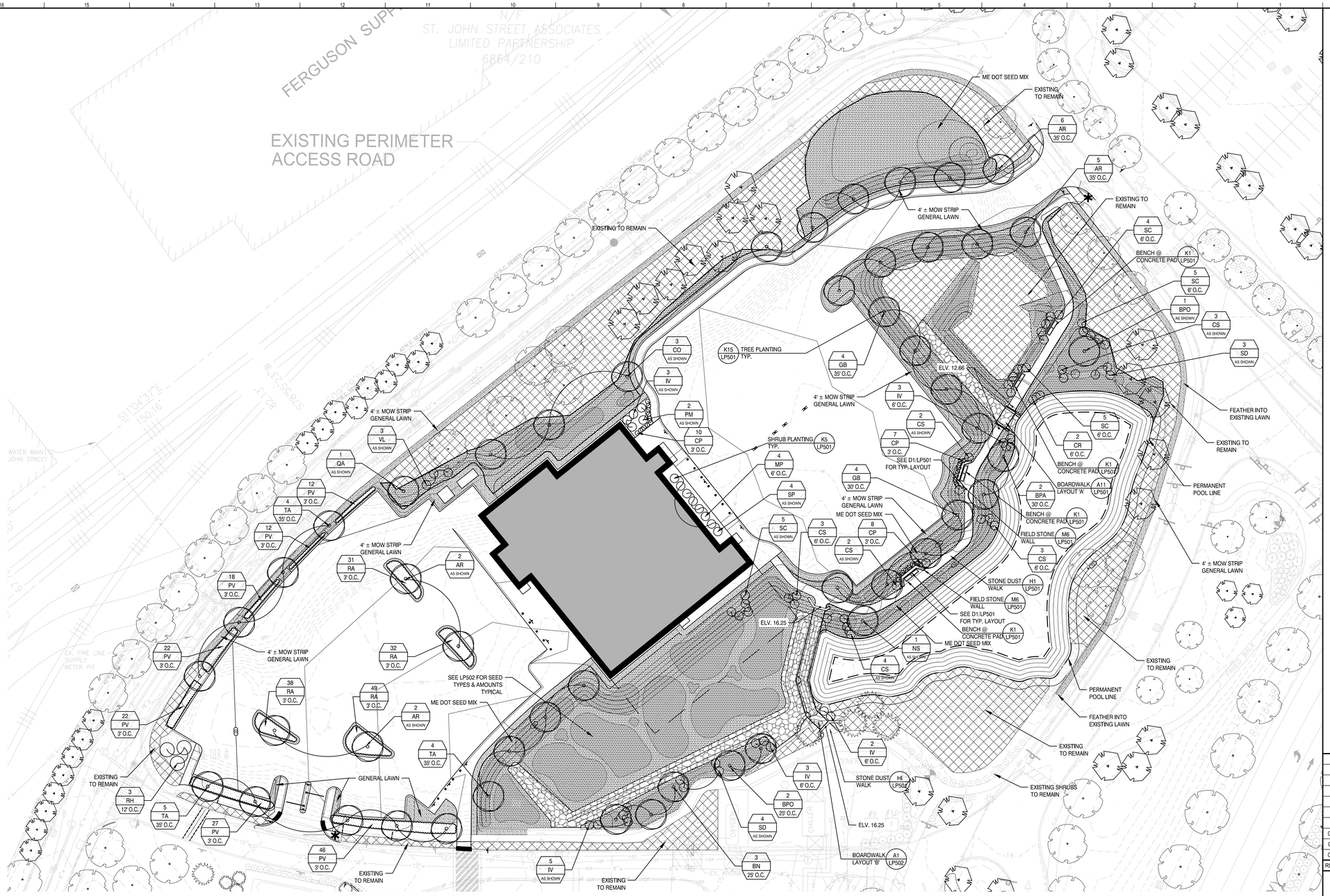
SHEET TITLE:

0 1/4" 1/2" 1" 2" 3"
SCALE: AS NOTED

PROJECT MANAGER:	KD	PROJECT NO:	19002
A/E OF RECORD:	RBB		
JOB CAPTAIN:	JCH		
DRAWN BY:	ACY		
SMRT FILE:	ES103-19002	SHEET No.	ES103

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36x48



LEGEND

GENERAL LAWN (SEE SPEC)

ME DOT METHOD #2 ROADSIDE MIX

EXISTING VEGETATION TO REMAIN

NATURALIZED SEED MIX AREA

MAINE DOT METHOD #2 ROADSIDE MIXTURE #2
SPEC. SECTION 717.03 SEED

SCIENTIFIC NAME / COMMON NAME	SPECIFICATION
Festuca rubra / Creeping Red Fescue	35%
Festuca ovina / Sheeps Fescue	35%
Agrostis alba / Red Top	5%
Trifolium repens / White Clover	6%
Lolium multiflorum / Annual Rye	19%

NOTE:
HYDRO SEED OVER MIX WITH CELLULOSE FIBER MULCH AND BINDER ON ALL DISTURBED AREAS

SEEDING LIST

MARK	SCIENTIFIC NAME / COMMON NAME
AC	Aquilegia canadensis / Wild Columbine
AG	Andropogon gerardii / Big Bluestem
ER	Elymus virginicus / Virginia Wild Rye
EP	Eupatorium purpureum / Purple Joe Pye Weed
LV	Leucanthemum vulgare / Ox-Eye Daisy
PV	Panicum virgatum / Switch Grass
PR	Papaver rhoeas / Red Poppy
SNA	Symphyotrichum novae-angliae / N.E. Aster

PLANT LIST

MARK	SCIENTIFIC NAME / COMMON NAME	SIZE CAL	SIZE HT	ROOT	REMARKS
TREES					
AR	Acer rubrum / Red Maple	2" - 3"	10' - 12'	B & B	Full
BN	Betula nigra / River Birch	2" - 3"	10' - 12'	B & B	Full
BPA	Betula papyrifera / Paper Birch	2" - 3"	10' - 12'	B & B	Clump form; 3-stem minimum
BPO	Betula populifolia / Gray Birch	2" - 3"	10' - 12'	B & B	Full
GB	Ginkgo biloba / Maiden Hair	2" - 3"	10' - 12'	B & B	Full
CO	Celtis occidentalis / Hackberry Tree	2" - 3"	10' - 12'	B & B	Full
NS	Nyssa sylvatica / Black Gum	2" - 3"	10' - 12'	B & B	Full
QR	Quercus alba / White Oak	2" - 3"	10' - 12'	B & B	Full
TA	Tilia americana / Basswood	2" - 3"	10' - 12'	B & B	Full
SHRUBS					
CP	Comptonia peregrina / Sweet Fern	#3	24"-36"	Cont.	
CR	Cornus racemosa / Gray Dogwood	#3	24"-36"	Cont.	
CS	Cornus sericea / Redosier Dogwood	#3	24"-36"	Cont.	
IV	Ilex verticillata / Winter Berry	#3	24"-36"	Cont.	
MP	Myrica pensylvanica / Bayberry	#3	24"-36"	Cont.	
PM	Aronia melanocarpa / Black Choke Cherry	#3	24"-36"	Cont.	
PV	Panicum virgatum / Switch Grass	#3	24"-36"	Cont.	
RH	Rhus hirta / Staghorn Sumac	#3	24"-36"	Cont.	
RA	Rhus aromatica 'Grow - Low' / Fragrant Sumac	#3	24"-36"	Cont.	
SD	Salix discolor / Pussy Willow	#3	24"-36"	Cont.	
SC	Sambucus canadensis / American Elder	#3	24"-36"	Cont.	
SP	Syringa pubescens 'Miss Kim" / Miss Kim Lilac	#3	24"-36"	Cont.	
VL	Viburnum lentago / Nannyberry	#3	24"-36"	Cont.	
PERENNIALS					
PV	Panicum virgatum / Shenandoah Switchgrass	#1	-	Cont.	

REV	DESCRIPTION	DATE
02	ADDENDUM #2	1-30-20
01	RE-ISSUED FOR PERMITTING	1-28-20
00	ISSUED FOR PERMITTING	1-3-20

ADDENDUM # 2
1-30-20

CURRENT ISSUE STATUS:

TRUE NORTH

LICENSED LANDSCAPE ARCHITECT
MARK G. JOHNSON
NO. 1857
STATE OF MAINE
1/30/2020

SMRT Architects and Engineers
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Portland, Maine 04104
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Architecture • Engineering • Planning

NORTHERN LIGHT MERCY HOSPITAL
AMBULATORY SURGERY CENTER

PORTLAND, MAINE

POND WALK TRAIL
PLANTING PLAN

SHEET TITLE:

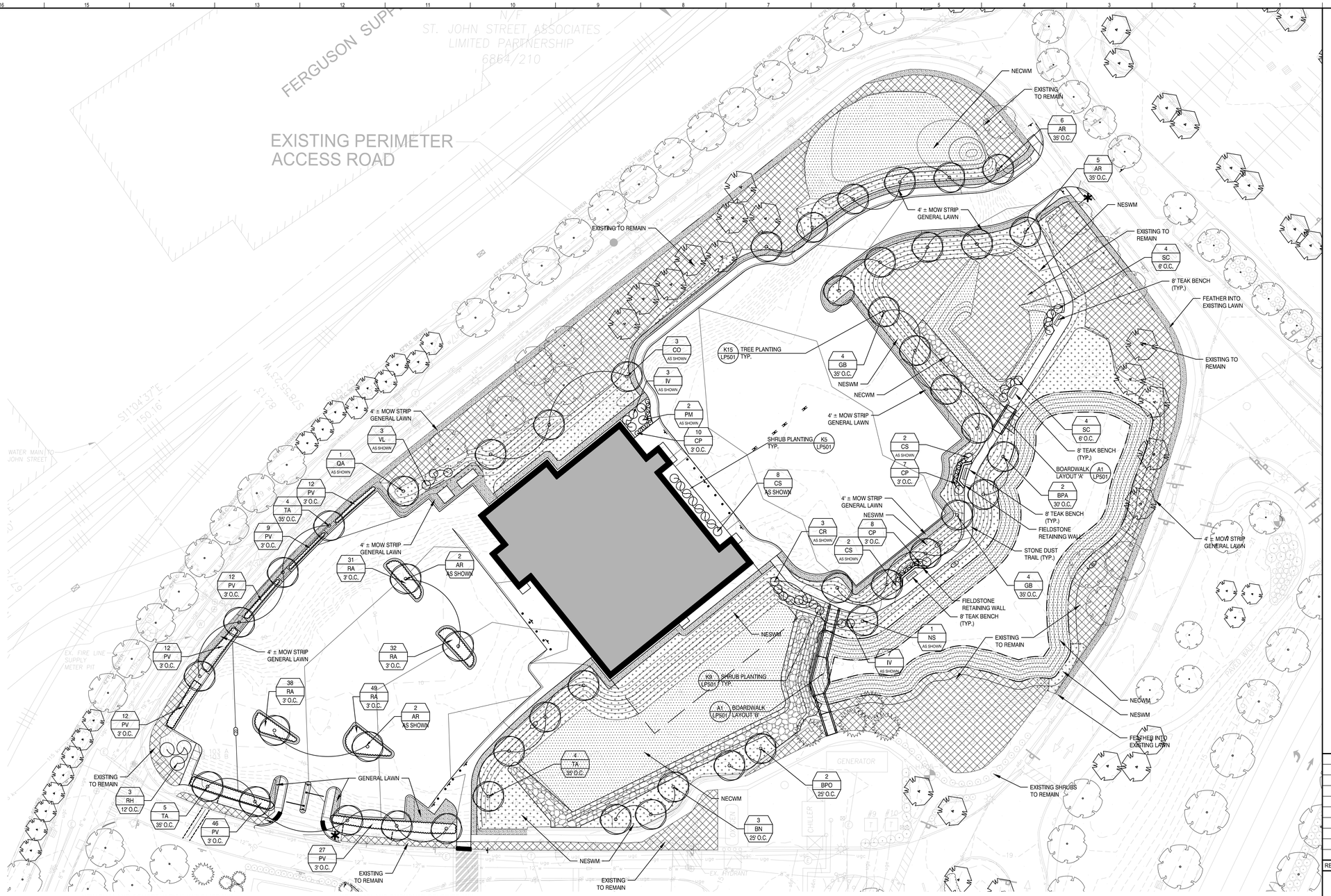
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SCALE: 1" = 30'

PROJECT MANAGER:	KD	PROJECT NO:	19004
A/E OF RECORD:	MGJ		
JOB CAPTAIN:	JCH		
DRAWN BY:	TNL		
SMRT FILE:	LP101-19004	SHEET No.	LP101

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LEGEND

- GENERAL LAWN
- NEW ENGLAND CONSERVATION / WILDLIFE MIX (NECWM)
- NEW ENGLAND SHOWY WILDFLOWER MIX (NESWM)
- EXISTING VEGETATION TO REMAIN

NEW ENGLAND CONSERVATION / WILDLIFE MIX (NECWM) *

SCIENTIFIC NAME / COMMON NAME
Andropogon gerardii / Big Bluestem
Asclepias tuberosa / Butterfly Milkweed
Aster pilosus / Heath Aster
Bidens frondosa / Beggar Ticks
Chamaecrista fasciculata / Partridge Pea
Desmodium canadense / Showy Tick Trefoil
Elymus virginicus / Virginia Wild Rye
Eupatorium purpureum / Purple Joe Pye Weed
Festuca rubra / Red Fescue
Panicum virgatum / Switch Grass
Rudbeckia hirtum / Black Eyed Susan
Schizachyrium scoparium / Little Bluestem
Solodago juncea / Early Goldenrod
Sorghastrum nutans / Indian Grass
APPLICATION RATE: 25 LBS/ACRE

NEW ENGLAND SHOWY WILDFLOWER MIX (NESWM) *

SCIENTIFIC NAME / COMMON NAME
Asclepias syriaca / Common Milkweed
Asclepias tuberosa / Butterfly Milkweed
Aster novae-angliae / New England Aster
Coreopsis lanceolata / Lance Leaved Coreopsis
Chamaecrista fasciculata / Partridge Pea
Elymus canadensis / Canada Wild Rye
Elymus riparius / Riverbank Wild Rye
Eupatorium perfoliatum / Boneset
Eupatorium purpureum / Purple Joe Pye Weed
Festuca rubra / Red Fescue
Heliopsis helianthoides / Ox Eye Sunflower
Liatris spicata / Marsh Blazing Star
Rudbeckia hirtum / Black Eyed Susan
Schizachyrium scoparium / Little Bluestem
Solodago juncea / Early Goldenrod
Sorghastrum nutans / Indian Grass
Veronia noveboracensis / New York Ironweed
APPLICATION RATE: 23 LBS/ACRE

*** NEW ENGLAND WETLAND PLANTS**
www.newp.com
OR APPROVED EQUAL

PLANT LIST

MARK	SCIENTIFIC NAME / COMMON NAME	SIZE CAL	SIZE HT	ROOT	REMARKS
TREES					
AR	Acer rubrum / Red Maple	2" - 3"	10' - 12'	B & B	Full
AS	Acer spicatum / Mountain Maple	2" - 3"	10' - 12'	B & B	Full
BN	Betula nigra / River Birch	2" - 3"	10' - 12'	B & B	Clump form; 3-stem minimum
BPA	Betula papyrifera / Paper Birch	2" - 3"	10' - 12'	B & B	Full
BPO	Betula populifolia / Gray Birch	2" - 3"	10' - 12'	B & B	Full
CO	Celtis occidentalis / Hackberry Tree	2" - 3"	10' - 12'	B & B	Full
NS	Nyssa sylvatica / Black Gum	2" - 3"	10' - 12'	B & B	Full
QR	Quercus alba / White Oak	2" - 3"	10' - 12'	B & B	Full
TA	Tilia americana / Basswood	2" - 3"	10' - 12'	B & B	Full
SHRUBS					
CP	Comptonia peregrina / Sweet Fern	#3	24"-36"	Cont.	
CR	Cornus racemosa / Gray Dogwood	#3	24"-36"	Cont.	
CS	Cornus sericea / Redosier Dogwood	#3	24"-36"	Cont.	
IV	Ilex verticulata / Winter Berry	#3	24"-36"	Cont.	
PM	Photinia melanocarpa / Black Choke Cherry	#3	24"-36"	Cont.	
PV	Panicum virgatum / Switch Grass	#3	24"-36"	Cont.	
RH	Rhus hirta / Staghorn Sumac	#3	24"-36"	Cont.	
RT	Rhus aromatica 'Grow - Low' / Fragrant Sumac	#3	24"-36"	Cont.	
SD	Salix disorder / Pussy Willow	#3	24"-36"	Cont.	
SC	Sambucus canadensus / American Elder	#3	24"-36"	Cont.	
VL	Viburnum lentago / Nannyberry	#3	24"-36"	Cont.	

REV	DESCRIPTION	DATE

ISSUED FOR PERMITTING
1-3-20

CURRENT ISSUE STATUS:

TRUE NORTH:

LICENSED LANDSCAPE ARCHITECT
MARK G. JOHNSON
NO. 1867
STATE OF MAINE
1/3/20

SMRT Architects and Engineers
144 Fore Street/P.O. Box 6181
Portland, Maine 04104
1.877.700.7678
www.smrtinc.com

NORTHERN LIGHT MERCY HOSPITAL
AMBULATORY SURGERY CENTER

PORTLAND, MAINE

POND WALK TRAIL
PLANTING PLAN

SHEET TITLE:

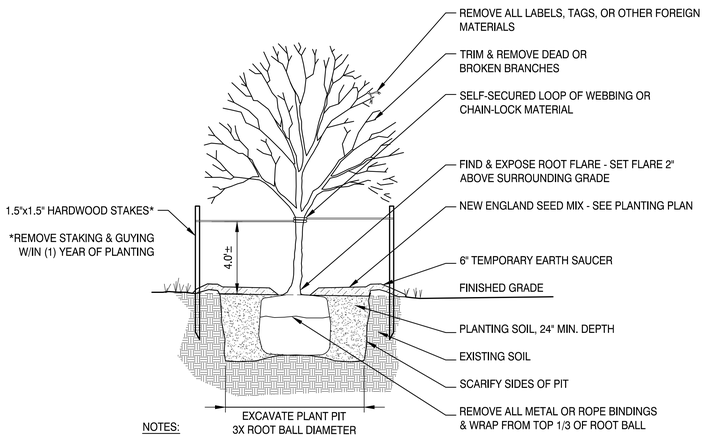
0 7.5' 15' 30' 60' 90'

SCALE: 1" = 30'

PROJECT MANAGER:	KD	PROJECT NO:	19004
A/E OF RECORD:	MGJ		
JOB CAPTAIN:	JCH		
DRAWN BY:	TNL		
SMRT FILE:	LP101-19004	SHEET No.	LP101

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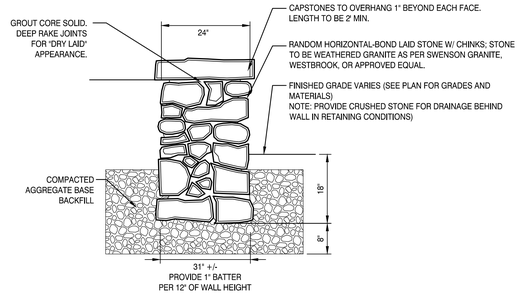
PH 45 SQ. FT.
AG 671 SQ. FT.
ER 395 SQ. FT.
PV 620 SQ. FT.
ER 510 SQ. FT.
PV 627 SQ. FT.
LV 539 SQ. FT.
AG 770 SQ. FT.
PH 63 SQ. FT.
EP 405 SQ. FT.
PV 76 SQ. FT.
AG 655 SQ. FT.
PH 26 SQ. FT.
ER 240 SQ. FT.
PH 54 SQ. FT.
LV 781 SQ. FT.
AC 32 SQ. FT.
PH 30 SQ. FT.
LV 302 SQ. FT.
AG 691 SQ. FT.
PH 60 SQ FT.
PV 1477 SQ FT.
ER 656 SQ FT.
LV 700 SQ FT.
LV 438 SQ FT.
PH 31 SQ. FT.
EP 1414 SQ. FT.
AG 1421 SQ. FT.
PH 31 SQ. FT.
PH 39 SQ. FT.
PV 1464 SQ. FT.
ER 1664 SQ. FT.
EP 125 SQ FT.
AC 46 SQ. FT.
AC 49 SQ. FT.
AG 206 SQ. FT.
PH 91 SQ. FT.
AG 342 SQ. FT.
ELV. 16.25
ELV. 12.66
AC 34 SQ. FT.
SNA 583 SQ. FT.
PH 57 SQ. FT.
ER 348 SQ. FT.
EP 362 SQ. FT.
AC 28 SQ. FT.
ER 123 SQ. FT.
PH 45 SQ. FT.
PV 314 SQ. FT.
EP 1373 SQ FT.
SNA 133 SQ FT.
AG 340 SQ FT.
SNA 110 SQ FT.
AG 368 SQ FT.
ELV. 16.25
PERMANENT POOL LINE
PERMANENT POOL LINE
THRES= 17.51
THRES= 17.54
THRES= 32.01
THRES= 32.06
LOADING DOCK
LOAD DOCK
CONC. RAMP
EX. HYDRANT
EX. LIFT STA.
EX. SMH
CHILLER PIPE
CHILLER
GENERATOR
EX. SAN. MH
4 ST MEP
EX. SAN. MH
EX. CATCH BASIN
EX. SAN. MH
EX. CATCH BASIN
EX. SAN. MH
EX. CATCH BASIN



NOTES:

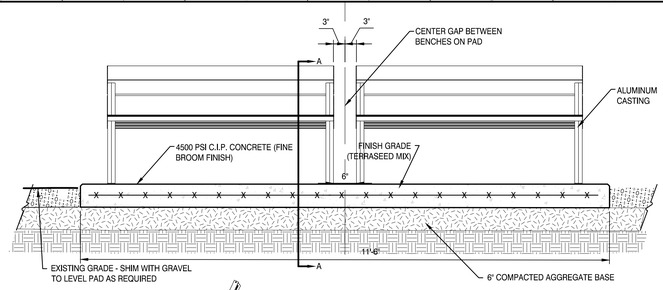
1. TREE TO BE SET PLUMB.
2. SECURE TREE AS MAY BE REQUIRED ACCORDING TO TREE SIZE, LOCATION, & WIND/WEATHER CONDITIONS.
3. IF USING ROOTBALL STABILIZATION, FOLLOW MANUFACTURER'S RECOMMENDATIONS.

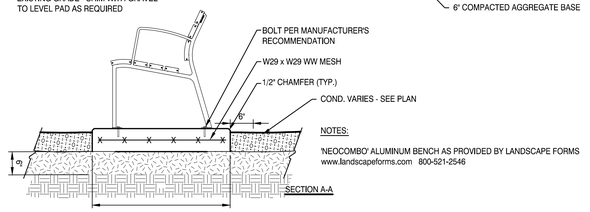
TREE PLANTING K15
N.T.S.



NOTE: MINIMUM OF 1/3 OF STONES SHALL BE THRU STONES.

FIELDSTONE WALL M6
3/4" = 1'

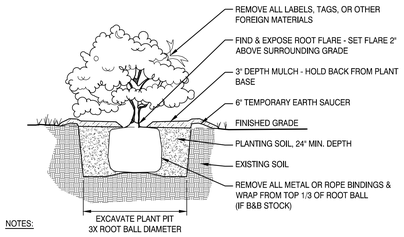




NOTES:

'NEOCOMBO' ALUMINUM BENCH AS PROVIDED BY LANDSCAPE FORMS
www.landscapeforms.com 800-521-2546

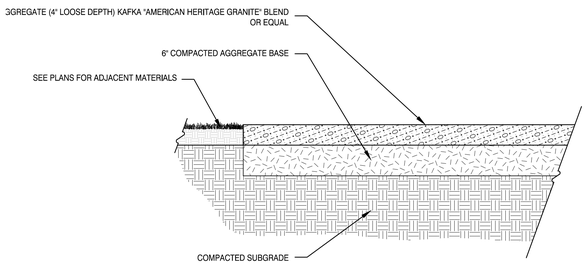
BENCH MOUNTING @ CONCRETE PAD K1
3/4" = 1'



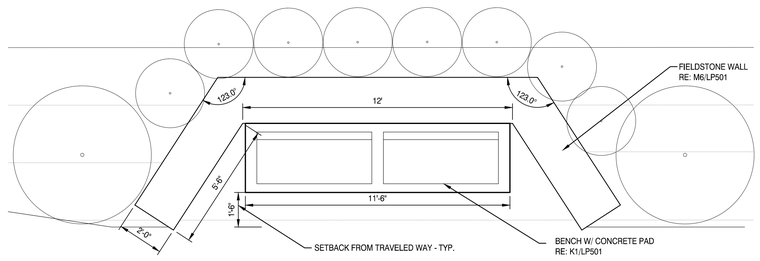
NOTES:

1. SHRUB TO BE SET PLUMB.

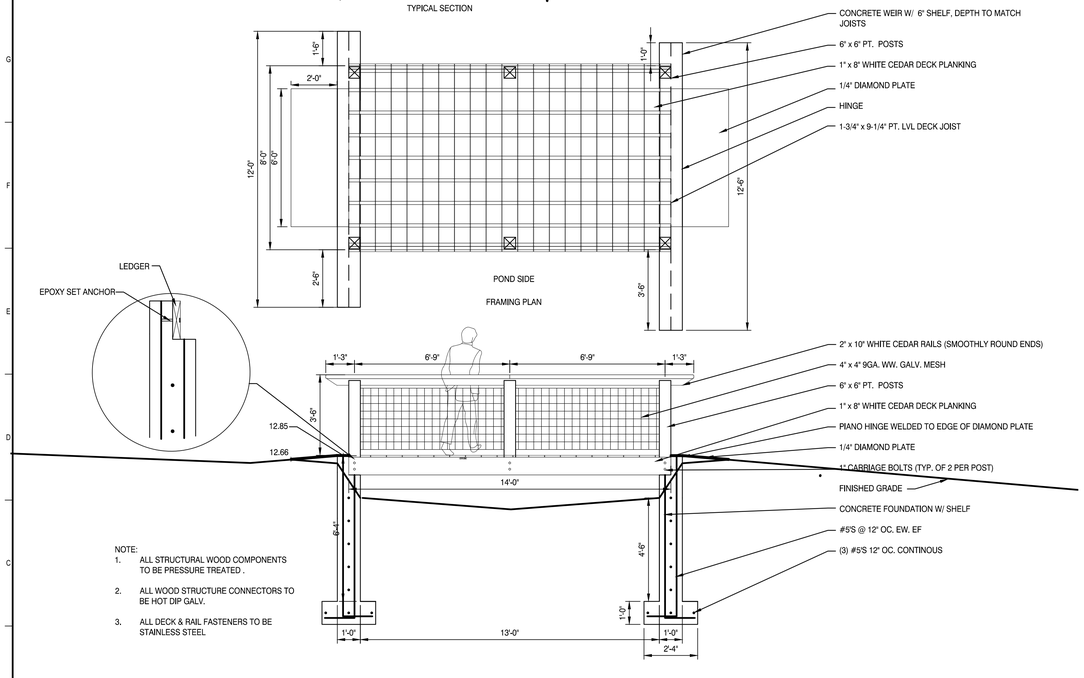
SHRUB PLANTING J6
N.T.S.



STONE DUST WALK H1
N.T.S.



BENCH & WALL LAYOUT D1
3/8" = 1'



NOTE:

1. ALL STRUCTURAL WOOD COMPONENTS TO BE PRESSURE TREATED .
2. ALL WOOD STRUCTURE CONNECTORS TO BE HOT DIP GALV.
3. ALL DECK & RAIL FASTENERS TO BE STAINLESS STEEL

BOARDWALK LAYOUT A1
3/8" = 1'

REV	DESCRIPTION	DATE
02	ADDENDUM #2	1-30-20
01	RE-ISSUED FOR PERMITTING	1-28-20
00	ISSUED FOR PERMITTING	1-3-20

ADDENDUM #2
1-30-20
CURRENT ISSUE STATUS:

LICENSED LANDSCAPE ARCHITECT
MARK G. JOHNSON
NO. 1857
STATE OF MAINE
1/30/2020

SMRT
Architecture • Engineering • Planning
SMRT Architects and Engineers
144 Fore Street/P.O. Box 618
Portland, Maine 04104
1.877.700.7678
www.smrtinc.com

NORTHERN LIGHT MERCY HOSPITAL
AMBULATORY SURGERY CENTER

PORTLAND, MAINE

POND WALK TRAIL
PLANTING DETAILS

SHEET TITLE:

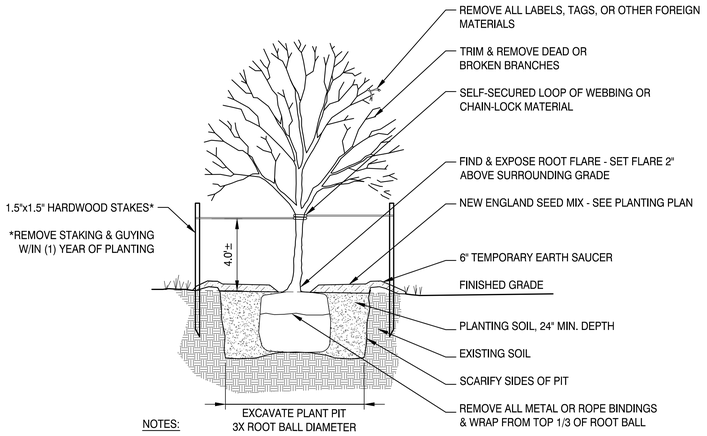
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SCALE: AS SHOWN

PROJECT MANAGER:	KD	PROJECT NO:	19004
A/E OF RECORD:	MGJ		
JOB CAPTAIN:	JCH		
DRAWN BY:	TNL		
SMRT FILE:	LP501-19004	SHEET No.	LP501

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NOT FOR CONSTRUCTION

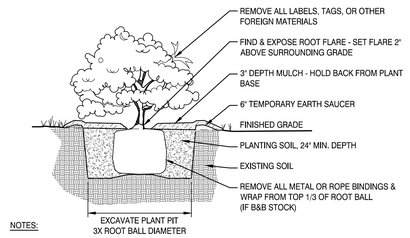
30x42



NOTES:

1. TREE TO BE SET PLUMB.
2. SECURE TREE AS MAY BE REQUIRED ACCORDING TO TREE SIZE, LOCATION, & WIND/WEATHER CONDITIONS.
3. IF USING ROOTBALL STABILIZATION, FOLLOW MANUFACTURER'S RECOMMENDATIONS.

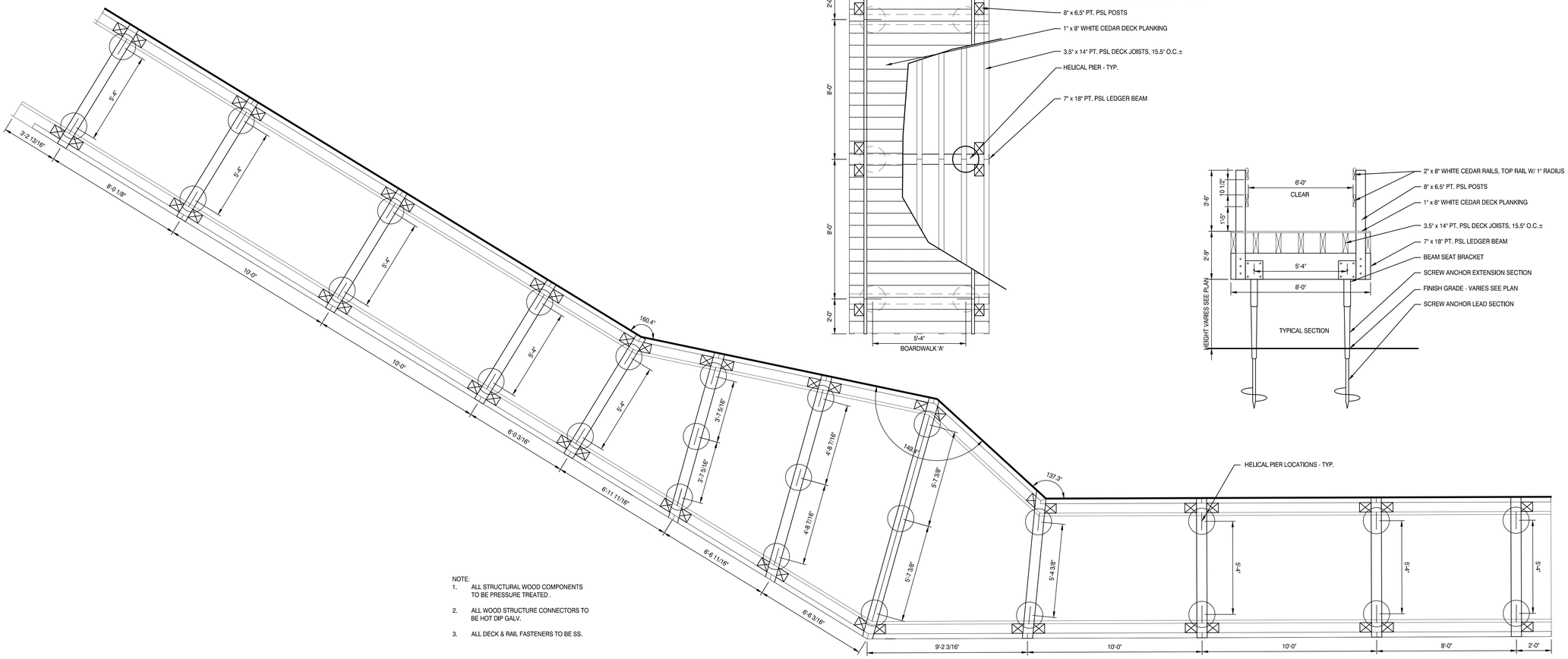
TREE PLANTING K15
N.T.S.



NOTES:

1. SHRUB TO BE SET PLUMB.

SHRUB PLANTING K5
N.T.S.



NOTE:

1. ALL STRUCTURAL WOOD COMPONENTS TO BE PRESSURE TREATED .
2. ALL WOOD STRUCTURE CONNECTORS TO BE HOT DIP GALV.
3. ALL DECK & RAIL FASTENERS TO BE SS.

BOARDWALK LAYOUT A1
3/8" = 1'

REV	DESCRIPTION	DATE

ISSUED FOR PERMITING
1-3-20
CURRENT ISSUE STATUS:

TRUE NORTH:

LICENSED LANDSCAPE ARCHITECT
MARK G. JOHNSON
NO. 1857
STATE OF MAINE
1/3/20

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144 Fore Street/P.O. Box 618
Portland, Maine 04104
1.877.700.7678
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NORTHERN LIGHT MERCY HOSPITAL
AMBULATORY SURGERY CENTER

PORTLAND, MAINE

POND WALK TRAIL
PLANTING DETAILS

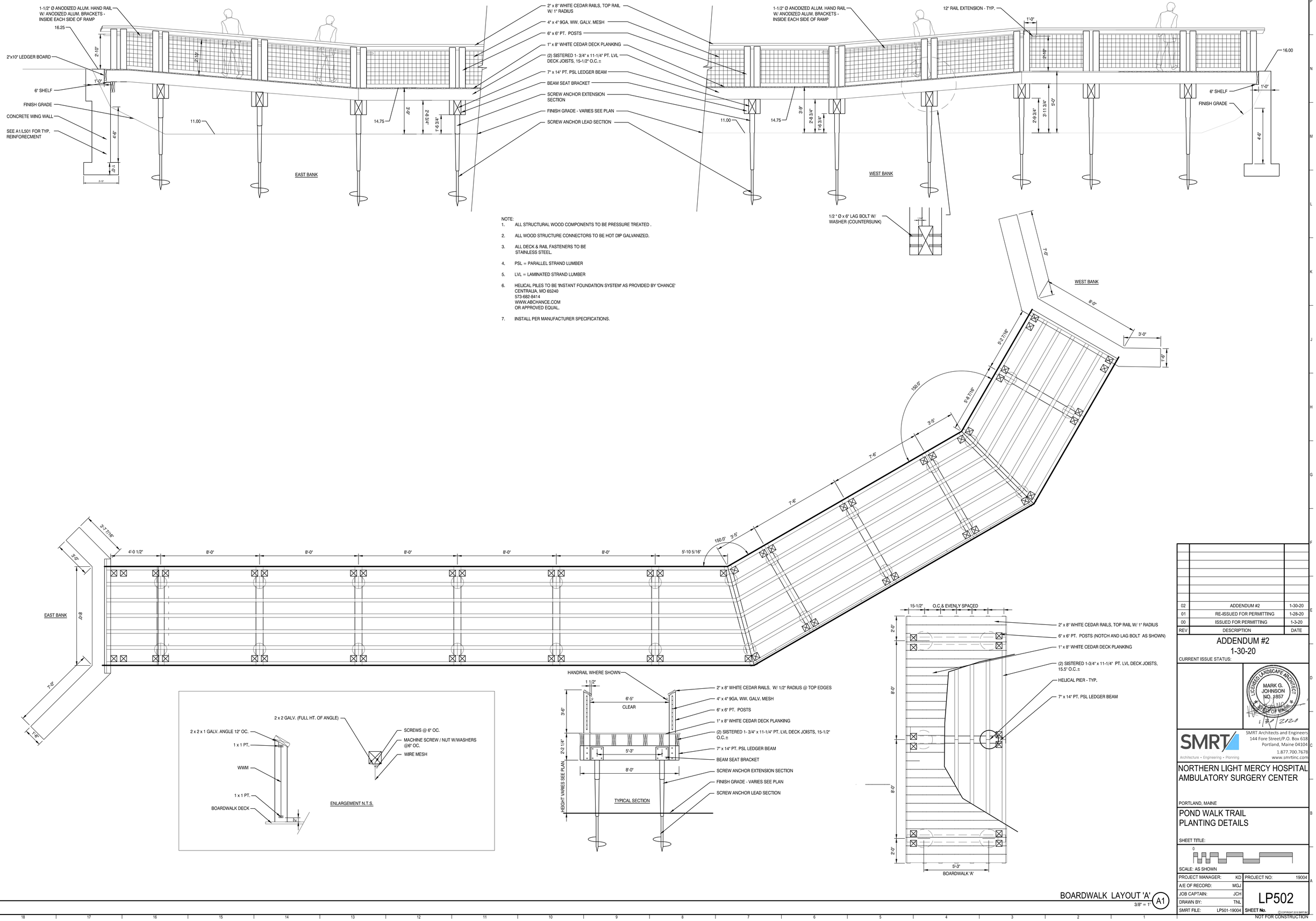
SHEET TITLE:

SCALE: AS SHOWN

PROJECT MANAGER:	KD	PROJECT NO:	19004
A/E OF RECORD:	MGJ		
JOB CAPTAIN:	JCH		
DRAWN BY:	TNL		
SMRT FILE:	LP501-19004	SHEET No.	LP501

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NOTE:

1. ALL STRUCTURAL WOOD COMPONENTS TO BE PRESSURE TREATED .
2. ALL WOOD STRUCTURE CONNECTORS TO BE HOT DIP GALVANIZED.
3. ALL DECK & RAIL FASTENERS TO BE STAINLESS STEEL.
4. PSL = PARALLEL STRAND LUMBER
5. LVL = LAMINATED STRAND LUMBER
6. HELICAL PILES TO BE 'INSTANT FOUNDATION SYSTEM' AS PROVIDED BY 'CHANCE'
   CENTRALIA, MO 65240
   573-682-8414
   WWW.ABCHANCE.COM
   OR APPROVED EQUAL.
7. INSTALL PER MANUFACTURER SPECIFICATIONS.

BOARDWALK LAYOUT 'A' (A1)
3/8" = 1'

REV	DESCRIPTION	DATE
02	ADDENDUM #2	1-30-20
01	RE-ISSUED FOR PERMITTING	1-28-20
00	ISSUED FOR PERMITTING	1-3-20

ADDENDUM #2
1-30-20

CURRENT ISSUE STATUS:

LICENSED LANDSCAPE ARCHITECT
MARK G. JOHNSON
NO. 1857
STATE OF MAINE
1/30/2020

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AMBULATORY SURGERY CENTER

PORTLAND, MAINE

POND WALK TRAIL
PLANTING DETAILS

SHEET TITLE:

SCALE: AS SHOWN

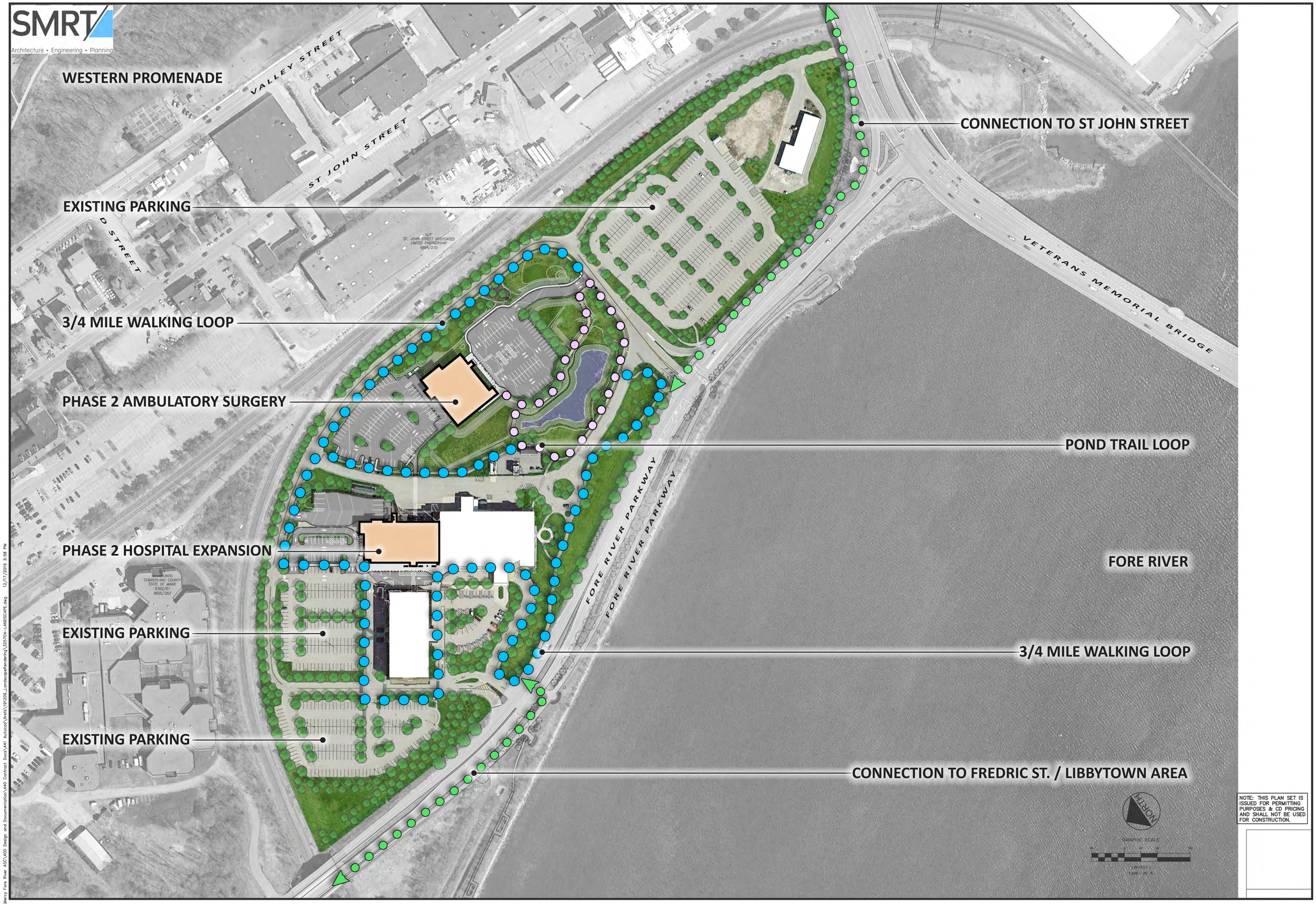
PROJECT MANAGER:	KD	PROJECT NO:	19004
A/E OF RECORD:	MGJ		
JOB CAPTAIN:	JCH		
DRAWN BY:	TNL		
SMRT FILE:	LP501-19004	SHEET No.	LP502

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Rev.	Date	Revision
1	11.04.19	PREPARED FOR L.O.R. #1 & SUBMITTED TO CITY

Issued For	Date	By
CONSTRUCTION DOCUMENTS FOR PRICING ONLY	11.22.19	SRB
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: ---	Draft: ---	Date: AUG. 2019
Checked: ---	Scale: AS NOTED	Job No.: 3257.04
File Name: 325704-LANDSCAPE.dwg		

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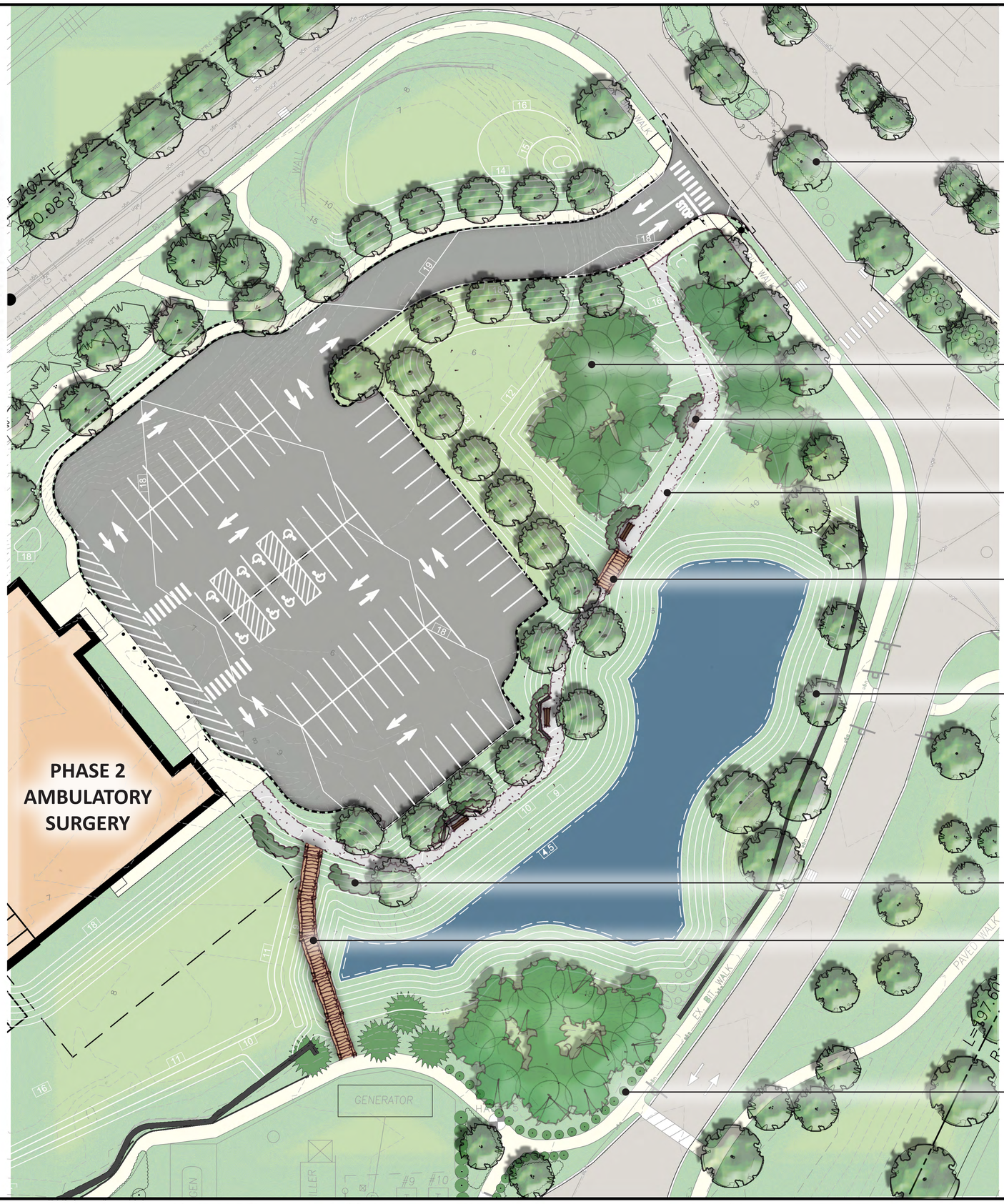
Drawing Name: **OVERALL SITE PLAN**
Project: Fore River Campus Consolidation
Portland, Maine
Client: Northern Light Mercy Hospital
144 State Street, Portland, Maine 04101

Drawing No.

N:\2019 Projects\19004_Mercy Fore River ASC\400 Design and Documentation\440 Contract Docs\441 Autocad\Xrefs\191209_LandscapeRendering\325704-LANDSCAPE.dwg 12/17/2019 3:08 PM

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NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING ONLY

N:\2019 Projects\19004_Mercy Fore River ASC\400 Design and Documentation\440 Contract Docs\441 Autocad\Xrefs\191209_Landscape&Rendering\121819-DWGS\325704-GRADING WITH TRAIL.dwg 12/19/2019 12:48 PM

Rev.	Date	Revision
1	11.04.19	PREPARED FOR L.O.R. #1 & SUBMITTED TO CITY

Issued For	Date	By
CONSTRUCTION DOCUMENTS FOR PRICING ONLY	11.22.19	SRB
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: ---	Draft: ---	Date: AUG. 2019
Checked: ---	Scale: AS NOTED	Job No.: 3257.04
File Name: 325704-GRADING WITH TRAIL.dwg		

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207.772.2515

Drawing Name: **POND TRAIL CONCEPT PLAN**

Project: **Fore River Campus Consolidation**
Portland, Maine

Client: **Northern Light Mercy Hospital**
144 State Street, Portland, Maine 04101

Drawing No.

PAN AM RAILWAY

N/F
ST. JOHN STREET ASSOCIATES
LIMITED PARTNERSHIP
6864/210

EXISTING PERIMETER
ACCESS ROAD

S16°57'07"E
290.08'

NEW MMC SURFACE
PARKING LOT

PARCEL A TRACT TWO
UTILITY AREA
23723/214 & 5738/60
22764/166 & 17783/296

S09°29'00"E
197.09'

S17°04'47"E
150.16'

S19°55'25"E
41.28'

EX. WATER MAIN TO
ST. JOHN STREET

S17°00'00"E
186.50'

42" SEWER 29175/262

R=4749'
3°45'05"ΔIN

N/F
UNION STATION
LIMITED PARTNERSHIP
10144/23

PARCEL A TRACT THREE
LICENSE AGREEMENT
17783/322
LICENSE AGREEMENT
14203/252

L=384.91'

COUNTY WAY

R=988.37'
66.00' R/W
N49°17'54"E

L=1102.20'

R=922.37'
L=522.60'

N/F
INHABITANTS
CUMBERLAND COUNTY
STATE OF MAINE
9382/61
9820/263

CUMBERLAND
COUNTY JAIL

GAS FACILITIES
EASEMENT
25696/212

UNDERGROUND UTILITY
LINE EASEMENT MAIN LINE

PORTLAND WATER DISTRICT
WATER LINE EASEMENT
25624/210

RECREATIONAL TRAIL EASEMENT
25855/253
26346/137

(SEE NOTE 7)
EDGE OF POND

EDGE OF POND
POND EASEMENT AREA
25591/149

THIS AREA INCLUDED IS
VOLUME CALCULATION
(SEE NOTE 7)

REDEVELOPMENT BOUNDARY

UNDERGROUND UTILITY
LINE EASEMENT SOUR
25971/306

GENERATOR

OXYGEN

CHILLER

PIPELINE PER
19154/555

LOAD DOCK

CONC.
RAMP

EX. SMOKE
PIT

EX. GREASE
TANK

EX. LIFT STA.

EX. 4" FM (CONNECTS
TO TERMINUS MANHOLE
AT FRONT OF BLDG.

MERCY HOSPITAL
4 STORY BRICK BUILDING
FOOTPRINT - 37,566 GSF
TOTAL AREA - 138,099 GSF

MEDICAL OFFICE BUILDING
4 STORY BRICK
FOOTPRINT - 20,047 GSF
TOTAL AREA - 82,186 GSF

OVERHANG
BRICK

CONCRETE

EX. RAISED CROSSWALK

EX. CONC.

TRANS. PAD
W/GENERATOR

PAVED WALK

EX. FIRE LINE
SUPPLY
METER PIT

STORM SEWER OUTLET
22266/52

L=185.42'
R=197.50'
N18°18'41"W
252.78'

N62°48'26"E
13.12'
(S)

L=197.60'
R=1184.38'

N56°45'03"W
472.62'

I-295 CONNECTOR
(FORE RIVER PARKWAY)
19154/555

EX. FORE RIVER
TRAIL - 10' WIDE,
SHARED USE

AREA BETWEEN
HIGH & LOW WATER
OWNED BY MERCY HOSPITAL

HIGH WATER LINE OF FORE RIVER

FORE RIVER

FORE RIVER
MUD FLATS

LEGEND

- OTHER ROADS, MEDIUM USE PARKING
- OTHER ROOFS, BIKEWAYS, GRASS MOWED MORE THAN 2x / YR, WALKWAYS / FOOT TRAFFIC ONLY PAVEMENT
- NON-GRASS LANDSCAPE, STORMWATER TREATMENT / STORAGE

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 inch = 40 ft.

STATE OF MAINE
STEPHEN R.
BUSHEY
08.30.19
LICENSED
PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB | Draft: CDD | Date: AUG. 2019
Checked: SRB | Scale: | Job No.: 3257.04
File Name: 325704–existing.dwg

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207.772.2515

Drawing Name: Current Conditions Landcover Map
Project: Fore River Campus Consolidation
Portland, Maine
Client: Northern Light Mercy Hospital
144 State Street, Portland, Maine 04101

Drawing No. W–1

U:\3257.04_Mercy Hospital_Expansion_DD_Permits\STANTEC\civil\cadd\permit\dwg\325704–existing.dwg 8/30/2019 12:12 PM

ST. JOHN STREET ASSOCIATES
LIMITED PARTNERSHIP
6864/210

EXISTING PERIMETER
ACCESS ROAD

EX. WATER MAIN TO
ST. JOHN STREET

N/F
UNION STATION
LIMITED PARTNERSHIP
10144/23

COUNTY WAY

N/F
INHABITANTS
ERLAND COUNTY
TE OF MAINE
9382/61
9820/263

CUMBERLAND
COUNTY JAIL

MERCY HOSPITAL
4 STORY BRICK BUILDING
FOOTPRINT - 37,566 GSF
TOTAL AREA - 138,099 GSF

MEDICAL OFFICE BUILDING
4 STORY BRICK
FOOTPRINT - 20,047 GSF
TOTAL AREA - 82,186 GSF

GENERATOR

I-295 CONNECTOR
(FORE RIVER PARKWAY)
1915/1735

FORE RIVER
MUD FLATS

FORE RIVER

REDEVELOPMENT BOUNDARY

LEGEND

- ROADS WITH IDLING, HIGH USE PARKING
- OTHER PARKING AND DRIVEWAYS, FLAT ASPHALT ROOFS, IND. ROOFS
- OTHER ROOFS, BIKEWAYS, GRASS MOWED MORE THAN 2x / YR, WALKWAYS / FOOT TRAFFIC ONLY PAVEMENT
- NON-GRASS LANDSCAPE, STORMWATER TREATMENT / STORAGE

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 inch = 40 ft.

STATE OF MAINE
STEPHEN R. BUSHEY
LICENSED
PROFESSIONAL ENGINEER
08.30.19
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB	Draft: CDD	Date: AUG. 2019
Checked: SRB	Scale:	Job No.: 3257.04
File Name: 3257.04-WSHED-POST.dwg		

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207.772.2515

Drawing Name: Post–Development Landcover Map
Project: Fore River Campus Consolidation
Portland, Maine
Client: Northern Light Mercy Hospital
144 State Street, Portland, Maine 04101

Drawing No. W–2

U:\3257.04_Mercy Hospital_Expansion_DD_Permits\STANTEC\civil\cadd\permit\dwg\3257.04-WSHED-POST.dwg 8/30/2019 12:40 PM

WATERSHED LEGEND

- WATERSHED BOUNDARY
- A — B: WATERSHED FLOW PATH
- 999: SUBCATCHMENT
- 999: REACH
- SF: SHEET FLOW
- SCF: SHALLOW CONCENTRATED FLOW
- CF: CHANNEL FLOW
- CC: CIRCULAR CHANNEL
- POI: POINT OF INTEREST
- 999: POND

PAN AM RAILWAY

N/F
ST. JOHN STREET ASSOCIATES
LIMITED PARTNERSHIP
6864/210

EXISTING PERIMETER ACCESS ROAD

OUTLET CONTROL STRUCTURE

EXISTING DOWNSTREAM DEFENDER

FORE RIVER MUD FLATS

STORM DRAIN OUTLET LOCATION

WET POND

FORE RIVER MUD FLATS

N/F
UNION STATION
LIMITED PARTNERSHIP
10144/23

COUNTY WAY

MERCY HOSPITAL
4 STORY BRICK
FOOTPRINT - 37,566 GSF
TOTAL AREA - 138,099 GSF

MEDICAL OFFICE BUILDING
4 STORY BRICK
FOOTPRINT - 20,047 GSF
TOTAL AREA - 82,186 GSF

I-295 CONNECTOR
(FORE RIVER PARKWAY)

FORE RIVER

N/F
INHABITANTS
CUMBERLAND COUNTY
STATE OF MAINE
9382/61
9820/263

CUMBERLAND COUNTY JAIL

WATERSHED BOUNDARY

EXISTING DOWNSTREAM DEFENDER

NOTE:
TIME OF CONCENTRATION AT SUBCATCHMENT 7S IS ASSUMED TO BE 0 MINUTES. TIME OF CONCENTRATION AT ALL OTHER SUBCATCHMENTS IS ASSUMED TO BE 5 MINUTES.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 inch = 40 ft.

STATE OF MAINE
STEPHEN R. BUSHEY
08.30.19
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB | Draft: CDD | Date: AUG. 2019
Checked: SRB | Scale: | Job No.: 3257.04
File Name: 325704–WSHED–POST.dwg

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Drawing Name: Post–Development Watershed Map
Project: Fore River Campus Consolidation, Portland, Maine
Client: Northern Light Mercy Hospital, 144 State Street, Portland, Maine 04101

Drawing No. W–3

U:\3257.04_Mercy Hospital_Expansion_DD_Permits\STANTEC\civil\cadd\permit\dwg\325704–WSHED–POST.dwg 8/30/2019 1:03 PM

STORMWATER QUALITY TREATMENT

	IMPERVIOUS					DEVELOPED				TREATMENT
SUBCATCHMENT	COVER TYPE	AREA (SF)	AMOUNT TREATED	% AREA	% TREATED	AREA (SF)	AMOUNT TREATED	% AREA	% TREATED	
1	PROPOSED/REDEVELOPED PAVE/ROOF	148,617	100%	*	*	187,122	100%	*	*	WET POND
2	EXISTING PAVE/ROOF	85,671	100%	*	*	206,826	100%	*	*	WET POND
3	PAVE	22,756	0%	*	*	23,161	0%	*	*	UNTREATED
TOTAL % TREATMENT					*	TOTAL % TREATMENT			*	

*SEE TREATMENT TABLE BELOW

LEGEND

- AREA UNTREATED
- EXISTING AREA TREATED BY WET POND
- AREA TREATED BY WET POND
- (1) SUBCATCHMENT

Table 4 – Stormwater Treatment

	IMPERVIOUS	DEVELOPED (Impervious + Landscaped)
Redeveloped area treated by the Wet Pond (sf)	47,961	58,788
Total Redeveloped Area (sf)	70,213	81,445
Untreated Redeveloped Area (sf)	22,252	22,657
Percent of Redeveloped area treated	68.3%	72.2%
New Construction treated by the Wet Pond (sf)	100,656	128,334
Total New Construction Area (sf)	101,160	128,838
Untreated New Construction Area (sf)	504	504
Percent of New Construction treated (sf)	99.5%	99.6%
Total Area Treated by Wet Pond Including existing area (sf)	234,288	393,948
Total Area of Redevelopment and New Construction (sf)	168,798	207,708
Percent Treated relative to proposed construction (sf)	139%	190%

REQUIRED TREATMENT:
REDEVELOPED: 60% OF DEVELOPED AREA
NEW CONSTRUCTION: 95% OF IMPERVIOUS AREA
80% OF DEVELOPED AREA

PAN AM RAILWAY

N/F
ST. JOHN STREET ASSOCIATES
LIMITED PARTNERSHIP
6864/210

EXISTING PERIMETER ACCESS ROAD

N/F
UNION STATION
LIMITED PARTNERSHIP
10144/23

COUNTY WAY

N/F
INHABITANTS
CUMBERLAND COUNTY
STATE OF MAINE
9382/61
9820/263

CUMBERLAND COUNTY JAIL

MERCY HOSPITAL
4 STORY W/BASEMENT
FOOTPRINT - 37,566 GSF
TOTAL AREA - 138,099 GSF

MEDICAL OFFICE BUILDING
4 STORY BRICK
FOOTPRINT - 20,047 GSF
TOTAL AREA - 82,186 GSF

EX. FORE RIVER TRAIL - 10' WIDE, SHARED USE

WET POND

FORE RIVER MUD FLATS

I-295 CONNECTOR (FORE RIVER PARKWAY)

FORE RIVER

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE
40 0 20 40 80
(IN FEET)
1 inch = 40 ft.

STATE OF MAINE
STEPHEN R. BUSHEY
08.30.19
LICENSED PROFESSIONAL ENGINEER
STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
–	–	–

Issued For	Date	By
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB	Draft: CDD	Date: AUG. 2019	
Checked: SRB	Scale:	Job No.: 3257.04	
File Name: 325704–WSHED–POST.dwg			

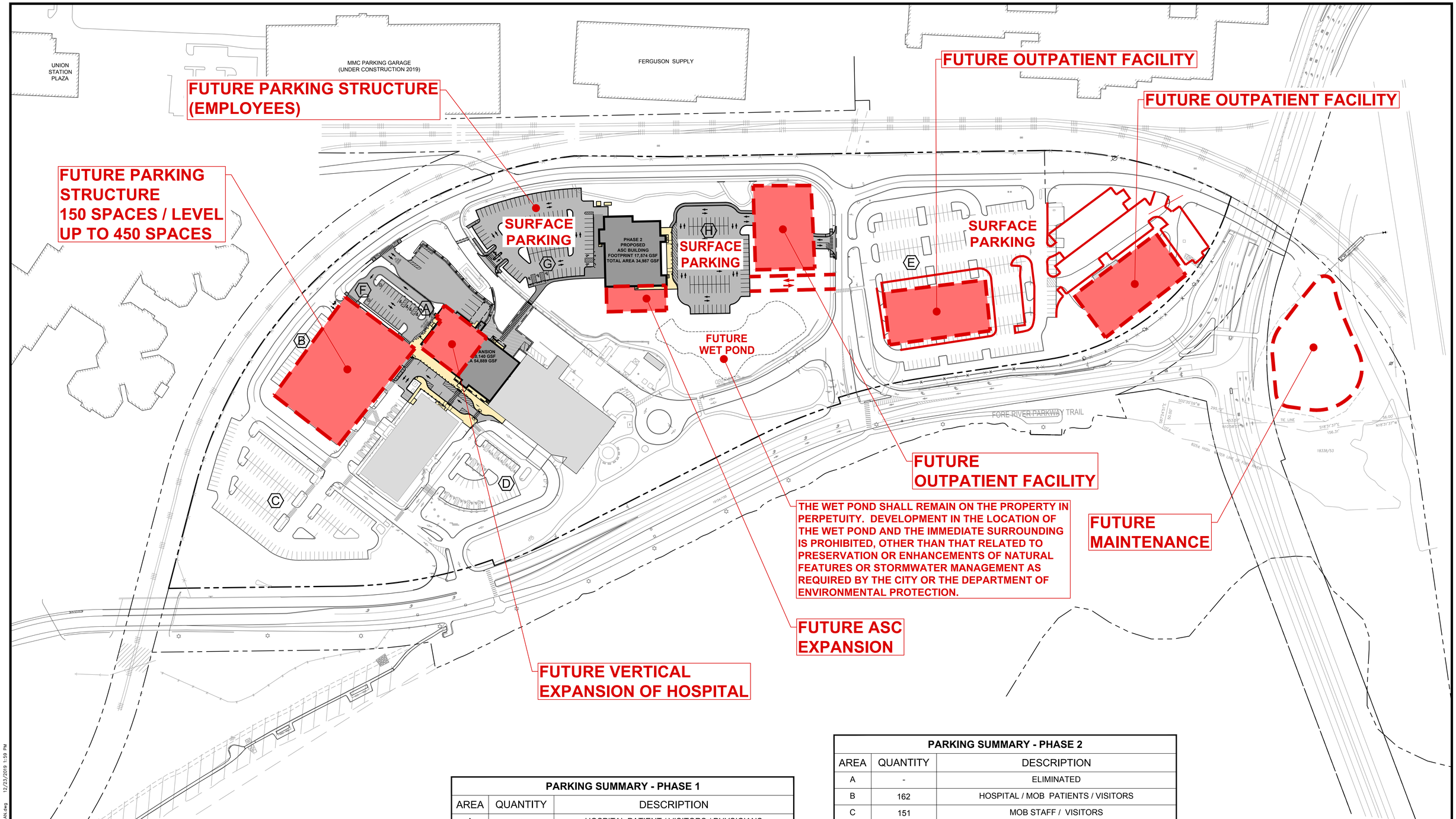
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Drawing Name:	Water Quality Map
Project:	Fore River Campus Consolidation Portland, Maine
Client:	Northern Light Mercy Hospital 144 State Street, Portland, Maine 04101

Drawing No. WQ

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PARKING SUMMARY - PHASE 1

AREA	QUANTITY	DESCRIPTION
A	105	HOSPITAL PATIENT / VISITORS / PHYSICIANS
B	162	MOB PATIENT / VISITORS
C	151	MOB STAFF / VISITORS
D	34	HOSPITAL / MOB PATIENTS
E	310	HOSPITAL STAFF
TOTAL	762	

PARKING SUMMARY - PHASE 2

AREA	QUANTITY	DESCRIPTION
A	-	ELIMINATED
B	162	HOSPITAL / MOB PATIENTS / VISITORS
C	151	MOB STAFF / VISITORS
D	34	HOSPITAL / MOB PATIENTS
E	310	HOSPITAL / MOB / ASC FACILITY STAFF
F	24	HOSPITAL PATIENTS / VISITORS / AMBULANCE
G	103	HOSPITAL / ASC FACILITY STAFF / SERVICE
H	73	ASC FACILITY PATIENTS / VISITORS
TOTAL	857	

NORTH

GRAPHIC SCALE

75 0 37.5 75 150

(IN FEET)

1 inch = 75 ft.

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING AND SHALL NOT BE USED FOR CONSTRUCTION.

STATE OF MAINE STEPHEN R. BUSHEY 11.22.19 REGISTERED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
1	11.04.19	PREPARED FOR L.O.R. #1 & SUBMITTED TO CITY

Issued For	Date	By
CONSTRUCTION DOCUMENTS FOR PRICING ONLY	11.22.19	SRB
PERMIT APPROVAL SUBMISSION	08.30.19	SRB
DESIGN DEVELOPMENT SUBMISSION TO OWNER	07.31.19	SRB

Design: SRB | Draft: CDD | Date: AUG. 2019
Checked: SRB | Scale: NTS | Job No.: 3257.04
File Name: 325704-MASTER PLAN.dwg

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Drawing Name: Master Plan – Phases
Project: Fore River Campus Consolidation, Portland, Maine
Client: Northern Light Mercy Hospital, 144 State Street, Portland, Maine 04101

Drawing No. FIG. 1

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UNION STATION PLAZA

MMC PARKING GARAGE (UNDER CONSTRUCTION 2019)

FERGUSON SUPPLY

EXISTING PERIMETER ACCESS ROAD

PAN AM RAILWAY

TYSON FOODS

COUNTY WAY

CUMBERLAND COUNTY JAIL

BIKE RACK

STAFF PARKING

PHASE 2 PROPOSED ASC BUILDING FOOTPRINT 17,574 GSF TOTAL AREA 34,987 GSF

PATIENT / VISITOR PARKING

PATIENT / VISITOR PARKING

PHASE 2 HOSPITAL EXPANSION FOOTPRINT 20,140 GSF TOTAL AREA 54,889 GSF

PATIENT / VISITOR PARKING

PHASE 1 EXISTING MERCY HOSPITAL 4 STORY BRICK BUILDING FOOTPRINT - 37,566 GSF TOTAL AREA - 138,099 GSF

PHASE 1 EXISTING MEDICAL OFFICE BUILDING 1 STORY BRICK FOOTPRINT - 20,047 GSF TOTAL AREA - 62,186 GSF

STAFF / PATIENT PARKING

BIKE RACK

BIKE RACK

STAFF PARKING

MAINTENANCE FACILITY

EXISTING SNOW STORAGE FACILITY

SOUTH OPEN SPACE

EXISTING PUSH BUTTON FLASHING PEDESTRIAN CROSSING

FUTURE METRO BUS STOP

NATURE PATH

EX. FORE RIVER TRAIL - 10' WIDE, SHARED USE

EXISTING OVERLOOK WITH BENCHES

FORE RIVER MUD FLATS

FORE RIVER

FORE RIVER MUD FLATS

VETERANS MEMORIAL BRIDGE (FORE RIVER) U.S. ROUTE ONE

FUTURE METRO BUS STOP

NORTH OPEN SPACE

FUTURE PEDESTRIAN CONNECTION PENDING METRO

EXISTING OVERLOOKS WITH BENCHES

FUTURE PEDESTRIAN CONNECTION

TYPICAL STAFF / PEDESTRIAN ACCESS ROUTE TO / FROM PARKING TO BUILDINGS

TYPICAL ACCESS ROUTES TO OPEN SPACE

NOTE: THIS PLAN SET IS ISSUED FOR PERMITTING PURPOSES & CD PRICING AND SHALL NOT BE USED FOR CONSTRUCTION.

NORTH

GRAPHIC SCALE

75 0 37.5 75 150

(IN FEET)
1 inch = 75 ft.

STATE OF MAINE
STEPHEN R. BUSHEY
11.22.19
LICENSED PROFESSIONAL ENGINEER

STEPHEN R. BUSHEY, P.E.
LIC. #7429

Rev.	Date	Revision
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Drawing Name: Master Plan – Pedestrian Access Routes
Project: Fore River Campus Consolidation, Portland, Maine
Client: Northern Light Mercy Hospital, 144 State Street, Portland, Maine 04101

Drawing No. FIG. 5

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